THE EFFECTS OF TEAM DIVERSITY ON A TEAM PROCESS AND TEAM

PERFORMANCE IN THE NATIONAL HOCKEY LEAGUE

A Dissertation

by

DAVID SCOTT WALTEMYER

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2006

Major Subject: Kinesiology

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Committee Members,	Michael Sagas
	Paul Batista
	Homer Tolson
Head of Department,	Robert Armstrong

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ABSTRACT

The Effects of Team Diversity on a Team Process and Team Performance in the

National Hockey League. (December 2006)

David Scott Waltemyer, B.S., Towson University; M.S., Texas A&M University

Chair of Advisory Committee: Dr. George B. Cunningham

The purpose of this research was to build upon, and extend, the sport diversity research. Specifically, Study 1 adopted a compositional approach to examine the effects of ethnicity, age, and team tenure on a team process (team assists), and their indirect effects on overall team performance (team points) through that team process. Hierarchical regression analyses, after controlling for team ability, indicated that the block of diversity variables accounted for 6.5% ($p < .05$) of the variance in team assists. Further results indicated that ethnic diversity was significantly, and negatively, related to team assists, while age and team tenure diversity were not related to team assists. In turn, team assists accounted for 22% ($p < .001$) of the variance in team points, above and beyond team ability. Team assists were significantly, and positively, related to overall team performance. Results suggest that team diversity does impact team processes and, indirectly, team performance. Study 2 adopted a relational approach to examine how being similar, or dissimilar, influences the dyadic relationship between the goal scorer and assistor. The MANOVA analyses were significant for ethnicity, Wilks' $\Lambda = .976$ ($p < .001$), age group, Wilks' $\Lambda = .952$ ($p < .001$), and team tenure group, Wilks' $\Lambda = .896$

($p < .001$), indicating that there were differences between those goal scorers receiving assists from the various subgroups within each of these three categories. In general, results support the similarity-attraction paradigm, in that, a player is likely to assist a teammate who is similar to himself more so than he is to assist a player who is different, with regards to these three demographic characteristics. Results have practical implications for coaches and managers, while also contributing to the theoretical body of literature for sport and diversity research.

This research examined National Hockey League teams and players during a three year period (2001-2004). English Canadians made up 42.5% of the players in the league, followed by Europeans (33%), Americans (15.7%), and French Canadians (8.8%). The average age of players in the league was 27.7 years of age, while the average team tenure was 3.7 years.

DEDICATION

This dissertation is dedicated to my parents whose unconditional love and support made all of this possible. Thank you for believing in me, and encouraging me to always pursue my goals and do my very best. God blessed me with the greatest parents in the world, and I thank you for everything that you have done for me. Thank you for all the sacrifices you have made for me and my brothers so that we may follow our dreams. I have learned many life lessons from you, and I will always be grateful. I love you!

This dissertation is also dedicated to my friends and family who have encouraged and supported me throughout the years. Through the fun times, and the frustrating times, you have always been there for me. To the members of the "Doctoral Student Weekly", our scholarly discussions are the foundation for greatness!

"Great moments are born from great opportunity. This is your time. Now go out there and take it!"
- Herb Brooks, Head Coach, 1980 United States Olympic Hockey Team

ACKNOWLEDGMENTS

The past few years at Texas A&M University have been filled with many great friendships and experiences. I am grateful to all the people who have been a part of my development as a scholar, and have helped me complete this dissertation and degree. My utmost gratitude goes to God, whose constant love and care in my life allowed all of this to be possible. "I can do all things through Him, who gives me strength" – Philippians 4:13. Thank you to my parents for all of their love and support. Thanks for always being there for me!

I would like to thank Dr. George B. Cunningham for giving me the opportunity to be one of his first doctoral students, and then for being an advisor, mentor, and friend through it all. Thank you for pushing me to do my best. This would not have been possible without your encouragement and guidance, and for that I will always be thankful.

I would also like to thank Dr. Sagas for the opportunity to pursue my doctoral degree. Thank you for all of your personal support, and for everything that you have done for the Sport Management program here at Texas A&M University. Thanks to Dr. Batista for all of his advice, and for listening to me talk about Alaska. Also, thanks to Dr. Tolson for being such a great educator, and for all his "words of wisdom".

Finally, I would like to thank my fellow doctoral colleagues in the Department of Health and Kinesiology for their friendships and support. We've had many great times together that I will never forget.

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CHAPTER I

INTRODUCTION

> "I don't care if a guy is black with yellow spots all over him and hairy arms
> down to his knees. If he could help me win a Stanley Cup, I'd sign the son of a
> bitch"
> - Harold Ballard, Former Owner, Toronto Maple Leafs

As organizations expand globally, the frequency with which people of different

ethnicities, cultures, attitudes, and values interact will become increasingly greater.

Over the past couple of decades, the breakdown of international barriers, along with

advances in technology, has led to a growth of international recruiting by North

American organizations (both sport and non-sport). With the workplace becoming more

diverse, understanding the impact of group composition on group member experiences,

and on organizational outcomes, becomes more important.

Changing work attitudes and demographics, legal mandates, social pressures,

global expansion, and organizations realizing the possible value of different perspectives

has led to a surge in diversity research over the past couple of decades (Chatman &

Flynn, 2001; Jackson & Ruderman, 1995; Stockdale & Crosby, 2004; Tsui & Gutek,

1999). The most popular demographic diversity variables studied include age, race and

ethnicity, sex, education, experience or functional background, tenure, and personality

(Milliken & Martins, 1996; Williams & O'Reilly, 1998).

This dissertation follows the style of the *Journal of Sport Management*.

Researchers have investigated the relationships between these various demographic diversity variables and group processes and outcomes, such as conflict (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999), commitment (Cunningham & Sagas, 2004b; Tsui, Egan, & O'Reilly, 1992), communication (Zenger & Lawrence, 1989), cooperation (Chatman & Flynn, 2001), satisfaction (Schippers et al., 2003), turnover (Cunningham & Sagas, 2004b; Milliken & Martins, 1996; Wagner, Pfeffer, & O'Reilly, 1984), and performance (Ancona & Caldwell, 1992; Pelled, Eisenhardt, & Xin, 1999; Timmerman, 2000).

Wagner et al. (1984) found that those members who were dissimilar to the team, in terms of age, were more likely to turnover. Zenger and Lawrence (1989) found that those members who were similar to each other in age communicated more frequently. Tsui and O'Reilly (1989) found that differences in tenure between subordinates with a supervisor were related to lower performance ratings and affective behavior (i.e. liking). Pelled et al. (1999), in a study examining diversity and conflict, found that task conflict (i.e. differences in perspective, disagreement on how to approach a task or problem), which can lead to brainstorming and better decision-making, was driven by functional background diversity, while emotional conflict (i.e. interpersonal disagreement or disliking) was driven by race and tenure diversity. In a more recent study, Tsui et al. (2002) found that in dyadic relationships, demographic similarity was associated with extra-role and helping behaviors. Similarly, Riordan (2000) suggested that, in general, an individual's similarity to the group should lead to greater communication, social

integration, identification, satisfaction, and commitment, as well as less conflict, stereotyping, and negative bias.

Diversity-related studies abound in the area of sport (see Acosta & Carpenter, 2002, Cunningham & Sagas, 2004b; Cunningham, Sagas, & Ashley, 2001; Fink, Pastore, & Riemer, 2001; Sagas & Ashley, 2001; Sagas & Cunningham, 2005; Timmerman, 2000); however, the majority of these studies have focused on either race or sex. In a study of intercollegiate football coaching staffs, Cunningham and Sagas (2004b) found that ethnic and tenure diversity were negatively related to commitment, and positively related to turnover. Fink et al. (2001), in a study of intercollegiate athletic departments, found that racial minorities and women felt that efforts toward diversity were less than successful. Furthermore, much of the diversity research in the sport context has focused on intercollegiate athletics while ignoring other sport organizations. As one exception, Timmerman (2000) examined the relationship between diversity and team performance of Major League Baseball and National Basketball Association teams, with results indicating that ethnic diversity negatively influenced performance of basketball teams, but not baseball teams, suggesting that task interdependence may moderate the relationship between diversity and team performance.

Many professional sport leagues now recruit athletes from around the world. There are many opportunities for international athletes to compete in North American sports leagues, such as the National Basketball Association, National Hockey League, Major League Baseball, and intercollegiate athletics in the United States. This means that with the breakdown of international boundaries, the impact of cultural and ethnic

diversity is going to be of growing interest to sport managers and scholars. The first European player ever drafted by a National Hockey League team was Finnish-born Tommi Salmelainen in 1969; however, Europeans did not begin to make a dent in the National Hockey League draft until the 1980's (Diamond, 2005). Since that time though, there have been very few studies which have examined diversity in hockey, and more specifically the National Hockey league. Of those studies, the majority of them have examined the discrimination of French Canadians, specifically access (i.e. drafting of players) and treatment (i.e. salary) discrimination (Jones, Nadeau, & Walsh, 1999; Jones & Walsh, 1988; Lavoie, 2003; Longley, 1995). Jones and colleagues found that skill was the main determinate of salary in the National Hockey League. In contrast, Longley (1995) found that there was salary discrimination of French Canadians, specifically those playing on English Canadian teams. Longley suggested that language and cultural barriers may influence performance, which would in turn influence salary. However, because he found no discrimination of French Canadians on American teams, this may not be the only factor. Longley suggested that the historic tension between Quebec and English Canada may be at the root of the problem.

Longley (2000, 2003) also examined the underrepresentation of French Canadians on National Hockey League teams, and possible reasons for this phenomenon. In his (2000) study, Longley found that French Canadians played significantly fewer games for English Canadian teams as opposed to American teams. Longley (2003) suggested that this discrimination was either based on employer (i.e. front office administrators) preferences or customer (i.e. fans) preferences. In general,

Longley (2003) found that American teams have greater diversity in their front offices and coaching staffs than English Canadian teams (which are primarily composed of English Canadians). He found support for the argument that the discrimination of French Canadians on English Canadian teams is due to customer preferences, which could be a result of the long history of conflict between Quebec and English Canada, rather than employer preference. The results of Longley's studies have shown that fans prefer to watch players who are similar to themselves. Following this reasoning, players on National Hockey League teams may also prefer to interact and play with teammates who are similar to themselves in terms of demographic attributes, experiences, and values. As ice hockey continues to expand internationally, as younger players share the ice with older, more experienced players, and as free agency disrupts team tenure, the impact of ethnic, age, and tenure diversity is going to be of growing interest to sport managers and scholars.

While ethnicity, age, and tenure are three of the most salient demographic characteristics in the National Hockey League, they are also three of the most important in social psychology. Based on self-categorization theory (Tajfel, 1981) and the similarity-attraction paradigm (Byrne, 1971), and the previous research presented, dissimilarity in demographics is thought to negatively influence both individual and team performance.

Although French Canadians have been playing in the National Hockey League since its inception (the league was formed in Montreal, Quebec, in 1917, with 3 of the original 5 teams located in Quebec), they have always been a minority group in the

league (Diamond, 2005). Europeans did not begin to make a splash into the NHL draft until the 1970's and 80's. Since that time though, there have been few studies which have examined diversity in hockey, and more specifically the National Hockey league. Of those studies which have explored hockey, the majority of them have examined the discrimination of French Canadians, specifically access (i.e. drafting of players) and treatment (i.e. salary) discrimination (Jones et al., 1999; Jones & Walsh, 1988; Lavoie, 2003; Longley, 1995). Surprisingly, to date, there has been no reported research examining diversity and its influence on individual and team performance in the sport of hockey.

Purpose of Study 1

The purpose of Study 1 was to extend the extant diversity research in the sport context. This was accomplished in several ways. First, Study 1 broadened the spectrum of diversity variables examined by considering the effects of ethnic, age, and tenure on team performance. Timmerman (2000) found that diversity was negatively related to team performance for basketball teams, but surprisingly, there is no evidence of research examining the effects of diversity on hockey team processes or performance. Second, in seeking to better understand the linkages between diversity and subsequent group performance (Lawrence, 1997), a key intervening variable, team assists, was included. Scholars have suggested that the ambiguous, and many times inconclusive, research results concerning the relationship between diversity and group performance is due to the indirect, rather than direct, effects diversity has on performance (Williams & O'Reilly, 1998). That is, instead of looking at the direct influence of diversity on

performance (since diversity is not a process which directly manufactures an outcome), researchers should focus on the impact diversity has on those group processes which ultimately lead to outcomes. As Williams and O'Reilly (1998) noted, "diverse groups are more likely to be less integrative, have less communication, and more conflict" (p. 115). Many of the aforementioned researchers have explored the effects of diversity on social integration and cohesion (Mullen & Copper, 1994; O'Reilly et al., 1989), communication (O'Reilly et al., 1993), and conflict (Pelled, 1996; Pelled et al., 1999).

Within the sport context; however, the salient intervening processes are likely to differ from those in the workplace. Timmerman (2000) noted that "we know very little about the effects of diversity on tasks that emphasize doing as opposed to thinking" (p. 595). Several authors have argued that the nature of the task should determine the degree to which group members interact and rely on each other (McGrath, 1984; Saavedra, Earley, & Van Dyne, 1993). This reliance upon one another is referred to as "interdependence", and has been studied numerous times with regards to athletic teams (Hanin, 1992; Jones, 1974; Matheson, Mathes, & Murray, 1997, Timmerman, 2000). Hanin (1992) suggested that communication patterns for low-interdependent teams (i.e. baseball) were different than those for high-interdependent teams (i.e. basketball, volleyball). Jones (1974) found a stronger relationship between individual performance and team performance for low-interdependent teams (i.e. baseball) than for high-interdependent teams (i.e. basketball). In a recent study, Timmerman (2000) found that both age and racial diversity were negatively related to team performance for high-interdependent teams (i.e. basketball), but were unrelated to team performance for low-

interdependent teams (i.e. baseball). These findings suggest that diversity had negative effects on the group processes for those teams which had a greater reliance on team members interacting. Hockey is a very interdependent sport, and; therefore, may be more susceptible to the negative effects of diversity.

Finally, Study 1 explored the influence of diversity among National Hockey League teams, thereby expanding diversity research beyond the context of baseball, basketball, and intercollegiate athletics. In drawing from the self-categorization perspective (Turner et al., 1987), it was expected that team performance would be affected indirectly by diversity through the mediating influence of a team process.

Purpose of Study 2

The purpose of Study 2 was to extend the relational diversity research into the sport context, specifically examining teams in the National Hockey League and the dyadic relationship between the goal scorer and the goal assistor. Study 2 examined the influence of being similar, or dissimilar, on the team process of assisting (i.e. passing, cooperation, helping, teamwork). In drawing from the similarity-attraction paradigm (Byrne, 1971), it was expected that team members who are similar to each other (based on ethnicity, age, or tenure) would cooperate better (i.e. assist on goals) than those players who are dissimilar.

This research is divided into two studies. Study 1 adopted a compositional diversity approach, and examined the effects of ethnic, age, and tenure diversity on the team process of assists, the relationship between a team assists and team performance, and the mediating effects of team assists in the relationship between the three diversity

variables and team performance. Study 2 adopted a relational diversity approach, and examined the effects of being demographically (ethnicity, age, and tenure) similar, or dissimilar, on the dyadic relationship between the goal scorer and the goal assistor (i.e. assisting on a goal is a form of teammate cooperation or helping behavior). An expanded review of diversity literature can be found in appendix A.

CHAPTER II

STUDY I

As organizations become more diverse, understanding the impact of group composition on organizational outcomes becomes more important. In regard to group demography, the most popular diversity variables studied include age, race and ethnicity, sex, education, experience or functional background, tenure, and personality (Milliken & Martins, 1996; Williams & O'Reilly, 1998). Recent research has investigated the relationship between these various demographic diversity variables and group processes and outcomes, such as conflict (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999), commitment (Cunningham & Sagas, 2004b), cooperation (Chatman & Flynn, 2001), satisfaction (Schippers et al., 2003), turnover (Cunningham & Sagas, 2004b; Milliken & Martins, 1996), and performance (Ancona & Caldwell, 1992; Pelled et al., 1999; Timmerman, 2000).

There are also numerous diversity-related studies in the area of sport (see Acosta & Carpenter, 2002, Cunningham & Sagas, 2004b; Cunningham, Sagas, & Ashley, 2001; Fink, Pastore, & Riemer, 2001; Sagas & Ashley, 2001; Sagas & Cunningham, 2005; Timmerman, 2000); however, many of these studies have focused on race or sex, and have been performed in the context of intercollegiate athletics. One exception is Timmerman (2000), in which he examined the relationship between diversity and team performance of Major League Baseball and National Basketball Association teams, with

results indicating that diversity negatively influenced performance of basketball teams but not baseball teams.

A few scholars have examined diversity in the National Hockey League; however, the focus of these investigations has been on the discrimination of French Canadians on American and English Canadian teams, and not team processes or performance (see Jones & Walsh, 1988; Lavoie, 2003; Longley, 1995; Longley, 2000; Longley, 2003). The purpose of Study 1 was to extend the extant diversity research in the sport context. This was accomplished in several ways. First, this study broadened the spectrum of diversity variables examined by considering the effects of age, tenure, and ethnicity on team effectiveness. Second, in seeking to better understand the linkages between diversity and subsequent group performance (Lawrence, 1997) a key intervening variable was included: assists. Finally, this study explored the influence of diversity among NHL teams, thereby expanding diversity research beyond the intercollegiate athletics context. In drawing from the self-categorization perspective, it was expected that team performance would be affected indirectly by diversity through the mediating influence of a team process. A theoretical background and specific hypotheses are presented in the following section.

Theoretical Framework

Diversity, Self-categorization, and Group Performance

Diversity scholars have found support for the positives of some forms of group diversity, arguing that diverse groups have access to more information and make better decisions (Ancona & Caldwell, 1992; Gruenfeld et al., 1996; Williams & O'Reilly,

1998). However, many scholars argue from a self-categorization perspective (Tajfel, 1981; Turner et al., 1987), which predicts that diversity might lead to friction within a group, thereby decreasing performance. According to self-categorization, people categorize themselves and compare themselves to others in an effort to simplify the world, make situations more predictable, and to maintain high levels of self-esteem. A major factor in self-categorization is the salience of certain characteristics. In order to make comparisons, individuals classify themselves and others based on the most salient characteristics such as age, sex, and race. Comparisons based on salient, surface-level characteristics may then lead to bias and stereotyping. Tajfel (1981) and Turner et al. (1987) both argue that these biases lead to positive evaluations of similar group members and negative evaluations of dissimilar group members. These negative experiences and evaluations will in turn lead to negative processes (i.e. conflict, lack of cooperation) and outcomes (i.e. decreased commitment, satisfaction, and performance) for groups made up of dissimilar members (Williams & O'Reilly, 1998).

Research has supported the argument that group diversity has negative effects on group outcomes. In general, researchers have suggested that differences in group demography (i.e. diversity) will likely have greater negative, than positive, effects on group processes and performance (Williams & O'Reilly, 1998). This is consistent with self-categorization theory (Moreland, 1985). A number of scholars have suggested that group diversity has negative effects on group cohesion and social integration (O'Reilly, Caldwell, & Barnett, 1989), as well as overall group performance (Williams & O'Reilly, 1998).

Ethnic Diversity

Ethnic diversity is very popular among social science researchers, although it has been most studied from a racial perspective (i.e. difference in skin color), because this is one of the most salient characteristics used in self-categorization (Williams & O'Reilly, 1998). Williams and O'Reilly (1998), in their review of the diversity literature, suggested that research exploring the effects of racio-ethnic diversity on groups and organizations is inconclusive; however, the authors note that, unless properly managed, ethnic diversity may lead to negative effects on group processes and outcomes. In a study of managers, Greenhaus, Parasuraman, and Wormley (1990) found that, in general, black managers reported lower feelings of acceptance into the organization, and less job discretion. Black managers were also found to have lower job performance ratings, and were less satisfied. Soon after, Tsui, Egan, and O'Reilly (1992) suggested that proportions within groups may influence the effects of racial diversity.   In other words, when race (or any other demographic attribute) is proportionally equal across the group, everyone is different (or equal), and there is no "majority" in the group. This is consistent with the suggestion that proportions may influence the effects of demographic diversity.

On the other hand, Pelled et al. (1999) found that racial diversity was associated with higher levels of emotional and interpersonal conflict. This finding supports the suggestions of Pelled (1996), when she suggested that highly visible, low job-related demographic characteristics should lead to an increase in emotional conflict. Other researchers have found the negative effects of group diversity on satisfaction and

commitment (Williams & O'Reilly, 1998). In a study involving college football coaches, Cunningham and Sagas (2004b) found that racial diversity was negatively related to commitment and positively related to turnover intentions.

Williams and O'Reilly (1998) note that, surprisingly, there have been few studies exploring the racial diversity – group performance relationship.

Age Diversity

Age is another salient characteristic studied by researchers, although it is less pronounced than ethnic diversity. This may explain the inconsistent research results. O'Reilly, Snyder, and Booth (1993) found no relationship between age diversity and group innovation. Cunningham and Sagas (2004b) also found no significant effects for age diversity in their study of coaching commitment or turnover intentions. Although the effects of age diversity may not be as strong as other demographic characteristics (i.e. sex, race, tenure) there is evidence that it may negatively influence group processes (Williams & O'Reilly, 1998).

Tenure Diversity

There is also evidence that less salient characteristics (i.e. tenure) may also have negative effects on group outcomes. In a study of top management teams, O'Reilly, Snyder, and Booth (1993) found that teams with less tenure diversity communicated more openly, and teams with greater tenure diversity had higher levels of conflict. Pelled et al. (1999) found that tenure diversity and emotional conflict were positively related. Similarly to their findings involving racial diversity, Cunningham and Sagas (2004b) found a negative relationship between tenure diversity and commitment, and a

positive relationship between tenure diversity and turnover intentions. In general, research has suggested that tenure diversity is associated with lower levels of social integration, poorer communication, greater conflict and higher turnover (Williams & O'Reilly, 1998).

Group Processes as a Mediator

Scholars have suggested that the ambiguous, and many times inconclusive, research results concerning the relationship between diversity and group performance is due to the indirect, rather than direct, effects diversity has on performance (Lawrence, 1997; Williams & O'Reilly, 1998). That is, instead of looking at the direct influence of diversity on performance (since diversity is not a process which directly manufactures group outcomes), researchers should focus on the impact diversity has on those group processes which ultimately lead to outcomes. As Williams and O'Reilly (1998) noted, "diverse groups are more likely to be less integrative, have less communication, and more conflict" (p. 115). Many of the aforementioned researchers have explored the effects of diversity on social integration/cohesion (Mullen & Copper, 1994; O'Reilly et al., 1989), communication (O'Reilly et al., 1993), and conflict (Pelled, 1996; Pelled et al., 1999).

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Earley, & Van Dyne, 1993). This reliance upon one another is referred to as

"interdependence", and has been studied numerous times with regards to athletic teams

(Hanin, 1992; Jones, 1974; Matheson, Mathes, & Murray, 1997, Timmerman, 2000).

Low-interdependent teams tend to rely on the sum of individual performances (i.e. track

& field teams, golf teams, tennis teams), whereas high-interdependent teams tend to rely

on the interactions of team members during competition (i.e. basketball, hockey,

volleyball). Hanin (1992) suggested that communication patterns for low-

interdependent teams (i.e. baseball) were different than those for high-interdependent

teams (i.e. basketball, volleyball). Jones (1974) found a stronger relationship between

individual performance and team performance for low-interdependent teams (i.e.

baseball) than for high-interdependent teams (i.e. basketball). Matheson et al. (1997)

found that there was no difference between coacting and interacting teams on their levels

of social cohesion. In a recent study, Timmerman (2000) found that both age and racial

diversity were negatively related to team performance for high-interdependent teams

(i.e. basketball), but were unrelated to team performance for low-interdependent teams

(i.e. baseball). These findings suggest that diversity had negative effects on those teams

which had a greater reliance on team members interacting.

As Williams and O'Reilly (1998) and Timmerman (2000) noted, most

researchers exploring the diversity – performance relationship have focused on cognitive

tasks and/or subject performance ratings, and rarely have rarely looked at objective task

performance outcomes (i.e. team winning percentage in athletics). Keidel (1987)

suggested that sports team may offer a useful arena to study organizational phenomena because there is a wealth of available, objective data (i.e. individual and team statistics).

Previous research among workgroups has generally found that diversity is negatively related to desired group processes, such as social integration and cohesion (see Williams & O'Reilly, 1998, for a review). Among hockey teams, team assists are a useful surrogate for such a group process. A player earns an assist when he passes the puck to another player, thereby helping the latter player to score a goal. Teams with high levels of teamwork and positive social relations are also more likely to have better on-ice communication with one another, and cooperative behaviors. However, as diversity is thought to disrupt this unity among group members, the assists on teams with high levels of diversity may diminish. This reasoning led to the following hypotheses:

Hypothesis 1a: Team ethnic diversity will be negatively related to team assists.

Hypothesis 1b: Team age diversity will be negatively related to team assists.

Hypothesis 1c: Team tenure diversity will be negatively related to team assists.

Positive group functioning is thought to improve group performance. For instance, Doherty and Carron (2003) found cohesion was positively associated with group effectiveness. In a similar way, assists are likely to be positively associated with team success. Teams whose members are willing to share the puck among one another may be better able to find a player who is open for a shot. Alternatively, teams with few assists are characterized by more individualistic play. This style of play is detrimental for sports with high player interdependence, such as hockey teams (see Jones, 1974, for similar arguments). Therefore, the following was hypothesized:

Hypothesis 2: Assists will be positively related to team performance.

Thus far, team diversity has been predicted to negatively influence the number of team assists, while the number of assists is thought to positively influence team performance. This pattern suggests that assists may mediate the relationship between team diversity and team performance. This reasoning led to the following hypotheses (see Figure 1):

Hypothesis 3a: Assists will mediate the relationship between team ethnic diversity and team performance.

Hypothesis 3b: Assists will mediate the relationship between team age diversity and team performance.

Hypothesis 3c: Assists will mediate the relationship between team tenure diversity and team performance.
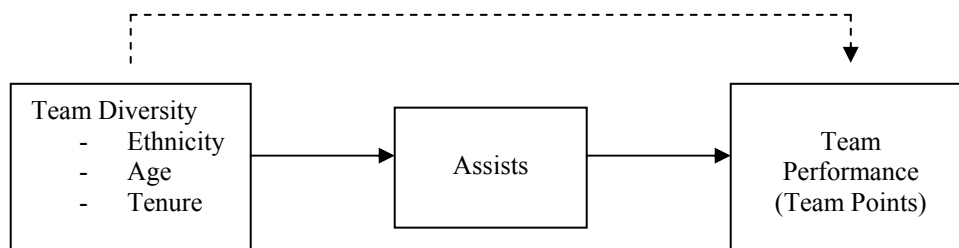
Figure 1   Summary of Study Hypotheses. Dashed line illustrates the possibility of partially mediating effects.

Method

Participants

Participants included professional hockey players who played on National

Hockey League (NHL) teams in the 2001-2002, 2002-2003, and 2003-2004 seasons.

However, players get injured, move between major and minor league teams, or leave a

team during the season for other reasons. Including every player would give equal

weight to all players, but a player who only participates in one game is less likely to

influence the team's overall season performance as much as a player who participates in

a majority of a team's games. Timmerman (2000) used the average number of games

played to determine a cut-off for his baseball and basketball samples. Hockey is much

different than these two sports, in that players are constantly substituting in and out of

the game, so a National Hockey League team will typically use between 16-20 players

during the course of one regular season game. Therefore, although the starters are

usually the best players and strongest individual contributors, the role players will also

have an influence on overall team performance. In order to capture those players, as

well as those who may have been acquired through a trade, those players who played in

at least 10% of a team's season games were used in analyses. That is, team-level

variables were constructed by aggregating individual data from only those players who

participated in a minimum of eight of a team's regular season games (82 regular season

games * .10 = 8.2 games) were included in the analyses.

Teams were defined and analyzed by year. As the National Hockey League has

30 teams and data were collected over three years, the total sample consisted of 90

teams. This follows previous research protocol, in which Timmerman (2000) used

teams in different seasons as separate teams. Although each team has the same city and

mascot each year, the group of team members can be dramatically different each year.

In a recent interview, legendary football coach Bill Parcells discussed player mobility

and team attrition, in which he stated that there is about 30 to 40-percent change on the

roster almost every year (Fagenson-Eland, 2001). To address the issue of independence,

a random sample of 10 of the 30 National Hockey League teams was chosen in an effort

to analyze team turnover each season. Each team had an average of 28.7 players per

season. Of those team members, an average of 11.95 left the team at the end of each

year, while an average of 12 new players were added to the team during the off-season,

for about a 43-percent change on their rosters between each season. This analysis

reveals that, in general, National Hockey League teams have about 40-percent turnover

each season, which to players and coaches represents a new team (Fagenson-Eland,

2001). By this reasoning, 90 different teams were included in the analyses.

Measures

The National Hockey League publishes an annual guide and record book. The

2006 National Hockey League Official Guide and Record Book (Diamond, 2005) and the

National Hockey League online database (NHL Enterprises, L. P., 2005) are the most

recent, and up-to-date archives for National Hockey League statistics; therefore, they

were used to acquire all demographic information (ethnicity, age, and tenure) and

performance statistics (assists and team points).

This study attempted to look at how ethnic diversity, from a nationality perspective, may influence group performance. The majority of National Hockey League players are of Caucasian descent; however, they come from a wide variety of national backgrounds. To measure ethnicity, the research protocol of Longley (1995) was followed, and players were categorized in terms of ethnicity based on the following memberships: Americans, English Canadians, French Canadians, and Europeans. The ethnicity of each player was identified by the author. If born in the United States, players were identified as "American." If born in the French-speaking Canadian province of Quebec, players were identified as "French Canadian." If born in English-speaking Canadian provinces (i.e. all provinces except Quebec) players were identified as "English Canadian." If born in Europe (including Russia and former Soviet republics) players were identified as European. Ethnic diversity was measured at the team level by using Blau's (1977) index, ethnic diversity $= 1 - \Sigma p_i^2$, where p is the proportion of players in any one ethnic group. Values range from zero to one, with higher scores representing greater diversity. By way of example, a team of all Americans would have a diversity score of 0. A team with 4 Americans, 4 English Canadians, 4 French Canadians, and 4 Europeans would have a diversity score of .75. This measure is commonly used to assess group diversity in categorical variables, such as ethnicity (Tsui & Gutek, 1999).

Age was measured at the individual level by using each player's date of birth to determine his age as of the last day of the regular season. Age diversity was measured at

the team level using the coefficient of variation (i.e. standard deviation divided by the mean). This is the most commonly used index for age diversity (Tsui & Gutek, 1999).

Team tenure was measured by looking at each player's career statistics and counting the number of years they had been with each particular team. For example, if a player had been with team A from the 1996-1997 season thru the 2002-2003 season, and was with team B for the 2003-2004 season, that player would have received a tenure score of 6 years for his 2001-2002 statistics and 7 years for his 2002-2003 statistics for team A, and a tenure score of 1 for his 2003-2004 statistics with team B. If that same player was traded from team A to team B in the middle of the 2002-2003 season, and had played enough games to qualify for both teams, then that player would receive a tenure score of 6 years for his 2001-2002 statistics and 7 years for his 2002-2003 statistics for team A, and a tenure score of 1 year for his 2002-2003 statistics with team B. If he remained with team B for the 2003-2004 season, he would receive a tenure score of 2 for his 2003-2004 statistics with team B. Tenure diversity was measured at the team level, again using the coefficient of variation (CV), a commonly used measure to assess tenure diversity (Tsui & Gutek, 1999).

Assists statistics were gathered at the individual level by looking at each player's season statistics for each year of interest. Assists for all players who passed the 10% rule were then used to calculate the mean number of assists for each team for each year. Zero, one, or two assists may be given on any given goal scored during a game. An unassisted goal (i.e. zero assists given on that goal) would represent a strong individual

play without the direct help of teammates, while a goal scored with one or two assists demonstrates cooperation (i.e. passing).

Team points were gathered from the *2006 National Hockey League Official Guide and Record Book* (Diamond, 2005) by looking at the team standings for each year of interest. Team standings include team wins, losses, ties, overtime losses, and points. The summation of team points is the single measurement used in determining whether or not a team makes the play-offs. In the National Hockey League, a team receives two points for a win, 1 point for a tie or overtime loss, and 0 points for a loss. At the end of the season (the National Hockey League season consists of 82 regular season games) each team's points are totaled and play-off teams are determined. For example, if team A has a record of 40-35-5-2, they would have ended the regular season with 87 points. Team B, with a record of 35-20-22-5, would have 97 points. Although team A has more wins, team B would be higher in the league standings because they would have more points.

As team ability may be related to team performance, Timmerman (2000) used a number of control variables in his analysis of Major League Baseball and National Basketball Association teams. In this study of National Hockey League teams, team ability was controlled for by using three team statistical measures which may influence team performance: team shots on goal per game, team shots against per game, and team face-off winning percentage. Team shots on goal per game was used because it is an indication of a team's puck possession and offensive ability. The more shots a team has during a game, the more scoring chances that team will produce, which should lead to

goals scored. Team shots against per game was used because it is an indication of a team's defensive ability. The less shots a team gives up the less chances their opponent will have to score. Finally, team face-off winning percentage was used because by winning the face-offs a team wins possession of the puck. The more time a team has possession of the puck, the better their chances are of getting shots, scoring goals, and ultimately winning the game.

Data Analysis

The hypotheses predicted that the three diversity variables would hold significant associations with assists, and that assists would hold a significant association with team points. A hierarchical regression was performed to test Hypotheses 1a-1c, in order to analyze the relationship between each of the three diversity variables and team assists, while controlling for team ability. Team assists was entered as the dependent variable. The three control variables (i.e. team ability variables) were entered as independent variables in the first block to account for the relationship between team ability and team assists. The diversity variables were entered as independent variables in the second block to test for the relationship between each type of diversity and team assists over and above team ability. Another hierarchical regression was performed to test Hypothesis 2, in order to analyze the relationship between team assists and team points, while controlling for team ability. Team points was entered as the dependent variable. The three control variables (i.e. team ability variables) were entered as independent variables in the first block to account for the relationship between team ability and team assists. Team assists was entered as an independent variable in the second block to test for the

relationship between team assists and team points over and above team ability.

Hypothesis 3, which predicted mediation, was tested using the Sobel (1982) test.

Results

Descriptive statistics and item correlations for all study variables are provided in Table 1. Results indicated that National Hockey League teams had relatively little age diversity, but moderate to high levels of ethnic and team tenure diversity. Additionally, ethnic diversity held a significant, negative bivariate association with team assists.

Hypothesis Testing

Results of the hierarchical regression analyses are presented in Tables 2 and 3.

When team assists served as the dependent variable (see Table 2), the team ability variables accounted for approximately 28.5% (Adjusted $R^2 = .26$, $p < .001$) unique variance. After controlling for these effects, the three diversity variables accounted for an additional 6.5% ($F(3, 83) = 2.72$, $p < .05$) unique variance. Examination of the t values indicated that only ethnic diversity ($t = -2.18$, $p < .05$) held a significant, negative association with assists. Age diversity ($t = .42$, $p = .68$) and team tenure diversity ($t = -.91$, $p = .37$) were not significantly related to assists. These results support Hypothesis 1a, but do not support Hypotheses 1b and 1c. Examination of the squared semipartial correlations indicated that ethnic diversity accounted for 3.6% unique variance ($sr^2 = -.19$).

When team points served as the dependent variable (see Table 3), the team ability variables accounted for approximately 52% (Adjusted $R^2 = .51$, $p < .001$) unique

variance. After controlling for these effects, team assists accounted for an additional 22% ($F(1, 85) = 73.17$, $p < .001$) unique variance. Examination of the t value indicated that assists ($t = 8.55$, $p < .001$) held a significant, positive association with team points. These results support Hypothesis 2.

To test Hypotheses 3a, 3b, and 3c, which predicted that assists would mediate the relationship between the diversity variables and team performance, the Sobel (1982) test was used to calculate a z statistic for each hypothesis. The Sobel (1982) test requires the use of the unstandardized beta (B) and standard error (SE) for the independent and dependent variable for each regression. Therefore, the individual unstandardized betas and standard errors for ethnic diversity ($B = -10.06$, $SE = 4.62$), age diversity($B = 5.09$, $SE = 12.23$), and tenure diversity ($B = -1.18$, $SE = 1.30$) from regression 1, and the unstandardized beta and standard error for assists ($B = 3.30$, $SE = .39$) from regression 2, were used to calculate the three Sobel z statistics.

The z statistic for Hypothesis 3a ($z = -2.11$, $p < .05$) indicates that assists mediate the relationship between ethnic diversity and team points, supporting this hypothesis. The z statistic for Hypothesis 3b ($z = .415$, $p = .677$) indicates that assists does not mediate the relationship between age diversity and team points. Similarly, the z statistic for hypothesis 3c ($z = -.90$, $p = .37$) indicates that assists does not mediate the relationship between team tenure diversity and team points. These results fail to support Hypotheses 3b and 3c.

Table 1   Means, Standard Deviations, and Bivariate Correlations of Study Variables

Variables	1	2	3	4	5	6	7	8
1. Team Points	---							
2. Assists	.78**	---						
3. Shots per Game	.54**	.41**	---					
4. Shots Against per Game	- .68**	- .49**	- .50**	---				
5. Face-off Win %	.23*	.10	.33**	- .28**	---			
6. Ethnic Diversity[a]	- .11	- .28**	- .10	.07	- .05	---		
7. Age Diversity[b]	.12	.03	.20	- .07	.10	.26*	---	
8. Tenure Diversity[b]	.15	- .06	.36**	- .05	.24*	.31**	.19	---
M	86.68	13.54	28.00	27.99	50.00	.64	.15	.80
SD	15.17	2.55	1.81	2.63	2.27	.05	.02	.20

Note. * Correlation is significant at the $p < .05$ level. ** Correlation is significant at the $p < .01$ level.

a. Ethnic Diversity was measured with Blau's (1977) index: $1 - \sum p_i^2$. High scores indicate greater diversity.

b. Age and Tenure Diversity were measured by the coefficient of variation (team SD/team M).
   High scores indicate greater diversity.

Table 2   Results of Hierarchical Regression Analysis Testing the Effects of Ethnic, Age, and Team Tenure Diversity on Team Assists

Variable	B	SE	β
Step 1			
Shots on Goal/Game	.35	.15	.25*
Shots Against/Game	- .38	.10	-.40**
Face-off Win %	- .11	.11	-.10
Step 2			
Shots on Goal/Game	.36	.16	.26*
Shots Against/Game	- .36	.10	-.37**
Face-off Win %	- .10	.11	-.09
Ethnic Diversity	-10.06	4.62	-.22*
Age Diversity	5.09	12.23	.04
Tenure Diversity	- 1.18	1.30	-.10

Note. Overall R^2 = .35 (Overall Adjusted R^2 = .30). Step 1 R^2 = .285 (Adjusted R^2 = .26, $p < .01$). Step 2 ΔR^2 = .064 (Adjusted R^2 = .30, $p < .05$). * $p < .05$. ** $p < .001$

Table 3   Results of Hierarchical Regression Analysis Testing the Effects of Team Assists on
Team Performance (Team Points)

Variable	B	SE	β
Step 1			
Shots on Goal/Game	2.28	.74	.27*
Shots Against/Game	-3.19	.50	-.55**
Face-off Win %	- .12	.53	-.02
Step 2			
Shots on Goal/Game	1.14	.56	.14*
Shots Against/Game	-1.93	.40	-.33**
Face-off Win %	.25	.40	.04
Team Assists	3.30	.39	.55**

Note. Overall R^2 = .74 (Overall Adjusted R^2 = .73). Step 1 R^2 = .52 (Adjusted R^2 = .51,
$p < .01$). Step 2 ΔR^2 = .22 (Adjusted R^2 = .73, $p < .01$). * $p < .05$. ** $p < .001$

Discussion

The purpose of this study was to examine the effects of team diversity on a task process, and ultimate performance, of that team. The first set of hypotheses (1a, 1b, and 1c) predicted that ethnic diversity, age diversity, and team tenure diversity, would be negatively related to team assists, respectively.

Ethnic diversity was found to be negatively related to team assists; however, age diversity and tenure diversity were not related to team assists. The significant effects associated with ethnic diversity are consistent with self-categorization framework (Tajfel, 1981; Turner et al., 1987) and previous research which suggests that ethnically diverse groups tend to be characterized by less commitment, communication, and cooperation by group members, while having greater amounts of intragroup conflict (Cunningham & Sagas, 2004b; Pelled et al. 1999; Tsui & Gutek, 1999; Williams & O'Reilly, 1998). Team members from North American countries may communicate, or cooperate, less with team members from Europe due to language barriers or cultural biases, and vice versa. Longley (2000) discussed the possibility that English-speaking Canadians may discriminate against French-speaking Canadians because of strong historical tension between the two groups of people. This would then affect group processes, such as passing and other on-ice helping behaviors, which, in turn, would ultimately affect team performance.

Interestingly, age and team tenure diversity did not influence team assists. There are several potential explanations for these findings. First, as seen in Table 1, age diversity was relatively low. As team members were all of similar age, effects of age

diversity may not have occurred due to the homogeneity of the team. On the other hand, as seen in Table 1, teams were more heterogeneous with regards to tenure. With the prevalence of free agency and trades in the National Hockey League, team member tenure may be so different that, in many cases, everyone on the team is different based on tenure. Similar to other diversity research, when all groups of a certain characteristic are equally represented, the characteristic in question becomes less salient, and therefore, is not used in the categorization process (see Pelled, 1996; Williams & O'Reilly, 1998).

Hypothesis 2 predicted that assists would be positively related to team points. This hypothesis was supported, such that teams with more assists earned more team points. These findings are consistent with other research among work groups which has demonstrated the positive impact of effective group functioning on subsequent group performance (Doherty & Carron, 2003). Assists are an objective way of measuring the team process of cooperation and helping behavior (i.e. passing), which should lead to greater overall team performance. Hockey is a highly task-interdependent sport, and players rely heavily on each other. Because of this, team member interaction, communication, and cooperation are very important for team performance. Those teams which are characterized by more cooperative behaviors (i.e. passing) would likely perform better than those teams which are characterized by more individualistic play.

The third set of hypotheses (3a, 3b, and 3c) predicted that assists would mediate the relationships between each of the diversity variables and team performance. Only Hypothesis 3a, which predict that assists would mediate the relationship between ethnic diversity and team performance, was supported. It appears that ethnic diversity, through

its negative relationship with assists (i.e. team processes), negatively effects team performance. That is, teams that have higher levels of team ethnic diversity subsequently have lower levels of passing, and team helping behaviors, which ultimately hinders overall team performance. Previous explanations related to the non-significant effects of age and tenure diversity are likely applicable here.

Practical Implications

The results of this study suggest that National Hockey League coaches and managers need to focus more on managing the challenges of ethnic diversity within their teams. Teams with high-levels of ethnic diversity may have players with opposing values and playing styles, which may influence those team processes (i.e. passing and other team helping behaviors) which ultimately influence overall team performance.

Cunningham (2004) offered several strategies for managing diversity in small groups, such as hockey teams, and these recommendations might be applicable in the current context. Cunningham summarized three approaches to developing diversity management strategies: mutual intergroup differentiation, decategorization, and recategorization. Hewstone and Brown (1986) introduced a model for mutual intergroup differentiation, in which group members with specific expertise perform those duties, which creates positive stereotypes about group member abilities. For example, a hockey team is made up of defensemen and forwards. More specifically, players are usually either offensive-minded or defensive-minded. A coach can create positive distinctiveness by forming lines made up of players with the same mindset, allowing them to play to their strengths, or depending on the team, a coach may balance the lines.

Another approach to managing diversity is decategorization. According to Brewer and Miller (1984), decategorization is the process of reducing categorization boundaries through personal interactions between out-group members. Pettigrew (1998) suggests that close personal interactions may help create friendships; therefore reducing negative stereotypes. On the ice, a coach could create lines with a mixture of ethnic backgrounds. This would give members of the team a chance to get to know each other, and each others' tendencies, on the ice, which may increase on-ice cohesion while hopefully reducing out-group stereotypes and biases. A coach could also use off-ice team activities, which would give players a chance to create friendships. The third approach to managing diversity is recategorization. Gaertner and Dovidio (2000) suggest creating a Common Ingroup Identity. This strategy creates a superordinate group which includes all groups into one group. Strategies for creating a common group identity include emphasizing a common group outcome, and incorporating group goals. A common sports cliché that captures the essence of common group identity is the phrase "there is no I in team." This suggests that team members should focus on doing what is best for the team over what is best for the individual player. The coach and team could create team goals, which would take precedence over individual goals.

Limitations and Future Research

This study may be limited in several areas. First, because data were only collected over three seasons, the sample size was relatively small (n = 90). However, the concerns are allayed by the fact that significant results were found in spite of the sample size, thereby pointing to the robustness of the findings. Second, assists are not the only

team process in hockey. Many other team processes, such as ice time, goal scoring, penalties, face-offs, power-play and penalty kill, and verbal communication may affect team performance. Future studies should consider including these variables for a potentially greater understanding of the influence of diversity on team processes and performance.

Based on these findings, there are several avenues for future research. First, future studies should examine the effects of diversity over a longer period of time. Examining the effects of diversity at different time periods throughout the history of the National Hockey League might provide more fine-grained analyses. Early teams were entirely comprised of North American players. This may have amplified the negative biases between English-speaking and French-speaking Canadians. However, the opposite may have occurred due to the familiarity of players because of everyone growing up and playing in a relatively small geographic area, and the fact that free agency was not a factor in team turnover. Teams generally stayed in-tack from season to season, which may have helped team cohesion and unity, enabling players to get past the initial categorization biases based on ethnic differences. With the influx of European players in the past few decades, and the addition of free agency into the league, the effects of diversity may have been different for early teams as compared to more recent teams. Second, the leadership style, motivational strategies (i.e. use of goals, rewards, discipline), and team building activities of coaches and managers may influence team processes and performance. Further research should examine these issues.

In summary, this study provided empirical support for the notion that diversity can have meaningful effects on team performance. In heeding the call from other scholars (Pelled, 1996; Williams & O'Reilly, 1998), this study provided a more fine-grained analysis than past diversity research in the sport context by explicitly considering prominent intervening processes—in this case, team assists (i.e. cooperation). Further, this study broadened the spectrum of diversity research by including ethnic diversity (based on nationality) and by considering the effects of heterogeneity among professional sport teams. The findings indicate that some forms of diversity, such as ethnic differences, do negatively influence group processes, and group outcomes. As such, sport managers should make efforts to effectively mange such differences.

CHAPTER III

STUDY 2

Group composition has been shown to have an influence on group processes and overall group performance (see Cunningham & Sagas, 2004b; Pelled, Eisenhardt, & Xin, 1999; Timmerman, 2000). Pfeffer (1983) suggested that the demographic composition of groups could influence group processes such as communication and cohesion. However, understanding how the composition of the group influences group members' relationships, interactions, and experiences may be the key to understanding the effects of group diversity on group processes and overall group performance. Tsui and O'Reilly (1989) suggested that researchers should view organizations and groups as multiple sets of relationships, and that the demographic composition of the group could influence the individual relationships within the group. In other words, in order to understand how group diversity affects group processes, we must look deeper, and focus on how group members interact and work with each other.

The purpose of this study was to extend the relational diversity research which has been conducted in the context of sport (see Cunningham & Sagas, 2004a, 2004c; Fink, Pastore, & Riemer, 2001) into the realm of hockey, specifically examining teams in the National Hockey League and the dyadic relationship between goal scorers and goal assistors. In drawing from the similarity-attraction paradigm (Byrne, 1971), it was expected that team members would assist on the goals of other team members who are similar (based on ethnicity, age, or tenure) more often than they would assist team

members who are dissimilar. A theoretical background and specific hypotheses are presented in the following section.

Theoretical Framework

Similarity-Attraction

Researchers using the similarity-attraction paradigm (Williams & O'Reilly, 1998) have suggested that diversity negatively affects the group. Many scholars have used the similarity-attraction paradigm to argue that individuals are more attracted to similar others, and that the composition of the group will influence group member relationships and experiences, which will ultimately affect group performance (see Byrne, 1971; Lincoln & Miller, 1979; Pfeffer, 1983; Tsui & O'Reilly, 1989; Wagner, Pfeffer, & O'Reilly, 1984).

According to the similarity-attraction paradigm (Byrne, 1971), similarity in attributes, ranging from surface-level demographic characteristics to deep-level attitudes, interests, and values, will increase interpersonal attraction and liking. Individuals, who are similar in ethnicity, age, tenure, or any other attribute, may share common attitudes and values, thus making interaction easier and more desirable (Williams & O'Reilly, 1998). When given a choice, individuals have a tendency to be attracted to, and interact with, another individual who is similar (Lincoln & Miller, 1979). Similar to self-categorization theory, similarity-attraction scholars argue that similarity creates a positive bias and reinforcement of one's attitudes and beliefs; whereas dissimilarity creates a negative bias, and reinforcement of negative stereotypes. Group members who are dissimilar to others in the group may then have negative experiences. These negative

experiences will, in turn, lead to negative group processes and outcomes, such as increased turnover (O'Reilly, Caldwell, & Barnett, 1989; Wagner et al., 1984), lack of communication (Zenger & Lawrence, 1989), diminished cooperation and extra-role behaviors (Tsui, Porter, & Egan, 2002), and lower performance evaluations (Tsui & O'Reilly, 1989). Tsui and colleagues (1989, 1992) found that similarity in dyadic relationship increased liking, citizenship behaviors, and overall performance evaluations.

The purpose of Study 2 was to explore the influence of ethnic, age, and tenure diversity on the goal scorer-assistor dyadic relationship. Recall that previous research among workgroups has generally found that relational diversity is negatively related to group member experiences (Tsui & O'Reilly, 1989; Wagner et al., 1984; Williams & O'Reilly, 1998; Zenger & Lawrence, 1989). Teams with high levels of teamwork and positive social relations are also more likely to have better on-ice communication, and cooperation with one another, resulting in better passing and puck movement. Hockey is a very interdependent sport, and teammates must rely on cooperation from others in order for the team to be successful. In hockey, unassisted goals are not very common, so assists are a very crucial part of team performance. Similarity-attraction would suggest that those who are similar to each other with regard to ethnicity, age, and team tenure, would be more likely to pass the puck to each other.

To date there have been few relational demography studies examining the effects of ethnic similarity/dissimilarity on group member experiences. However, the studies which have been conducted, in general, have shown that differences in regards to race or ethnicity will have negative effects such as decreased commitment and increased

turnover (see Cunningham & Sagas, 2004c; Tsui, Egan, & O'Reilly, 1992).

Cunningham and Sagas (2004c), in a study of intercollegiate basketball coaches, found that relational diversity influenced individual outcomes. Black coaches on equally proportionate staffs had lower commitment levels than their counterparts who were on staffs with majority black coaches or majority White coaches. On the other hand, White coaches on majority Black coaching staffs had lower commitment levels than their counterparts on either majority White coaching staffs or equally proportionate coaching staffs. Cunningham (2006) found that actual ethnic dissimilarity was positively associated with perceived dissimilarity. Perceived ethnic dissimilarity was then found to be positively associated with perceived deep-level dissimilarity (e.g. attitudes, interests, values). Finally, perceived deep-level dissimilarity was subsequently related to individual outcomes. These findings by Cunningham suggest that those who are different with regards to ethnicity perceive themselves to be different, which negatively affects group processes, and ultimately group performance. Following the similarity-attraction paradigm (Byrne, 1971) and the work of Cunningham (2006), those who are similar to each other in ethnicity will be more attracted to, and feel more comfortable working with, each other. This reasoning led to the following hypothesis:

Hypothesis 1: Team members who are similar in terms of ethnicity will be more

likely to assist on each other's goals.

A number of relational demography studies have examined the effects of age similarity/dissimilarity on group member experiences. In general, age dissimilarity has been shown to lead to decreased commitment, and increased intent to leave the group,

and turnover (O'Reilly et al., 1989; Tsui et al., 1992; Wagner et al., 1984). Zenger and

Lawrence (1989) found that those individuals within a group who were similar in age

tended to communicate more frequently. Riordan and Weatherly (1999) and Tsui et al.

(2002) both found that similarity in age led to greater organizational citizenship

behaviors and helping behaviors. Following the similarity-attraction paradigm, those

who are similar in age will perceive others to have similar life experiences, interests, and

values, which will increase interpersonal liking and helping. This reasoning led to the

second hypothesis:

> *Hypothesis 2:* Team members who are similar in terms of age will be more likely
>
> to assist on each other's goals.

In general, relational demography research concerning the effects of tenure

similarity/dissimilarity on group member experiences has been inconclusive, or resulted

in weak relationships with group member outcomes. However, Tsui and O'Reilly

(1989) found that tenure dissimilarity was related to lower levels of interpersonal liking

and lower performance ratings. Zenger and Lawrence (1989) also found that those

employees who entered an organization at the same time were more familiar with each

other, and therefore communicated more frequently. Individuals who enter an

organization at the same time will often develop a common bond, common language,

and other shared attitudes and values. Within sports teams (in this case ice hockey

teams), team tenure similarity or dissimilarity can have a powerful influence on

interpersonal attraction and cohesion. Many sports teams have "rookie initiation", in

which the team veterans induct new players into the team. These initiation activities can

create a strong bonding experience for that group of rookies. This bond can then influence the on- and off-ice communication, cooperation, and overall interaction of team members. This reasoning led to the third hypothesis:

Hypothesis 3: Team members who are similar in terms of team tenure will be more likely to assist on each other's goals.

Method

Participants

Participants included professional hockey players who played on National Hockey League (NHL) teams in the 2001-2002, 2002-2003, and 2003-2004 seasons. Any player who scored a goal, or had the first assist on a goal, was identified and included in the analysis. There were a total of 2,186 different goal scorers for the 90 different teams over the three year period for which data was collected. There were a total of 19,234 goals scored over this three year period, with 17,972 of those goals being assisted (i.e. 1,262 unassisted goals were scored over this three year period). Therefore, there were 17,972 goal scorer-assistor dyadic relationships (National Hockey League, 2006).

Measures

The National Hockey League publishes an annual guide and record book. The *2006 National Hockey League Official Guide and Record Book* (Diamond, 2005) and the National Hockey League online database (NHL Enterprises, L. P., 2005) are the most recent, and up-to-date archives; therefore, they were used to acquire all demographic information (ethnicity, age, and team tenure) for the goal scorer and goal assistor. Box

scores (NHL Enterprises, L. P., 2005) were used to identify the goal scorer and goal assistor for each goal scored over the 2001-2002, 2002-2003, and 2003-2004 National Hockey League seasons.

The majority of National Hockey League players are of Caucasian descent; however, they come from a wide variety of national backgrounds. To measure ethnicity, the research protocol of Longley (1995) was followed, and players were categorized in terms of ethnicity based on the following memberships: Americans, English Canadians, French Canadians, and Europeans. The ethnicity of each player was identified by the author. If born in the United States, players were identified as "American." If born in the French-speaking Canadian province of Quebec, players were identified as "French Canadian." If born in English-speaking Canadian provinces (i.e. all provinces except Quebec) players were identified as "English Canadian." If born in Europe (including Russia and former Soviet republics) players were identified as European. Each player who scored a goal, or was credited with the primary assist on a goal, was identified and categorized into one of these four ethnic categories.

Age was measured at the individual level by using each player's date of birth to determine his age as of the last day of the regular season. Players were categorized into groups based on similarity of age. The age groups were designated as the following: 18-22 years of age (group 1), 23-27 years of age (group 2), 28-32 years of age (group 3), and 33+ years of age (group 4). Player ages ranged from 18-43, with a mean age of 27.67 years old.   The reasoning behind the division of age groups was an attempt to keep the groups evenly distributed over the range of player ages. This also kept those

individuals who may have similar life and career experiences, and values, in similar age groups.

Tenure was measured by looking at each player's career statistics and counting the number of years they had been with each particular team. For example, if a player had been with team A from the 1996-1997 season thru the 2002-2003 season, and was with team B for the 2003-2004 season, that player would have received a tenure score of 6 years for his 2001-2002 statistics and 7 years for his 2002-2003 statistics for team A, and a tenure score of 1 for his 2003-2004 statistics with team B. If that same player was traded from team A to team B in the middle of the 2002-2003 season, and had played enough games to qualify for both teams, then that player would receive a tenure score of 6 years for his 2001-2002 statistics and 7 years for his 2002-2003 statistics for team A, and a tenure score of 1 year for his 2002-2003 statistics with team B. If he remained with team B for the 2003-2004 season, he would receive a tenure score of 2 for his 2003-2004 statistics with team B. Players were categorized into groups based on similarity of tenure with the team. The tenure groups were designated as the following: 0-1 years (group 1), 2-4 years (group 2), 5-7 years (group 3), and 8+ years (group 4). Player tenure ranged from 1 (i.e. rookie or first year with team) to 21 years, with a mean tenure of 3.74 years. The reasoning behind the division of tenure groups was similar to that of the age groups, in that it was an attempt to keep individuals who may have entered the organization at the same time, in similar tenure groups. Previous research has suggested that this may lead to similar group experiences for those members.

For every individual who scored a goal, the demographic groups (i.e. ethnicity, age, and tenure), for which the goal scorer belonged, were identified and collected. For example, if player A was American, 25 years old, and had been on the same team for 5 years he would be categorized as American (ethnicity), age group 2 (23-27 years of age), and team tenure group 3 (5-7 years of team tenure).

For every goal scorer, the number of primary assists from individuals in each of the demographic groups, were identified. For example, player A scored 10 goals. He did not score any unassisted goals; therefore, the assists for his 10 goals will be spread out between each of the four groups in each of the 3 demographic categories. For assists by ethnicity, player A had 2 assists from Americans, 5 assists from English Canadians, 1 assist from a French Canadian, and 2 assists from Europeans. For assists by age group, player A had 3 assists from teammates in age group 1, 4 assists from teammates in age group 2, 2 assists from teammates in age group 3, and 1 assist from a player in age group 4. For assists by tenure group, player A had 2 assists from players in tenure group 1, 5 assists from players in tenure group 2, 2 assists from players in tenure group 3, and 1 assist from a player in tenure group 4. As can be observed, within each demographic category, the number of assists from each of the subgroups equals 10 because player A did not have any unassisted goals.

Data Analysis

Position and relational diversity were used in preliminary analyses, as they are thought to influence both goal scoring and how team members interact on the ice. Position was used because the majority of goals are scored by forwards, who are many

times assisted by other forwards. Relational diversity was used because depending on how similar, or dissimilar a player is to the rest of his team could influence his level of involvement on the team. For example, if there is only 1 French Canadian on a team, as opposed to 15 English Canadians, there are going to be many more opportunities for the English Canadians to pass to each other and assist on each others' goals; whereas the French Canadian cannot pass to himself. However, these preliminary analyses found that neither position nor relational diversity score influenced the relationship outcomes, and therefore were not included in the final analyses (see Appendices B-1 and B-2).

The final analyses consisted of three separate multivariate analysis of variance (MANOVAs) which were used to test the differences between the demographic characteristics of the goal scorer and the demographic characteristics of the assistor. The first MANOVA was executed using ethnicity of the goal scorer as the independent variable, and the number of assists from each of the four ethnic groups (i.e. American, English Canadian, French Canadian, and European) as the dependent variables. The second MANOVA was executed using the age group of the goal scorer as the independent variable, and the number of assists from each of the four age groups as the dependent variables. The final MANOVA was executed using the tenure group of the goal scorer as the independent variable, and the number of assists from each of the four tenure groups as the dependent variables. Position and relational diversity did not have any influence on the hypothesis testing, and were not included in the final MANOVAs.

Tukey's HSD criteria was used for all post-hoc tests (alpha-level = .05) after univariate analysis of variance (ANOVA) F ratios were calculated for each MANOVA.

All MANOVA and ANOVA calculations were performed using the GLM procedure in SPSS 11.5.

Results

Descriptive statistics including frequencies and percentages for each of the three demographic categories, and their subgroups, are reported in Appendix B-3. For each ethnic group, means for age and tenure are reported in Appendix B-4.

Hypothesis Testing

Hypothesis 1 predicted that team members who are similar, with regard to ethnicity, will be more likely to assist on each other's goals. Results of the ANOVA are summarized in Table 4, which used the number of assists from teammates from each of the four ethnic categories as the dependent variables, and the ethnicity of the goal scorer as the independent variable. The MANOVA procedure, using Wilks' Lambda criterion, was significant for ethnicity, Wilks' $\Lambda = .976$, $F(12, 5765) = 4.45$, $p < .001$, showing support for this hypothesis.

The test of between-subjects effects revealed significant differences between those goal scorers receiving assists from French Canadians, $F(3, 2182) = 7.44$, $p < .001$, and those receiving assists from Europeans, $F(3, 2182) = 9.835$, $p < .001$. There were no significant differences between assists coming from Americans, $F(3, 2182) = .55$, $p < .645$, or English Canadians, $F(3, 2182) = 1.01$, $p < .385$.

Table 4   Results of the Univariate Analysis of Variance for Assists from Americans, Assists from English Canadians, Assists from French Canadians, and Assists from Europeans by the Ethnicity of the Goal Scorer – Between-Subjects Effects

Source	df	F	p	Partial Eta-Squared
Assists from Americans	3	.55	.645	.001
Assists from English Canadians	3	1.01	.385	.001
Assists from French Canadians	3	7.44	.000	.010
Assists from Europeans	3	9.84	.000	.013
Error	2182			

Using Tukey's HSD post-hoc criteria, results revealed that French Canadians assisted other French Canadians ($M = 1.09$, $SD = 2.30$) significantly more than they assisted Europeans ($M = .81$, $SD = 1.85$), Americans ($M = .66$, $SD = 1.42$), and English Canadians ($M = .56$, $SD = 1.25$). The post-hoc test also revealed that Europeans assisted other Europeans ($M = 3.62$, $SD = 4.67$) significantly more than they assisted French Canadians ($M = 2.99$, $SD = 3.90$), Americans ($M = 2.70$, $SD = 3.43$), and English Canadians ($M = 2.60$, $SD = 3.43$) (see Table 5 for a summary). These results find partial support for Hypothesis 1; however, due to the relatively small effect sizes, caution should be taken when interpreting the meaningfulness of the significant F tests for the between-subjects effects.

Hypothesis 2 predicted that team members who are similar, based on age, will be more likely to assist on each other's goals. Results of the ANOVA are summarized in Table 6, which used the number of assists from teammates from each of the four age group categories as the dependent variables, and the age group of the goal scorer as the independent variable. The MANOVA procedure was significant for age group, Wilks' $\Lambda = .952$, $F(12, 5765) = 8.9$, $p < .001$, showing support for this hypothesis. The test of between-subjects effects revealed significant differences between those goal scorers receiving assists from players 33+ years old, $F(3, 2182) = 16.67$, $p < .001$, those receiving assists from players 28-32 years old, $F(3, 2182) = 14.1$, $p < .001$, those receiving assists from players 23-27 years old, $F(3, 2182) = 3.97$, $p < .008$, and those receiving assists players 18-22 years old, $F(3, 2182) = 2.7$, $p < .043$.

Table 5   Means, Standard Deviations, and Post-Hoc Results for the Number of Assists from Each Ethnic Group (Assistor) to Each Corresponding Ethnic Group (Goal Scorer)

Dependent Variable	Goal Scorer Ethnicity	Mean	Standard Deviation
	American	1.43	2.21
Assists from	English Canadian	1.25	2.15
Americans	French Canadian	1.28	2.01
	European	1.32	2.40
	American	3.32	3.66
Assists from	English Canadian	3.12	3.85
English Canadians	French Canadian	2.93	3.51
	European	3.39	4.31
	American	.66^a	1.42
Assists from	English Canadian	.56^a	1.25
French Canadians	French Canadian	1.09^b	2.30
	European	.81^{ab}	1.85
	American	2.70^a	3.43
Assists from	English Canadian	2.60^a	3.43
Europeans	French Canadian	2.99^{ab}	3.90
	European	3.62^b	4.67

Note. Superscripts *a* and *b* represent homogeneous subsets according to Tukey's HSD criteria.

Table 6   Results of the Univariate Analysis of Variance for Assists from Age Group 1, Assists from Age Group 2, Assists from Age Group 3, and Assists from Age Group 4 by the Age Group of the Goal Scorer – Between-Subjects Effects

Source	df	F	p	Partial Eta-Squared
Assists from Age Group 1	3	2.72	.043	.004
Assists from Age Group 2	3	3.97	.008	.005
Assists from Age Group 3	3	14.10	.000	.019
Assists from Age Group 4	3	16.67	.000	.022
Error	2182			

Again using Tukey's HSD post-hoc criteria, results revealed that players who are 33+ years old assisted others who are 33+ years old ($M = 1.73$, $SD = 2.89$) and those who are 28-32 years old ($M = 1.57$, $SD = 2.74$) significantly more than they assisted those who are 23-27 years old ($M = .95$, $SD = 1.96$) and those who are 18-22 years old ($M = .83$, $SD = 1.59$). Players who are 28-32 years old assisted others who are 28-32 years old ($M = 3.45$, $SD = 4.07$) and those who are 33+ years old ($M = 3.38$, $SD = 4.10$) significantly more than they assisted those who are 23-27 years old ($M = 2.64$, $SD = 3.56$) and those who are 18-22 years old ($M = 1.99$, $SD = 3.03$). Players who are 23-27 years old assisted those who are 28-32 years old ($M = 3.40$, $SD = 4.47$), 23-27 years old ($M = 3.31$, $SD = 4.12$), and 18-22 years old ($M = 3.11$, $SD = 3.96$) significantly more than they assisted players who are 33+ years old ($M = 2.47$, $SD = 3.11$). Finally, players who are 18-22 years old assisted those who are 23-27 years old ($M = .98$, $SD = 1.81$) significantly more than they assisted those who are 33+ years old ($M = .69$, $SD = 1.39$) (see Table 7 for a summary). These results find partial support for Hypothesis 2; however, since the effect sizes are relatively small, caution should be taken when interpreting the meaningfulness of the significant F tests for the between-subjects effects.

Table 7   Means, Standard Deviations, and Post-Hoc Results for the Number of Assists from Each
Age Group (Assistor) to Each Corresponding Age Group (Goal Scorer)

Dependent Variable	Goal Scorer Ethnicity	Mean	Standard Deviation
	Age Group 1	.88[ab]	1.48
Assists from	Age Group 2	.98[a]	1.81
Age Group 1	Age Group 3	.82[ab]	1.60
	Age Group 4	.69[b]	1.39
	Age Group 1	3.11[ab]	3.96
Assists from	Age Group 2	3.31[a]	4.12
Age Group 2	Age Group 3	3.40[a]	4.47
	Age Group 4	2.47[b]	3.11
	Age Group 1	1.99[a]	3.03
Assists from	Age Group 2	2.64[b]	3.56
Age Group 3	Age Group 3	3.45[c]	4.07
	Age Group 4	3.38[c]	4.10
	Age Group 1	.83[a]	1.59
Assists from	Age Group 2	.95[a]	1.96
Age Group 4	Age Group 3	1.57[b]	2.74
	Age Group 4	1.73[b]	2.89

Note. Superscripts *a*, *b*, and *c* represent homogeneous subsets according to Tukey's HSD criteria.

Hypothesis 3 predicted that team members who are similar, based on team tenure, will be more likely to assist on each other's goals. Results of the ANOVA are summarized in Table 8, which used the number of assists from teammates from each of the four team tenure categories as the dependent variables, and the team tenure group of the goal scorer as the independent variable.   The MANOVA procedure was significant for team tenure group, Wilks' Λ = .896, $F(12, 5765)$ = 20.35, $p < .001$, showing support for this hypothesis.   The test of between-subjects effects revealed significant differences between those goal scorers receiving assists from those players with 8+ years of team tenure, $F(3, 2182)$ = 40.38, $p < .001$, those receiving assists from those players with 5-7 years of team tenure, $F(3, 2182)$ = 38.43, $p < .001$, those receiving assists from those players with 2-4 years of team tenure, $F(3, 2182)$ = 32.725, $p < .001$, and those receiving assists from players with 0-1 years of team tenure, $F(3, 2182)$ = 11.54, $p < .001$.

Using Tukey's HSD post-hoc criteria, results revealed that players with 8+ years of team tenure assisted others who have 8+ years of team tenure (M = 2.17, SD = 2.89) significantly more than they assisted those with 5-7 years of team tenure (M = 1.74, SD = 3.12), which was significantly more than those with 2-4 years of team tenure (M = .97, SD = 1.97) and those with 0-1 years of team tenure (M = .55, SD = 1.46).

Players with 5-7 years of team tenure assisted those with 8+ years of team tenure ($M = 3.01$, $SD = 5.20$) significantly more than they assisted those with 5-7 years of team tenure ($M = 2.34$, $SD = 3.20$), which was significantly more than those with 2-4 years of team tenure ($M = 1.47$, $SD = 2.90$), which was significantly more than those with 0-1 years of team tenure ($M = .80$, $SD = 1.67$). Players with 2-4 years of team tenure assisted those with 8+ years of team tenure ($M = 5.48$, $SD = 5.57$) and those with 5-7 years of team tenure ($M = 5.05$, $SD = 5.33$) significantly more than they assisted those with 2-4 years of team tenure ($M = 3.99$, $SD = 4.07$), which was significantly more than those with 0-1 years of team tenure ($M = 2.77$, $SD = 3.47$). Players who are brand new to the team, 0-1 years of team tenure, assisted those with 8+ years of team tenure ($M = 2.51$, $SD = 3.15$), 5-7 years of team tenure ($M = 2.40$, $SD = 2.83$), and 2-4 years of team tenure ($M = 2.03$, $SD = 2.82$) significantly more than they assisted those with 0-1 years of team tenure ($M = 1.53$, $SD = 2.18$) (see Table 9 for a summary). These results find partial support for Hypothesis 3; however, since the effect sizes are relatively small, caution should be taken when interpreting the meaningfulness of the significant F tests for the between-subjects effects.

Table 8   Results of the Univariate Analysis of Variance for Assists from Team Tenure Group 1, Assists from Team Tenure Group 2, Assists from Team Tenure Group 3, and Assists from Team Tenure Group 4 by the Team Tenure Group of the Goal Scorer – Between-Subjects Effects

Source	df	F	p	Partial Eta-Squared
Assists from Team Tenure Group 1	3	11.54	.000	.016
Assists from Team Tenure Group 2	3	32.72	.000	.043
Assists from Team Tenure Group 3	3	38.44	.000	.050
Assists from Team Tenure Group 4	3	40.39	.000	.053
Error	2182			

Table 9   Means, Standard Deviations, and Post-Hoc Results for the Number of Assists from Each
Team Tenure Group (Assistor) to Each Corresponding Team Tenure Group (Goal Scorer)

Dependent Variable	Goal Scorer Ethnicity	Mean	Standard Deviation
	Team Tenure Group 1	1.53^a	2.18
Assists from	Team Tenure Group 2	2.03^{ab}	2.81
Team Tenure Group 1	Team Tenure Group 3	2.40^b	2.83
	Team Tenure Group 4	2.51^b	3.15
	Team Tenure Group 1	2.77^a	3.46
Assists from	Team Tenure Group 2	3.99^b	4.06
Team Tenure Group 2	Team Tenure Group 3	5.05^c	5.33
	Team Tenure Group 4	5.48^c	5.57
	Team Tenure Group 1	.80^a	1.67
Assists from	Team Tenure Group 2	1.47^b	2.90
Team Tenure Group 3	Team Tenure Group 3	2.34^c	3.20
	Team Tenure Group 4	3.01^d	5.20
	Team Tenure Group 1	.55^a	1.46
Assists from	Team Tenure Group 2	.97^a	1.97
Team Tenure Group 4	Team Tenure Group 3	1.74^b	3.12
	Team Tenure Group 4	2.17^c	2.89

Note. Superscripts *a*, *b*, *c,* and *d* represent homogeneous subsets according to Tukey's HSD criteria.

Discussion

The primary purpose of this study was to examine the dyadic relationships between goal scorers and goal assistors, and the effects of diversity on this interdependent team relationship. An examination of the demographic characteristics (ethnicity, age, and tenure) of the goal scorer and of the demographic characteristics of the player who is credited with the primary assist on their goal revealed significant differences for all three demographic categories; however, due to the relatively small effect sizes these differences should be cautiously considered.

The first hypothesis predicted that teammates who are similar with regard to ethnicity would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar. This prediction was partially supported, in that French Canadians were more likely to assist on the goals of other French Canadians, and Europeans were more likely to assist on the goals of other Europeans. There are a couple of explanations for these findings.

First, these findings support the similarity-attraction paradigm, and self-categorization and social identity research, especially for players who are of non-English speaking origins (i.e. French Canadians and Europeans). Results revealed that these two ethnic groups assist on each similar team members' goals more often then they assist team members from English speaking origins. Researchers using the similarity-attraction paradigm suggest that people are attracted to, and like, those who are similar. This interpersonal attraction is then thought to be linked to social integration, increased communication, and decreased conflict. This may then lead to more positive bias

towards similar teammates, and negative bias towards dissimilar teammates. The findings of this study support previous research which suggests that similarity-attraction leads to negative processes and outcomes (Williams & O'Reilly, 1998). Surprisingly, there did not seem to be any bias on the part of English Canadian and American players. With Americans and English Canadians making almost 60% of the league's players, it is possible that players from French Canada and Europe may feel like minorities; therefore enhancing their social identity and interactions similar ethnic teammates. They may also feel more comfortable playing with similar teammates. Hockey experts have suggested that French Canadians and Europeans play a different style of hockey than players from North America. This line of reasoning supports previous literature which has suggested that French Canadians and Europeans are more offensive minded players than the traditional North American players from English Canada and the United States (Lavoie, 2003).

Second, the findings of this study that ethnicity influences the team process of assisting on goals, also supports previous research which found that cultural differences influenced group functioning and decision-making (Cox, Lobel, & McLeod, 1991; Milliken & Martins, 1996). Cox et al. (1991) found that cultural differences affected decision-making, and that those from more collective cultures tend to help each other, and share more often, than those from individualistic cultures. Players from more collectivistic cultures may be more inclined to help each other more than those from the capitalistic cultures because of similar attitudes and values.

The second hypothesis predicted that teammates who are similar with regard to age would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar in age. This prediction was supported, in that players assisted those who were most similar, or relatively close, with regard to age. Closer examination revealed that players in the two oldest age groups seemed to assist each other more often than they assisted those who were younger. Likewise, players in the two youngest age groups assisted each other more often than they assisted players in the oldest age group (33+ years of age). In both cases, players tended to assist those teammates who they were most similar to in age.

Most relational diversity research examining the influence of age on member's experiences and behaviors has explored its relationship with commitment and turnover (O'Reilly et al., 1989; Tsui et al., 1992; Wagner et al., 1984). However, Riordan and Weatherly (1999) found that age similarity was positively related to organizational citizenship behaviors, cooperation, helping, and sportsmanship towards similar other. Following the findings of Riordan and Weatherly (1999), one explanation would be that those teammates who are similar in age will be more likely to cooperate and help those teammates who are most like themselves. These findings also support similarity-attraction and social identity research. Players who are similar in age are likely to be at similar stages in their careers'; therefore, they would have similar experiences. These common experiences may help create a bond between players. Players' social identities may also reflect similar off-ice interests, and similar informal communication styles

(Zenger & Lawrence, 1989). Positive off-ice relationship may then positively influence on-ice play together.

The third hypothesis predicted that teammates who are similar with regard to team tenure would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar in team tenure. This prediction was partially supported, in that players in the two longer tenured groups (team tenure groups 3 & 4) assisted those who were most similar, or relatively close, to themselves with regard to team tenure more often than they assisted players who were newer to the team. Results were the opposite for those players in the two lesser tenured groups (team tenure groups 1 & 2). Players in these two tenure groups assisted players who had longer team tenure more often than they assisted teammates who were similar in team tenure. There are a couple of explanations for these findings.

First, for the longer tenured groups, similarity-attraction may be at work. The longer tenured players may assist each other more often because they feel more comfortable, and confident, in the abilities and skills of those players with which they have been playing with for many years. These players may also feel more secure on the team, and therefore they do not need to prove themselves to younger teammates. Furthermore, Williams and O'Reilly (1998) found that, in general, tenure dissimilarity leads to communication problems, less social integration and cohesion, and increased conflict. Also, groups with tenure heterogeneity have been found to take longer to implement new strategies (Martins et al., 2003; Watson, Kumar, & Michaelson, 1993). For those players who have played together for a number of years, different strategies

and styles of play may have had time to be learned, and implemented. Surprisingly, the lesser tenured groups did not assist each other as much as they assisted the longer tenured groups. This is surprising because it has been suggested in previous literature (McCain, O'Reilly, & Pfeffer, 1983; Wagner et al., 1984) that tenure diversity has negative effects on those who are different. In this case, it does have negative effects for the lesser tenured players; however, it has positive effects for the longer tenured players, as seen in the findings that those players who are rather new to the team assist those who are veterans more often than they assist similar new players.

One explanation for the surprising findings that lesser tenured players tend to assist those with longer tenure more often is that of Festinger's (1954) social comparison theory. Festinger (1954) suggested that people compare themselves to similar others, and this process of similar comparison leads to competition among similar others in an attempt to separate one's self (i.e. standout, or be unique, in the eyes of peers and supervisors) from similar others in the group. This phenomenon is most commonly seen in Western cultures, which are characterized by individualistic attitudes and behaviors. Pelled et al. (1999) suggested that the career-relatedness of an attribute may trigger social comparison of similar others. In other words, social comparisons which are based on attributes which may influence one's career and salary (i.e. for hockey those may be playing time, assists, goals) may result in intragroup competition among similar others. Age is especially salient for social comparisons, as those who are similar in age will likely be fighting for playing time, salary increases, and other career-related outcomes for the greater part of their careers.

Another explanation for these findings is that those players who are relatively new to the team may assist those players who have been on the team longer out of respect for, and a knowledge of, the skills and experiences of the veterans, and also in an attempt to establish trust and cooperation from their longer tenured teammates. This relationship may then help both the team and the individual players.

Practical Implications

Findings of this study suggest that demographic similarities and dissimilarities may result in different behaviors depending on which characteristics are salient, and the stage of a player's career. Findings of this study suggest that it is possible that differences in ethnicity may result in implicit biases on the ice. Findings also suggest that older players and those players who have longer team tenure tend to score more often, and assist on each other's goals. This has important implications for coaches as they develop strategies, and for general managers as they scout and make decisions about free agents. Another implication for coaches is that they could integrate practice activities so that the younger, newer players on the team are able to learn different strategies and "tricks of the trade" from the older, more experienced players. This may help the younger, lesser tenured players socially integrate into the team, and also help them grow and develop as hockey players.

Also, these numbers suggest that in today's world of free agency and player turnover, players rarely stay with one team for more than 4 years. This has important implications for general managers and coaches who must try and breakdown stereotypes, and integrate new players in relatively short periods of time. Schippers et al. (2003)

suggested that outcome or goal interdependence may moderate the diversity-performance relationship. Highly outcome interdependent teams should function better because they should have less conflict and greater cooperation towards a common goal. Managers and coaches could use Gaertner and Dovidio's (2000) common in-group identity strategy, which aims to reduce the negative effects of diversity by attempting to create one, superordinate group identity with the focus on a team goal (i.e. win the Stanley Cup). Team building activities which showcase individual unique talents and positive behaviors may help breakdown certain stereotypes and biases.

Limitations and Future Research

This study is limited in several areas. First, all demographic and statistical data collected were archival. Although actual differences were able to be calculated, the actual attitudes and preferences of players were not measured, and therefore, are not taken into consideration in this study. However, Cunningham (2006) found that actual differences were related to perceived differences. Second, although the ethnicity groups were taken from previous research, these four ethnicities do not capture complete nationality and cultural differences. For example, it is possible that Americans and English Canadians have similar cultural attitudes and values, and should therefore be grouped together. On the other hand, all Europeans were grouped together, so that players from Sweden are assumed to have similar attitudes and experiences as Czechs or Russians, and this may be a poor assumption. Third, players were grouped into age and tenure groups which were assumed to group members who were similar to each other, and therefore may have been through similar experiences. This does not take into

consideration the fact that some players may enter the National Hockey League at the age of 18 or 19, while others may not enter the league until they are 24 or 25. These players may have similar experiences; however in this study they would have been in separate age groups. Finally, professional sport is a unique industry, in that players may only play for a few years, and the longest careers rarely go more than 15 years. Therefore, the effects of age and tenure diversity on teams in the National Hockey League may be different than those of a Fortune 500 organization in which employees may work 20-30 years, or more.

Based on these findings, there are several avenues for future research. In future studies, researchers should examine the effects of diversity on dyadic relationships over a longer period of National Hockey League history. Examining the effects of diversity at different time periods throughout the history of the National Hockey League might provide more fine-grained analyses. Early teams were entirely comprised of North American players. This may have amplified the negative biases between English-speaking and non-English-speaking players. However, the opposite may have occurred due to the familiarity of players because of everyone growing up and playing in a relatively small geographic area, and the fact that free agency was not a factor in team turnover. This is in line with the "contact hypothesis" (Allport, 1954; Martins et al., 2003). Teams generally stayed in-tack from season to season, which may have helped team cohesion and unity, enabling players to get past the initial categorization biases based surface-level differences, and those players who may not have been able to get past those initial biases may have . With the influx of European players in the past few

decades, and the addition of free agency into the league, the effects of diversity may have been different for early teams as compared to more recent teams.

Also, along the lines of the "contact hypothesis", an examination of the moderating effects of team tenure on the negative effects of ethnic and age diversity in the goal scorer-goal assistor relationship. According to the "contact hypothesis" one might predict that, after having played with dissimilar others for an extended period of time the negative biases would be diminished (Allport, 1954; Brewer & Miller, 1984).

As mentioned earlier, non-English speaking players tend to play a more open-style of hockey in which they are looking to score first, and defend later. This style of play may give these players more opportunities to assist and subsequently score; while on the other hand, it would lead to a lack of defensive play, and the opportunity for the other team to score more goals as well. This could also affect overall team performance. An examination of team defensive abilities may be of interest.

Another avenue that should be explored would be to measure attitudes and preferences of individual players to see if there are indeed negative biases and feelings towards dissimilar others within the National Hockey League. Are there truly off-ice biases and stereotypes occurring in the National Hockey League, and if so, do they also translate to biases, behaviors, and preferences when players are on the ice? It would also be of interest to examine how cultural and language differences influence on-ice communication, which previous research has suggested is an important mediating variable (Williams & O'Reilly, 1998; Zenger & Lawrence, 1989).

Finally, it would be beneficial to measure whether players identify more strongly with one social identity (e.g. ethnicity) over another (e.g. age or tenure), as social identities, and the value of membership to different groups, may influence an individual differently depending on the context or situation.

In summary, this study provided empirical support for the idea that diversity may affect intragroup dyadic processes. In this case, all three demographic characteristics influenced the dyadic relationship between the goal scorer and the goal assistor. In general, results provide support for the similarity-attraction paradigm. Those who are similar will feel more comfortable around similar others, will like similar others more, and have positive biases towards those who are similar, and will be more willing to "help" similar others (Milliken & Martins, 1996; Riordan, 2000; Tsui et al., 2002; Williams & O'Reilly, 1998). Coaches and managers should make an effort to create a common team identity and team goals in order to integrate all players, and also allowing for the rookies, or younger players, to learn from the older, more experienced players.

CHAPTER IV

DISCUSSION AND SUMMARY

There has been a considerable amount of diversity research in the area of sport; however, there has been little research done examining the sport of ice hockey. The National Hockey League has been a pioneer in professional sports for the scouting and recruiting of international players, so it is surprising that there has not been any formal research investigating performance in the league from a diversity perspective. For this dissertation, two studies were conducted to examine the effects of diversity a team process and team performance in the National Hockey League.

The purpose of Study 1 was to extend the existing diversity research pertaining to sport, specifically the National Hockey League, by specifically examining the effects of team compositional diversity based on three demographic categories (ethnicity, age, team tenure) on the team process of assisting on goals (i.e. passing), and on overall team performance (i.e. team regular season points). In drawing from self-categorization and social identity theories (Tajfel, 1981; Turner et al., 1987), it was expected that team diversity would have negative effects on a team process and overall team performance.

The findings of Study 1 supported Hypothesis 1a, which predicted that team ethnic diversity would be negatively related to team assists. These findings suggest that the team process of assisting is disrupted in ethnically heterogeneous teams. This is consistent with self-categorization and social identity theories (Tajfel, 1981; Turner et al., 1987), which suggest that ethnic diversity will lead to negative group processes.

Previous researchers have found that ethnic diversity is positively related to conflict (Pelled et al., 1999), and negatively related to commitment (Cunningham & Sagas, 2004b) and satisfaction (Williams & O'Reilly, 1998). Longley (2000) suggested that strong historical tension between English Canadians and French Canadians may influence both on- and off-ice relationships, which would then affect team processes and ultimately team performance

Results of Study 1 did not support Hypotheses 1b and 1c, which predicted that team age and team tenure diversity would be negatively related to team assists. These findings are not all that surprising, as previous researchers have found inconclusive, or weak, associations between both age and tenure diversity and group processes (Williams & O'Reilly, 1998). One explanation is that age and tenure are not very recognizable, or not used in the self-categorization process. There are a few exceptions (see Wagner et al., 1984; Zenger & Lawrence, 1989); however, scholars have suggested that the many inconclusive, or inconsistent, results may be due to the fact that age and tenure are less salient than characteristics such as ethnicity, race, and sex (Williams & O'Reilly, 1998).

The findings of Study 1 also support Hypothesis 2, which predicted that team assists would be positively related to team performance. These findings support previous researchers who have suggested, and found evidence, that effective group processes (i.e. functioning) have positive effects on group performance (Doherty & Carron, 2003). Hockey is a very task-interdependent sport, and players must work together in order to be successful. Assisting on each others' goals is a form of cooperation between players, and these findings suggest that those teams which are

characterized by greater teamwork (i.e. cooperation and helping behaviors) will be more successful than those teams characterized by individualistic play.

Hypothesis 3a was also supported, which predicted that team assists would mediate the relationship between ethnic diversity and team performance. Results suggest that ethnic diversity, through its negative relationship with assists (i.e. team process), negatively effects team performance. That is, teams that have higher levels of team ethnic diversity subsequently have lower levels of passing, which ultimately hinders overall team performance.

Although team tenure was not related to the team process of assists, in the National Hockey League team tenure tends to be rather short, at just under 4 years (M = 3.75), which may not be enough time to dissolve negative stereotypes. This supports Watson et al. (1993) who found that more ethnically homogeneous groups out performed heterogeneous groups initially. If players are constantly changing teams, they may not be able to get over those initial stereotypes and biases, which then lead to negative member experiences and group outcomes. Findings of this study also support previous professional sport research by Timmerman (2000), who found that ethnic diversity was negatively related to the team performance of National Basketball Association teams.

The purpose of Study 2 was to extend the relational diversity research into the sport context, specifically examining teams in the National Hockey League and the dyadic relationship between the goal scorer and the goal assistor. This study examined team member similarity, or dissimilarity, to others on the team, and its effects on the team process of assisting. In drawing from the similarity-attraction paradigm (Byrne,

1971), it was expected that team members who were similar to each other (based on ethnicity, age, or tenure) would assist on each others' goals more often than those players who were dissimilar.

The findings of Study 2, in general, supported Hypothesis 1, which predicted that teammates who are similar with regard to ethnicity would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar. Specifically, French Canadians were more likely to assist on the goals of other French Canadians, and Europeans were more likely to assist on the goals of other Europeans.

These findings lend support to similarity-attraction paradigm and social identity research, particularly for those who are of non-English speaking origins (i.e. French Canadians and Europeans). Results suggest that players from these two ethnic groups assisted on each others' goals more often then they assist those teammates from English Canadian or American origins. The similarity-attraction paradigm suggests that people are attracted to, and like, those who are similar. This interpersonal attraction is then thought to lead to more positive bias towards similar others, and negative bias towards dissimilar others. In general, these findings support previous research which suggests that similarity-attraction leads to negative member experiences and outcomes (Williams & O'Reilly, 1998).

Another explanation suggests that French Canadians and Europeans play a different style of hockey than players from North America. This line of thought supports previous literature which has suggested that French Canadians and Europeans are more offensive minded players than the traditional North American players from English

Canada and the United States (Lavoie, 2003). It is possible that a difference in playing styles may influence the offensive production of the different ethnic groups.

It is also possible that different cultural attitudes and values may be influencing team processes and the dyadic relationship between the goal scorer and goal assistor. The finding from this study, that ethnicity influences the team process of assisting on goals, also support previous research which found that cultural differences influenced group functioning and decision-making (Cox et al., 1991; Milliken & Martins, 1996). Cox et al. (1991) found that cultural differences affected decision-making, and that those from more collective cultures tend to help each other, and share more often, than those from individualistic cultures. Those players from collectivistic cultures may be more inclined to pass the puck than those players from more individualistic cultures.

Findings from Study 2 also support Hypothesis 2, which predicted that teammates who are similar with regard to age would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar. Players assisted those who were most similar, or relatively close, with regard to age. A closer examination revealed that players in the two oldest age groups seemed to assist each other more often than they assisted those who were younger. Likewise, players in the two youngest age groups assisted each other more often than they assisted players in the oldest age group (33+ years of age). In both cases, players tended to assist those teammates who they were most similar to in age.

Most relational diversity research examining the influence of age on member's experiences and behaviors has explored its relationship with commitment and turnover

(O'Reilly et al., 1989; Tsui et al., 1992; Wagner et al., 1984). However, Riordan and Weatherly (1999) found that age similarity was positively related to organizational citizenship behaviors, cooperation, helping, and sportsmanship towards similar others. Supporting the findings of Riordan and Weatherly (1999), one explanation would be that those teammates who are similar in age will be more likely to cooperate and help each other. These findings also support similarity-attraction and social identity research. Players who are similar in age are likely to be at similar stages in their careers', and may have been through similar experiences. These common experiences may help form a bond between players, creating a social identity for which these players value. This social identity may reflect similar off-ice interests, and similar informal communication styles (Zenger & Lawrence, 1989). Positive off-ice relationship may then positively influence on-ice play together.

Findings from Study 2 partially support Hypothesis 3, which predicted that teammates who are similar with regard to team tenure would be more likely to assist on each other's goals than they would be to assist those teammates who are dissimilar. Players in the two longer tenured groups (team tenure groups 3 & 4) assisted those who were most similar, or relatively close, to themselves with regard to team tenure more often than they assisted players who were newer to the team. On the other hand, players in the two lesser tenured groups (team tenure groups 1 & 2) assisted players who had longer team tenure more often than they assisted teammates who were similar in team tenure. There are two theoretical explanations.

First, similarity-attraction may be at work for the longer tenured groups. The longer tenured players may assist each other more often because they feel more comfortable, and confident, in the abilities and skills those players with which they have been playing with for many years. Furthermore, Williams and O'Reilly (1998) found that, in general, tenure dissimilarity leads to communication problems, less social integration and cohesion, and increased conflict. Communication problems, and/or a lack of team cohesion, could negatively affect team performance. Also, groups with tenure heterogeneity took longer to implement new strategies (Martins et al., 2003; Watson et al., 1993). For those players who have played together for a number of years, different strategies and styles of play may have had time to be learned, and implemented.

Second, Festinger's (1954) social comparison theory may provide a explanation for these findings. Surprisingly, the lesser tenured groups did not assist each other as much as they assisted the longer tenured groups. Festinger (1954) suggested that people compare themselves to similar others, and this process of similar comparison leads to competition among similar others in an attempt to separate one's self (i.e. standout, or be unique, in the eyes of peers and supervisors) from similar others in the group. This phenomenon is most commonly seen in Western cultures, which are characterized by individualistic attitudes and behaviors. Building on this idea, Pelled et al. (1999) suggested that the career-relatedness of an attribute may trigger social comparison of similar others. In other words, social comparisons which are based on attributes which may influence one's career and salary (i.e. for hockey those may be playing time, assists, goals) may result in intragroup competition among similar others. Those players with

similar team tenure may feel as though similar others are a threat to their career, and therefore, they form negative biases towards similar tenured teammates and positive biases towards veterans.

Another explanation for these findings is that those players who are relatively new to the team may assist those players who have been on the team longer based on knowledge of the skills and experiences of veterans, and also in an attempt to establish trust with longer tenured teammates, which may have positive effects on both the team and the individual's career.

The results of this research suggest that National Hockey League coaches and administrators need to focus on managing the challenges of ethnic, age, and tenure diversity within their teams. Teams with high-levels of ethnic diversity may have players with opposing values and playing styles, which may influence those team processes (i.e. passing and other team helping behaviors) which ultimately influence team performance. Similarly, teams with high levels of age or tenure diversity may have players with differing career experiences, attitudes, and values, all of which may influence team processes, and ultimately team performance.

Cunningham (2004) offered several strategies for managing diversity in small groups, such as ice hockey teams, including mutual intergroup differentiation, decategorization, and recategorization. Hewstone and Brown (1986) introduced a model for mutual intergroup differentiation, in which group members with specific expertise perform those duties, which creates positive stereotypes about group member abilities. Fore example, a hockey team is made up of defensemen and forwards. More

specifically, players are usually either offensive-minded or defensive-minded. A coach can create positive distinctiveness by forming lines made up of players with the same mindset, allowing them to play to their strengths, or depending on the team, a coach may try balancing the lines. Another approach to managing diversity is decategorization. According to Brewer and Miller (1984), decategorization is the process of reducing categorization boundaries through personal interactions between out-group members. Pettigrew (1998) suggested that close personal interactions may help create friendships; therefore reducing negative stereotypes. On the ice, a coach could create lines with a mixture of ethnic backgrounds. This would give members of the team a chance to get to know each other, and each others' on-ice tendencies, which may increase cohesion while hopefully reducing out-group stereotypes and biases. A coach could also introduce team building activities, which would give players a chance to create friendships. The third approach to managing diversity is recategorization. Gaertner and Dovidio (2000) suggest creating a Common Ingroup Identity. This strategy creates a superordinate group which includes all groups into one group. Strategies for creating a common group identity include emphasizing a common group outcome, and incorporating group goals (Gaertner & Divido, 2000; Schippers et al., 1993). A common sports cliché that captures the essence of common group identity is the phrase "there is no I in team." This suggests that team members should focusing on doing what is best for the team over what is best for the individual player. The coach and team could create common team goals, which should take precedence over individual goals, in an effort to reach the ultimate team outcome (i.e. winning the Stanley Cup).

Findings also suggest that demographic similarities and dissimilarities may result in different behaviors depending on which characteristics are salient, and what stage of their career a player is in. Results of this study suggest that older players, and those players who have longer team tenure, tend to score more often, and also assist on each other's goals. This has important implications for coaches and general managers as they scout players and make decisions about free agents. Another implication for coaches is that they could integrate practice activities so that the younger, newer players on the team are able to learn different strategies and "tricks of the trade" from the older, more experienced players. This may help the younger, lesser tenured, players grow and develop their hockey skills, while also socially integrating them into the team.

These numbers suggest that in today's world of free agency and player turnover, players rarely stay with one team for more than 4 years. This has important implications for general managers and coaches who must try and breakdown stereotypes, and integrate new players in relatively short periods of time. Scholars have suggested that outcome or goal interdependence may moderate the diversity-performance relationship (Gaertner & Dovidio, 2000; Schippers et al., 2003). Highly outcome interdependent teams should function better because they should have less conflict and greater cooperation towards a common goal. Martins et al. (2003) discussed Allport's (1954) "contact hypothesis", which suggests biases and stereotypes based on surface-level differences (i.e. ethnicity, age, sex) may be overcome the longer group members are together, and the more they interact. Coaches and managers could use team building

activities, which showcase unique talents and positive behaviors of individuals and build friendships, in order to help breakdown certain stereotypes and biases.

In summary, this research is limited in generalization; however, this study has contributed to the literature in a couple of ways. First, this research fills a void in the literature by examining the effects of diversity on players and teams in the National Hockey League. Previous diversity research on hockey has focused on how players of certain ethnicities may face discrimination, but has failed to explore the effects of diversity on individual and team performance. Second, this research provides empirical support for the notion that diversity can have meaningful effects on both team processes and performance, and also team member interactions and cooperation. In the wake of a call from scholars to focus on the critical intervening processes of the diversity – performance relationship (Pelled, 1996; Williams & O'Reilly, 1998), this research examined the effects of team diversity on the team process of assisting (i.e. passing, helping), and the subsequent effects of assisting on overall team performance. The findings of this research indicate that some forms of diversity, such as ethnic and tenure differences, do negatively influence team member processes and ultimately team outcomes. These findings support both the self-categorization and social identity theories (Tajfel, 1981; Turner et al., 1987), in that ethnic diversity negatively affected team processes and performance. There has also been a call for scholars to examine how different types of diversity affect individual outcomes, and group member interactions, and also how member experiences are affected by being different from, or similar to, other group members (Riordan, 2000). Findings of this research also support the

similarity-attraction paradigm (Byrne, 1971; Pfeffer, 1983), in that teammates who are more similar will feel more comfortable around each other, will like each other more, and will have positive biases towards those who are similar, influencing cooperation and helping behaviors (Milliken & Martins, 1996; Riordan, 2000; Tsui et al., 2002; Williams & O'Reilly, 1998). Further, the research broadened the spectrum of diversity research by including ethnic diversity (based on nationality) and by considering the effects of heterogeneity among professional sports teams, specifically teams in the National Hockey League. As such, coaches and managers in the National Hockey League should make efforts to effectively manage such differences. An effective strategy would be to create a common team identity and team goals in order to integrate all players, while also allowing the rookies or younger players to learn from the older, more experienced players on the team.

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APPENDIX A

EXPANDED REVIEW OF LITERATURE

Definition of Diversity

To begin, it is necessary to define what is meant by the term "diversity". Below are a few definitions found in the literature:

Diversity refers to "any mixture of items characterized by differences and similarities" (Thomas, 1996, p. 5).

Diversity "refers to differences between individuals on any attribute that may lead to the perceptions that another person is different from self" (van Knippenberg et al., 2004, p. 1008).

Diversity is "the presence of differences among members of a social unit" (Jackson et al., 1995, p. 217).

Diversity is "a mix of people in one social system who have distinctly different, socially relevant group affiliations" (Cox & Beale, 1997, p. 1).

Diversity is "the presence of differences among members of a social unit which lead to perceptions of such differences and that impact group outcomes" (Cunningham, 2006).

All of these definitions incorporate the idea of social comparison of one's self to the group as a whole, or to other individuals within the group. This context is very important, because if everyone in the group is identical it is not possible to make a comparison. Drawing on these definitions of diversity, a proper definition should highlight (a) the notion of a group or dyadic relationship in which comparisons can be made, (b) the presence of differences, and (c) the impact that these differences can have on individual and group outcomes.

Types of Diversity

Diversity characteristics can be divided into two forms: surface-level and deep-level. Surface-level diversity characteristics are those which are observable, or easily recognized. They also tend to be physical in nature. Examples of these salient characteristics would include age, race, ethnic background, sex, and language. These characteristics are usually permanent, and a strong source of social identity. Surface-level characteristics are important because they are because they are readily detectible, and therefore the most commonly used cues for initial social comparison, and judgment as to how similar, or dissimilar, one is to another.

Deep-level diversity characteristics are those which are more psychological and not readily observable, such as attitudes, beliefs, values, interests and preferences, education, and functional background (Tsui & Gutek, 1999). Martins et al. (2003) suggested that once group members are able to get past the initial perceptions based on surface-level characteristics, their focus will then shift to deep-level characteristics. Research has suggested that these different types of diversity will have different effects on the group. For example, functional background diversity is suggested to improve creativity and decision-making (Pelled, 1996; Williams & O'Reilly, 1998), while value diversity is suggested to decrease communication and cooperation, and increase interpersonal conflict (Bochner & Hesketh, 1994; Pelled, 1996).

Approaches to the Study of Diversity

According to Tsui and Gutek (1999), there are three major approaches in demographic research: categorical, compositional, and relational. Although Tsui and

Gutek use the term "demography", the term "diversity" is used in this dissertation because differences in attitudes, experiences, and values may also be relevant in group research.

Categorical Approach

From a categorical approach, the focus is on the attitudes, behaviors, and experiences of group members belonging to one social category, such as French Canadians, as compared to group members belonging to another social category, such as Americans. Tsui and O'Reilly (1989) refer to this approach as "simple demography". "According to this approach, demographic characteristics are important because they provide information on how individuals in certain demographic categories are likely to behave and are likely to be treated by others" (Tsui & Gutek, 1999, p. 20).

Research concerning the National Hockey League, from a categorical approach, might ask a question such as:

- Do French Canadians receive less pay compared to other ethnic groups (e.g. American, English Canadians, Europeans)?

Research has found that certain characteristics such as sex, race, age, and education can influence a person's attitudes and experience. For example, studies have shown that:

- Men and women have different motivational goals for participating in sport and exercise (Kavussanu & Roberts, 1996)

- Black managers were rated lower on job performance, and reported lower feelings of acceptance, than their White counterparts (Greenhaus et al., 1990)

- Older employees tend to be rated lower than young employees on performance (Waldman & Avolio, 1986)

One limitation, and an underlying assumption, of this approach is that all individuals within a social category have similar experiences. However, this may not always be the case.

Compositional Approach

From a compositional approach, the focus is on the structure of the group and how this influences group processes and outcomes. Pfeffer (1983) referred to the term "compositional demography" to characterize the distribution of certain attributes (e.g. sex, race, age, education) across a group. The basic principle behind this approach is whether or not the group processes and performance is influenced by the make-up of the group (i.e. the distributional proportion of certain attributes across the group).

Research concerning the National Hockey League, from a categorical approach, might ask a question such as:

- Do ethnically homogeneous teams perform better than ethnically heterogeneous teams?

Previous research has found that group composition does indeed influence group functioning. For example:

- Age and racial diversity within basketball teams were negatively related to team performance (Timmerman, 2000)

- Ethnic and tenure diversity on university football coaching staffs were negatively related to occupational commitment, and positively related to occupational turnover (Cunningham & Sagas, 2004b)

- Functional background diversity in work teams was positively related to task conflict (Pelled et al., 1999)

One limitation, and an underlying assumption, of this approach is that the characteristics of the group influence all members the same. However, this may not always be the case. This approach also ignores attributes and characteristics of the individual.

Relational Approach

From a relational approach, the focus is on relationship between an individual's characteristics and those of the group (i.e. compositional make-up of the group), or in the case of dyadic relationships, the characteristics of another individual (i.e. supervisor-subordinate, peer-peer), and how that relationship will influence an individual's experiences, attitudes, and behaviors. Tsui and O'Reilly (1989) present the term "relational demography" to refer to the similarity, or dissimilarity, of an individual's characteristics and those of the group, or other group members. "The basic premise of the relational approach is that the relationship of an individual's own demographic attributes to that of all the other members in a particular unit will have an impact on the individual's experience in that unit" (Tsui & Gutek, 1999, p. 23). This approach to studying diversity combines both the categorical and compositional approaches.

Research concerning the National Hockey League, from a categorical approach, might ask a question such as:

- Do individuals who are similar to each other, in terms of team tenure, assist each other's goals more often than assisting those who are dissimilar?

In general, research has found that an individual who is different than the group, or person of reference, will have a negative experience. For example:

- Individuals who are similar to the group in terms of age communicate more frequently with each other (Zenger & Lawrence, 1989)

- Subordinates in mixed-sex supervisor-subordinate dyads were liked less, and rated lower, than subordinates in same-sex dyads (Tsui & O'Reilly, 1989)

- Athletes who are new to a team (i.e. differ in team tenure) may face difficulty in integrating into the team (Gailpeau & Trudel, 2004)

One limitation of this approach is that it ignores contextual factors, such as the culture of the organization, leadership style of the supervisor, or diversity strategies of the organization.

Theories Applied to Diversity Research

Information/Decision-Making

Diversity scholars have found support for the positives of some forms of group diversity (e.g. experience, functional background, skill expertise), arguing that diverse groups have access to more information and make higher quality decisions (Ancona & Caldwell, 1992; Gruenfeld et al., 1996; Jackson, May, & Whitney, 1993; Williams & O'Reilly, 1998). Gruenfeld et al. (1996) and other scholars have adopted an

information/decision-making perspective, which suggests that in diverse groups, individuals will have greater access to outside information networks, generate more ideas and broader perspectives, and bring new and different knowledge and information to the group (Williams & O'Reilly, 1998). As opposed to homogeneous groups, which may suffer from groupthink, heterogeneous groups are thought to be more creative, and generate higher quality decisions. Scholars argue that these benefits of diversity can only be seen if diversity management strategies are implemented and managed correctly (Tsui & Gutek, 1999).

Self- Categorization and Social Identity

According to Maslow (1943), it is basic human nature to need safety, security, a sense of belonging, and sustain high levels of self-esteem. This is achieved when individuals are knowledgeable of their surroundings and feel comfortable in a given situation. People feel comfortable around others who are like themselves because they know what to expect, and are not in a situation of uncertainty. Based on these human needs, and our desire to simplify the world around us, many scholars have drawn from the "self-categorization" and "social identity" perspectives (Tajfel, 1981; Tajfel, 1982; Turner et al., 1987), or the "similarity-attraction" paradigm (Byrne, 1971), when adopting either a compositional or relational approach to the study of diversity.

The basic foundation of the self-categorization and social identity theories is that "individuals are assumed to have a desire to maintain a high level of self-esteem. This is often done through a process of social comparison with others. In making these comparisons, individuals must define themselves. They define themselves through the

process of social-categorization, which is the process by which they classify themselves and others into social categories" (Williams & O'Reilly, 1998, p. 83-4). This process of self-categorization allows individuals to define themselves in terms of a social identity. A social identity is the membership to different social groups for which an individual is aware, and to which membership enables an individual to maintain high levels of self-esteem (Tajfel, 1982). In order to maintain high levels of self-esteem, membership to a group must take on value to the individual. This is done through a positive self-identity, which is achieved by maximizing in-group/out-group differentiation (Williams & O'Reilly, 1998). In-group members are those individuals, or groups, who are similar to one's self or one's group, while out-group members are individuals, or groups, which are dissimilar to one's self or one's group. This categorization then leads to stereotyping. Research has shown that in-group members often hold more positive attitudes towards other in-group members by creating inter-group biases. This often leads to more positive experiences for in-group members compared to out-group members.

Thus, self-categorization predicts that diversity might lead to stereotyping and friction within a group, which could lead to increased conflict, and decreased communication and cooperation, thereby decreasing performance. Researchers have supported this argument, which suggests that group diversity has negative effects on group outcomes. In general, researchers suggest that group diversity will likely have greater negative, than positive, effects on group processes and performance (Williams & O'Reilly, 1998), which is consistent with self-categorization theory (Moreland, 1985). A number of studies suggest that group diversity has negative effects on group cohesion

and social integration (O'Reilly, Caldwell, & Barnett, 1989), as well as overall group performance (Williams & O'Reilly, 1998).

Similarity-Attraction

Another frequently used theory in the study of diversity is the similarity-attraction paradigm introduced by Byrne (1971). This paradigm has been used to study group processes such as communication, conflict, and social integration (Riordan, 2000). According to the similarity-attraction paradigm, similarity in attributes, ranging from surface-level demographic characteristics (e.g. age, race, sex) to deep-level attitudes, interests, and values, will increase interpersonal attraction and liking. On the other hand, dissimilarity in attributes will lead to decreased interpersonal attraction and liking between dissimilar individuals or groups. In general, people are drawn to others who are similar to them because they find interaction easier and more desirable (Riordan, 2000). It has been suggested that individuals, who are similar with regards to surface-level demographics, perceive similar others to share common attitudes, interests, and values, thus making personal interaction appealing (Cunningham, 2006). When given a choice, individuals have a tendency to be attracted to, and interact with, other individuals who are similar to themselves (Lincoln & Miller, 1979).

Similar to self-categorization theory, similarity-attraction scholars argue that similarity creates a positive bias, and reinforcement of one's attitudes and beliefs, whereas dissimilarity creates a negative bias, and reinforcement of negative stereotypes. Group members who are dissimilar to others in the group may then face negative experiences. These negative experiences will, in turn, lead to negative group processes

and outcomes. Researchers have supported the similarity-attraction paradigm. For example, dissimilarity has been found to be related to turnover (O'Reilly et al., 1989; Wagner et al., 1984), lack of communication (Zenger & Lawrence, 1989), diminished cooperation and extra-role behaviors (Tsui et al., 2002), and lower performance evaluations (Tsui & O'Reilly, 1989). In a number of studies, Tsui and colleagues found that similarity in dyadic relationship increased liking, citizenship behaviors, and overall performance evaluations.

In the categorization process, individuals tend to use the most salient characteristics in order to classify one's self and others. Individuals use these visible characteristics to make initial judgments about who is similar or dissimilar to one's self. A few of the most recognizable characteristics within groups are ethnicity or race, age, sex, and tenure. However, the National Hockey League is comprised of all males, so the need to use sex as a variable of interest is superfluous. So for the purposes of this study ethnicity, age, and team tenure were used as the diversity variables of interest.

Diversity in the Literature

The most popular demographic diversity variables studied include age, sex, race, education, experience or functional background, tenure, and personality (Milliken & Martins, 1996; Williams & O'Reilly, 1998). Recent research has investigated the relationship between these various demographic diversity variables and group processes and outcomes, such as conflict (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999), commitment (Cunningham & Sagas, 2004b; Tsui, Egan, & O'Reilly, 1992), communication (Zenger & Lawrence, 1989), cooperation (Chatman & Flynn, 2001),

satisfaction (Schippers et al., 2003), turnover (Cunningham & Sagas, 2004b; Milliken & Martins, 1996), and performance (Ancona & Caldwell, 1992; Pelled et al., 1999; Timmerman, 2000).

Diversity-related studies in the area of sport are found in great numbers within the literature (see Acosta & Carpenter, 2002, Cunningham & Sagas, 2004b; Cunningham, Sagas, & Ashley, 2001; Fink, Pastore, & Riemer, 2001; Sagas & Ashley, 2001; Sagas & Cunningham, 2005; Timmerman, 2000); however, many of these studies have focused on either race or sex, although Cunningham and Sagas (2004b) examined age and tenure diversity. Furthermore, much of the diversity research in the sport context has focused on intercollegiate athletics while ignoring many other sport organizations. As one exception, Timmerman (2000) examined the relationship between diversity and team performance of Major League Baseball and National Basketball Association teams, with results indicating that ethnic diversity negatively influenced performance of basketball teams, but not baseball teams, suggesting that task interdependence may moderate the relationship between diversity and team performance. In one of the few studies examining the National Hockey League, Longley (2000) found that French Canadians were underrepresented on English Canadian teams, and this may be due to fan bias and historical conflict.

Ethnic and Racial

Ethnic diversity is of growing popularity to researchers, although it has been most studied from a racial perspective (i.e. difference in skin color) because this is one of the most salient characteristics used in self-categorization (Williams & O'Reilly,

1998). In a review of literature, Milliken and Martins (1996) suggested that those who are different, with regards to ethnicity, will be less committed, be absent more often, and be less satisfied. Williams and O'Reilly (1998), in another review of the diversity literature, suggested that research exploring the effects of race-ethnic diversity on groups and organizations is inconclusive; however, the authors noted that, unless properly managed, race-ethnic diversity may lead to negative effects on group processes and outcomes. The authors, along with other scholars (see Milliken & Martins, 1996; Riordan, 2000; Tsui, Egan, & O'Reilly, 1992), suggested that proportions within groups may influence the effects of racial diversity. In other words, when a diversity variable (i.e. age, race, sex, education, values) is proportionally equal across the group, everyone is different (or equal), there is no "majority" in the group based on that specific variable. This is consistent with the suggestion that proportions may influence the effects of demographic diversity. Along these same lines of research, Martins et al. (2003) found that when ethnically homogeneous groups were introduced with an ethnic minority, levels of conflict and stress within the groups increased. However, ethnically heterogeneous groups were unaffected by the introduction of an ethnic minority, suggesting that diverse groups may become de-sensitized to race or ethnicity, instead focusing on deep-level attribute differences such as values.

In a more recent study, Pelled, Eisenhardt, and Xin (1999) found that racial diversity was associated with higher levels of interpersonal conflict. Other researchers have found the negative effects of group diversity on satisfaction and commitment (Cunningham & Sagas, 2004b: Williams & O'Reilly, 1998). Cunningham and Sagas

(2004b), in a study involving intercollegiate football coaches, found that racial diversity was negatively related to commitment and positively related to turnover intentions. In a study of intercollegiate track coaches, Cunningham (2006) found that actual ethnic dissimilarity was associated with perceived ethnic dissimilarity, which was associated with perceived deep-level dissimilarity (i.e. attitudes, interests, values). Perceived deep-level dissimilarity was then positively related to turnover, and negatively related to satisfaction and commitment. In one of the few studies to examine the relationship between racial diversity and actual team performance, Timmerman (2000) found that racial diversity was negatively associated with team performance in National Basketball Association teams.

Williams and O'Reilly (1998) noted that, surprisingly, there have been few studies exploring the racial diversity – group performance relationship. They also remarked that the majority of racial diversity studies that have been conducted only used a dichotomous design, involving Black and White, or White and "Other" participants. In a study of managers, Greenhaus et al. (1990) found that, in general, Black managers reported lower levels of acceptance, job discretion, and satisfaction, while also being rated lower on job performance than their White colleagues. However, when Whites were the minority members in a group, the negative effects of being different were stronger than when Blacks were the minority members. Cunningham and Sagas (2004c) found similar results in a study of intercollegiate basketball coaches. Black coaches on equally proportionate staffs had lower commitment levels than their counterparts who were on staffs with majority black coaches or majority White coaches. Conversely,

White coaches on majority Black coaching staffs had lower commitment levels than their counterparts on either majority White coaching staffs or equally proportionate coaching staffs. Greenhaus et al. (1990) and Tsui et al. (1992) suggested that these nonsymmetrical results may be due to the fact that minorities are used to being the ethnic minority in most groups, and are therefore not affected as much as their White counterparts who are used to being the majority in most groups, and are therefore more affected when they are in the position of being the minority in the group because of their need to maintain power and status.

Although the majority of research has examined ethnicity/race diversity based on skin color, there have been studies examining ethnic diversity from either a nationality perspective or a cultural perspective (see Cox et al., 1991; Pelled & Xin, 2000; Verkuyten et al., 1993; Watson et al., 1993). Cox et al. (1991) found that ethnically diverse groups made more cooperative decisions than all-White groups. The authors suggested that these findings may be due to the individualistic orientation of Whites versus the collectivist orientation of those of other ethnic backgrounds. Verkuyten et al. (1993), in a study of employees in The Netherlands, found that individuals who were not Dutch were less satisfied than their Dutch colleagues. Interestingly, Watson et al. (1993), in a longitudinal study, found that ethnically homogeneous groups were more effective in the early time periods. However, in the last period, overall performance for both homogeneous and heterogeneous groups was the same. These results suggest that the ethnically diverse groups took time to overcome interpersonal differences and differences in perspective. Milliken and Martins (1996) suggested that ethnically

diverse groups tend to be associated with lower level of initial attraction, which presumably influences social integration and group processes. After the ethnically diverse groups were able to work past their differences, they were able to perform at the same level as the homogeneous groups. In general though, ethnic diversity seems to have a negative influence on group processes and performance (Williams & O'Reilly, 1998). With the National Hockey League being composed almost entirely of players of Caucasian decent, for the purposes of this study ethnicity referred to the country-of-origin, or nationality, of players.

In general, group members who are different in terms of ethnicity or race, are more likely to be less satisfied and psychologically attached to the group, are more likely to turnover, and receive lower performance ratings (Williams & O'Reilly, 1998).

Sex

Sex, sometimes referred to as gender incorrectly, has been one of the most studied demographic variables in organizational diversity research. Along with race, sex is a very salient characteristic making it an easy cue for categorization. Tsui and O'Reilly (1989) found that subordinates in mixed sex-dyads received less favorable evaluations from their supervisors, and experienced greater role conflict, than subordinates who were the same sex as their supervisor. A few years later, Tsui et al. (1992) found that individuals who were different from other members of their work groups were less committed to the organization, and were more likely to leave.

Similar to the effects of racial diversity Tsui et al. (1992) found nonsymmetrical effects sex diversity. In the case of sex, results for males were parallel to those of

Whites when they were the minority, whereas results for females were similar to those of racial minorities. Similar reasoning would suggest that the stronger negative effects on males, when they are underrepresented in a group, is due to males not being accustomed to being the minority and their need to sustain power and status.

In general, sex diversity has been found to have negative effects on groups, especially on males in those groups. It is also associated with lower levels of satisfaction and commitment, again stronger negative effects for males when they are the minority. However, Kanter (1977) and other scholars suggested that the negative outcomes may be a result of the composition, or proportion of each group within the group.

Age

Age is another salient characteristic, but is less pronounced than ethnic diversity, which may explain the less emphatic research results. O'Reilly, Snyder, and Booth (1993) found no relationship between age diversity and group innovation. Cunningham and Sagas (2004) also found no significant effects for age diversity in their study of coaching commitment or turnover intentions. Tsui, Egan, & O'Reilly (1992) found no link between age diversity and commitment; however, they did find that it was associated with greater turnover intentions.

Other researchers have found significant effects of age diversity. O'Reilly, Caldwell, and Barnett (1989) and Wagner, Pfeffer, and O'Reilly (1984) found that age diversity was related to higher levels of turnover. Wagner and colleagues (1984) conducted one of the first studies to examine organizational demography and diversity

within organizations. In their study of top management teams, the authors found that those members who were dissimilar to the team, in terms of age, were more likely to turnover. Zenger and Lawrence (1989), in a study of engineering project groups, found that those members who were similar to each other in age communicated more frequently. More recently, Riordan and Weatherly (1999) found that actual age similarity was associated with organizational citizenship and sportsmanship behaviors, while perceived age similarity was associated with commitment, conscientiousness, and helping behaviors. In his study of National Basketball Association teams, Timmerman (2000) found that age diversity was negatively related to team performance.

In general, although the effects of age diversity may not be as strong as other demographic characteristics (i.e. sex, race, tenure) there is evidence that it may negatively influence group processes and effectiveness (Williams & O'Reilly, 1998).

Tenure

There is also evidence that less salient characteristics (i.e. tenure) may also have negative effects on group outcomes. Tenure refers to the time an individual has been a member of a certain group or team. Many times organizations will bring in new employees at the same time. These employees will go through similar experiences (i.e. training, initiation), which can create a common bond for those employees who joined the organization together.

In a study of top management teams, Wagner, Pfeffer, and O'Reilly (1984) found that tenure diversity was positively related to turnover. In another study of top management teams, O'Reilly, Snyder, and Booth (1993) found that teams with less

tenure diversity communicated more openly, and teams with greater tenure diversity had higher levels of conflict. Pelled, Eisenhardt, and Xin (1999) found that tenure diversity and emotional conflict were positively related. In their study of intercollegiate football coaches, Cunningham and Sagas (2004) found a negative relationship between tenure diversity and commitment, and a positive relationship between tenure diversity and turnover intentions. In contrast, Ancona and Caldwell (1992) found that tenure diversity was positively related to task processes, such as brainstorming and decision-making. However, similar to age diversity research, tenure diversity research has been inconclusive.

In general, some researchers suggest that tenure diversity is associated with lower levels of social integration, poorer communication, greater conflict, and higher turnover in groups. The effects of tenure diversity on performance are often explained as indirect effects, operating through group processes such as communication and conflict (Williams & O'Reilly, 1998).

Functional Background

A deep-level characteristic that has been suggested to influence group processes and performance is that of functional background (i.e. education, experience, training). Pelled (1996) suggested that background diversity should be associated with task conflict because of differing knowledge and experience in certain situations. However, time spent on constructive debate may lead to process losses, resulting in decreased group functioning. Supporting this thought, Hambrick et al. (1996) found that heterogeneous teams were slower in terms of implementation than homogeneous teams.

Interestingly, Ancona and Caldwell (1992) found both positive and negative effects related to functional background diversity. On one hand they found that functional diversity had a direct negative effect on innovation; however, it had a positive indirect effect on innovation through group members communicating more frequently with individuals outside of the project group. In another study examining communication patterns, Glick et al. (1993) found that functional background diversity was positively associated with communication within top management teams.

In general, functional background diversity is thought to be beneficial to the group, if process losses are minimized, because individuals will bring knowledge and have access to information from outside the group, which should lead to higher quality decision-making (Milliken & Martins, 1996; Williams & O'Reilly, 1998).

Personality Characteristics and Values

Another deep-level characteristic which has been reported in the literature is personality, many times being measured by attitudes and values. Although personality and values have been used to examine their influence on individual outcomes, there have been few studies which have taken a diversity approach to look at how combining similar or dissimilar group members (with regards to attitudes and values) will influence group processes and performance. In one such study, Meglino et al. (1989) found that value congruence between subordinates and their supervisor associated with greater satisfaction and commitment. Bochner and Hesketh (1994), in a study of Australian work groups, found that those who were different with regards to cultural values (i.e. individualism versus collectivism) felt that they were discriminated against more

frequently. Jehn et al. (1999) found that information diversity is more beneficial to the group when value diversity is low. In other words, when group members share similar values, they are more likely to accept others' opinions and ideas, and use each others' differing perspectives.

Supporting previous research on value congruence, Cunningham and Sagas (2004a) found that individuals with similar values had greater job satisfaction and decreased turnover intentions, among intercollegiate basketball coaches. In another study, Cunningham (2006) found that actual and perceived surface-level dissimilarity was positively associated with perceived deep-level dissimilarity, which influenced group and individual outcomes.   Martins et al. (2003) suggested that once group members are able to get past the surface-level characteristics they will focus more on deep-level characteristics for purposes of categorization and liking. In general, individuals who share similar attitudes and values will be more attracted to each other, and feel more comfortable interacting (Williams & O'Reilly, 1998).

Processes as a Mediator

Scholars have suggested that the ambiguous, and many times inconclusive, research results concerning the relationship between diversity and group performance is due to the indirect, rather than direct, effects diversity has on performance (Williams & O'Reilly, 1998). That is, instead of looking at the direct influence of diversity on performance (since diversity is not a process which directly manufactures an outcome), researchers should focus on the impact diversity has on those group processes which ultimately lead to outcomes. Pelled (1996) introduced the "intervening process" theory,

in which she suggested that conflict mediated the relationship between diversity and group outcomes. Specifically, Pelled proposed that diversity on low job-related, highly visible characteristics (i.e. race, sex, age) will lead to interpersonal conflict, which will in turn lead to lower group performance and greater turnover. On the other hand, Pelled proposed that high job-related, low visible characteristics (i.e. tenure, functional background) will lead to task conflict, which will lead to idea generation, better decision-making, and greater cognitive performance. As Williams and O'Reilly (1998) noted, "diverse groups are more likely to be less integrative, have less communication, and more conflict" (p. 115). Much of the aforementioned research has explored the effects of diversity on social integration/cohesion (Mullen & Copper, 1994; O'Reilly, Caldwell, & Barnett, 1989), communication (O'Reilly, Snyder, & Booth, 1993), and conflict (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999). It is these processes that are then thought to influence overall member and group performance.

Task Interdependence as a Moderator

Timmerman (2000) notes that "we know very little about the effects of diversity on tasks that emphasize doing as opposed to thinking" (p. 595). Several authors have argued that the nature of the task should determine the degree to which group members interact and rely on each other (McGrath, 1984; Saavedra, Earley, & Van Dyne, 1993). This reliance upon one another is referred to as "interdependence", and has been studied numerous times with regards to athletic teams (Hanin, 1992; Jones, 1974; Matheson, Mathes, & Murray, 1997, Timmerman, 2000). Low-interdependent teams rely on the sum of individual performances (i.e. track & field teams, golf teams, tennis teams),

whereas high-interdependent teams rely on the interactions of team members during competition (i.e. basketball, hockey, volleyball). Hanin (1992) suggested that communication patterns for low-interdependent teams (i.e. baseball) were different than those for high-interdependent teams (i.e. basketball, volleyball). Jones (1974) found a stronger relationship between individual performance and team performance for low-interdependent teams (i.e. baseball) than for high-interdependent teams (i.e. basketball). Matheson, Mathes, and Murray (1997) found that there was no difference between coacting and interacting teams on their levels of social cohesion. In a recent study, Timmerman (2000) found that both age and racial diversity were negatively related to team performance for high-interdependent teams (i.e. basketball), but were unrelated to team performance for low-interdependent teams (i.e. baseball). These findings suggest that diversity had negative effects on those teams which had a greater reliance on team members interacting (i.e. interdependent teams).

Strategies for the Management of Group Diversity

"Diversity thus appears to be a double-edged sword, increasing the opportunity for creativity as well as the likelihood that group members will be dissatisfied and fail to identify with the group" (Milliken & Martins, 1996, p. 403). In other words, diversity can be both beneficial and costly to group functioning. In order to maximize the positives, and minimize the negatives, associated with group diversity, diversity management strategies must be properly implemented. In the social psychology literature, there appear to be three main structural strategies for managing diversity: mutual intergroup differentiation, decategorization, and recategorization.

Mutual Intergroup Differentiation

Hewstone and Brown (1986) introduced the Mutual Intergroup Differentiation Model, in which group members are encouraged to emphasize their individual distinctiveness while in the context of group cooperation (see also Pettigrew, 1998). The basic premise of this model is that tasks to be completed by the organization are divided up such that each group's specific skills and knowledge are maximized within the organization. The idea is to capitalize on individual expertise, while aggregating work to the group level. In order to improve group cooperation, interactions should be at the intergroup, rather than interpersonal, level (Miller, 2002). The idea is that an appreciation of individual contributions to the group will help foster positive attitudes and behaviors between group members who are different. For example, in the context of an intercollegiate athletic department, persons from academic support help student-athletes with advising and studying, while persons from marketing concentrate on promotion and sponsorship duties, and persons from facilities perform operational duties. "Cooperation can lead to more positive intergroup attitudes when the division of labor maximizes the likelihood of achieving the groups' mutual goals" (Gaertner & Dovidio, p. 41).

Decategorization

While mutual intergroup differentiation focuses on creating categorical boundaries based on area of expertise, decategorization is concerned with reducing the categorical boundaries between groups or individuals (Brewer & Miller, 1984). The

process of decategorization is achieved through the encouragement of individual interaction and friendship between in-group and out-group members, which is expected to reduce negative biases between different groups. Hewstone et al. (2002) described two processes by which intergroup bias is reduced through interpersonal interactions: (a) differentiation, and (b) personalization. Differentiation is when initial distinctions are made among out-group members, and personalization is when out-groups members are recognized for their uniqueness to the group. Therefore, the premise behind decategorization is that interaction among members of diverse teams should be encouraged in an effort to reduce negative stereotypes and biases.

Recategorization

Another strategy targeted at reducing the negative effects of diversity is that of recategorization, which is associated with the Common In-group Identity Model (Gaertner & Dovidio, 2000). According to Gaertner and Dovidio (2000), the recategorization process is achieved by encouraging group members to think of themselves as belong to one, superordinate group. Whereas the aim of decategorization is to reduce categorization, recategorization attempts to create a new, common category which is inclusive of everyone in the group. For example, the coach of the Carolina Hurricanes should try and foster a common group identity by encouraging team members to think of themselves as members of the Carolina Hurricanes hockey team, rather than thinking of themselves as individuals belonging to different ethnic categories. A common cliché used in the world of sport is, "there is no I in team". This idea is intended to encourage team members to play as a team instead of as individuals.

Pettigrew (1998) introduces an integrated model, which integrates the three previously mentioned strategies (mutual intergroup differentiation, decategorization, and recategorization), but also incorporates the idea that time and contextual factors are also very important in the development of common group identities, and the reduction of intergroup bias.

There are also group motivational strategies which can be implemented in diverse groups, such as creating a superordinate goal (Tsui & Gutek, 1999), which requires interaction and cooperation from group members in order to achieve the ultimate group goal (e.g. winning a the Stanley Cup).

In the sport management literature, Fink, Pastore, and Riemer (2001) discussed three different initiatives which sport organizations can take for managing diversity: compliance, reactive, and proactive. Compliance would be doing the minimum to adhere to legal mandates and sport governing body regulations. A reactive strategy would be when an organization is found to not be compliant, so they must react to the problem so that disciplinary action is either reduced or not taken against the organization. A proactive strategy is considered best, and is when an organization recognizes the value of diversity and implements initiatives and policies in an effort to maximize the positive benefits of diversity in the organization.

According to Fink and Pastore (1999), diversity management should be proactive and management initiated, rather than reactive to the situation. In summary, diversity seems to have both positive and negative consequences on group functioning and performance, but if managed properly, the benefits should outweigh the costs.

APPENDIX B

SUMMARY OF DEMOGRAPHIC CATEGORIES

B-1   Crosstabs of Position by Ethnicity, Age Group, and Team Tenure Group

Demographic Category	Forwards		Defensemen	
	Observed	Expected	Observed	Expected
Ethnicity[a]				
American	247	242	97	102
English Canadian	664	653	266	277
French Canadian	143	135	49	57
European	481	505	239	214
Age Group[b]				
Group 1 (18-22 Years of Age)	230	213	73	90
Group 2 (23-27 Years of Age)	628	627	266	266
Group 3 (28-32 Years of Age)	470	483	219	205
Group 4 (33+ Years of Age)	207	210	93	89
Team Tenure Group[c]				
Group 1 (0-1 Years w/ Team)	565	532	193	225
Group 2 (2-4 Years w/ Team)	700	699	296	296
Group 3 (5-7 Years w/ Team)	176	187	91	79
Group 4 (8+ Years w/ Team)	94	115	71	49

Note. a. $\chi^2(3, N = 2186) = 6.708$, $p = .082$.

b. $\chi^2(3, N = 2186) = 6.22$, $p = .101$.

c. . $\chi^2(3, N = 2186) = 22.97$, $p < .01$.

B-2   Overall Relational Demography Means and Standard Deviations
by Ethnicity, Age Group, and Team Tenure Group

Demographic Category	Mean	Std. Dev.
Ethnicity		
American	0.82	0.05
English Canadian	0.77	0.05
French Canadian	0.84	0.05
European	0.80	0.05
Age Group		
Group 1 (18-22 Years of Age)	0.82	0.04
Group 2 (23-27 Years of Age)	0.77	0.05
Group 3 (28-32 Years of Age)	0.80	0.05
Group 4 (33+ Years of Age)	0.79	0.05
Team Tenure Group		
Group 1 (0-1 Years w/ Team)	0.79	0.05
Group 2 (2-4 Years w/ Team)	0.77	0.05
Group 3 (5-7 Years w/ Team)	0.83	0.05
Group 4 (8+ Years w/ Team)	0.85	0.06

B-3   Frequencies by Ethnicity, Age Group, and Team Tenure Group

Demographic Category	Frequency	Percent
		(Within Category)
Ethnicity		
American	344	15.7
English Canadian	930	42.5
French Canadian	192	8.8
European	720	33.0
Age Group		
Group 1 (18-22 Years of Age)	303	13.9
Group 2 (23-27 Years of Age)	894	40.9
Group 3 (28-32 Years of Age)	689	31.5
Group 4 (33+ Years of Age)	300	13.7
Team Tenure Group		
Group 1 (0-1 Years w/ Team)	758	34.7
Group 2 (2-4 Years w/ Team)	996	45.6
Group 3 (5-7 Years w/ Team)	267	12.2
Group 4 (8+ Years w/ Team)	165	7.5
Total Population (within each Category)	2186	

B-4   Means for Age and Team Tenure by Ethnicity

Ethnicity	Mean Age (Years)	Mean Team Tenure (Years)
American	28.78	3.45
English Canadian	27.89	3.70
French Canadian	27.86	3.58
European	26.93	3.94

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RESEARCH INTERESTS

My research interests span the areas of organizational theory, organizational behavior, and group dynamics.

My current research focus is in the area of small group processes, group member attitudes, and diversity and discrimination in sport.