INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
DIVERSITY AND RECATEGORIZATION: EXAMINING THE EFFECTS OF COOPERATION ON BIAS AND WORK OUTCOMES

DISSERTATION

Presented in Partial Fulfillment of the Requirement for
the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

George B. Cunningham, M.S.

*****

The Ohio State University
2002

Dissertation Committee

Dr. Packianathan Chelladurai, Advisor

Dr. Donna L. Pastore

Dr. Janet S. Fink

Approved by

Advisor
College of Education
ABSTRACT

According to Williams and O’Reilly (1998), the negative effects of diversity in workgroups can be attributed, at least in part, to self-categorization – a process that leads to bias between ingroups and outgroups. Therefore, efforts to reduce intergroup bias could mitigate the negative impact of diversity. In drawing from the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993), the purpose of this study was to examine the extent to which a reduction in intergroup bias, through recategorization, was related to more positive affective work attitudes. Students (N = 325) in physical activity classes participated in the experiment. Participants were assigned to 3-person groups, where they worked on the Winter Survival Problem (Johnson & Johnson, 1975), thereby creating ingroup membership. After completing the task, two 3-person groups worked with one another. It was during this time that the manipulation took place. In following Gaertner et al. (1989, 1990), cooperation was used to recategorize group members, such that the two groups of three merged to form a common group – one group where the members interacted, had a common problem (the Winter Survival Problem) requiring a consensus solution, and common fate. In the no-cooperation condition, the two groups shared their answers to the Winter Survival Problem with one another. As expected, cooperation served to transform cognitive
representations of the aggregate to one group; further, as a result of pro-ingroup bias, persons with cognitive representations of the aggregate as one group had less intergroup bias than did persons with cognitive representations of the aggregate as two groups. Unexpectedly, the reduction in bias was not related to satisfaction with or preference to work with the group as a whole. However, consistent with the predictions, a reduction in intergroup bias was significantly related to satisfaction with the performance of and preference to work with outgroup members. The results indicate that recategorization (a) can mitigate or reverse the possible negative effects of diversity in the workplace and (b) is a potential strategy for managing diversity in workgroups.
This work is dedicated to my Lord and Savior, Jesus Christ. As Paul wrote, “I can do everything through Him who gives me strength” (Phillipians 4:13, NIV)
ACKNOWLEDGMENTS

I wish to first thank my advisor, Packianathan "Chella" Chelladurai, first for his friendship, and second for the patience, wisdom, and encouragement that made this dissertation possible.

I also thank the two other members of my committee, Donna Pastore and Janet Fink. I am grateful for their assistance, not only with this dissertation, but also with the entire doctoral program.

I thank Michael Sagas, Marlene Dixon, Harry Kwon, and Kim Mahoney for their assistance with the construction of the survey instrument.

I thank the many golf and CPR instructors who allowed to "just take about 15-20 minutes" to run experiments in their classes. I am also indebted to the 330 students who agreed to participate in the experiment.

Finally, and most importantly, I thank my wife, Melissa. I thank her for allowing me to "just run one more analysis" so many times. I also thank her for being the ultimate sounding board for all of my ideas concerning diversity and intergroup bias. I finally thank her for always encouraging me, always being a source of inspiration, but most of all, always loving me. She is my everything.
VITA

December 6, 1975..............................................Born – Wichita Falls, TX

1998..........................................................B.S. Sport and Exercise Science, Midwestern State University.

1998 - 1999...............................................Graduate Teaching Assistant, Texas A&M University.

1999..........................................................M.S. Kinesiology, Texas A&M University.

2000 - present..............................................Graduate Teaching Associate, The Ohio State University.

PUBLICATIONS

Research Publication


10. Sagas, M., Wigley, B. J., Cunningham, G. B., & Ashley, F. B. (2000). Completing the evolution: Revenue sharing through the Sears Director’s Cup as a catalyst to achieve substantial proportionality. *Sociology of Sport On-line, 3* (1) [Online]. Available: [http://psyched.otago.ac.nz.sosol/v3i1/v3i1s1.htm](http://psyched.otago.ac.nz.sosol/v3i1/v3i1s1.htm)

FIELDS OF STUDY

Major Field: College of Education
Physical Activity and Educational Services
Sport and Exercise Management
# TABLE OF CONTENTS

Abstract .................................................................................................................... ii  
Dedication ............................................................................................................... iv  
Acknowledgments .................................................................................................. v  
Vita ......................................................................................................................... vi  
List of Tables .......................................................................................................... xii  
List of Figures ........................................................................................................ xiv  
Chapters:  
1. Introduction ........................................................................................................ 1  
   Theoretical Underpinnings of Diversity Research ........................................... 4  
   Diversity Research ............................................................................................ 5  
   Self-Categorization and the Common Ingroup Identity Model ....................... 8  
   Outcomes of a Common Ingroup Identity ....................................................... 12  
   Intergroup Bias ............................................................................................... 13  
   Preference to Work with the Group ............................................................... 15  
   Satisfaction ....................................................................................................... 17  
   Mediating Effects of Satisfaction ................................................................... 19  
   Control Variables ........................................................................................... 20  
   Delimitations ................................................................................................. 24  
   Limitations .................................................................................................... 24  
   Operational Definitions .................................................................................. 24  
2. Review of Literature ........................................................................................... 27  
   Diversity Research in Organizational Sciences ............................................. 27  
   Theoretical Underpinnings ............................................................................. 30  
   Integrated Framework ..................................................................................... 32
3. Methodology ........................................................................................................ 101
   Research Design ................................................................................................. 101
   Internal Validity .................................................................................................. 104
   Experimental Designs .......................................................................................... 106
       Pretest – Posttest Control Group Design ................................................................. 108
       Solomon Four Group Design ............................................................................... 110
       Posttest Only Control Group Design .................................................................... 111
   Participants ........................................................................................................... 114
   Pilot Testing .......................................................................................................... 117
       Pilot Test 1 ....................................................................................................... 117
       Revisions Based on Pilot Test 1 .......................................................................... 123
       Pilot Test 2 ....................................................................................................... 123
       Revisions Based on Pilot Test 2 .......................................................................... 128
   Study ....................................................................................................................... 130
       Procedure ........................................................................................................... 130
       Measures .......................................................................................................... 132
       Analyses ............................................................................................................ 135

4. Results .................................................................................................................. 139
   Sample Characteristics .......................................................................................... 139
   General Statistical Information ............................................................................. 141
   Hypothesis Testing ................................................................................................ 142
       Hypothesis 1 ....................................................................................................... 142
       Hypothesis 2 ....................................................................................................... 144
       Hypothesis 3 ....................................................................................................... 146
       Hypothesis 4 ....................................................................................................... 147
       Hypothesis 5 ....................................................................................................... 148
       Additional Tests ................................................................................................ 149
   Summary ................................................................................................................ 160

5. Discussion .............................................................................................................. 161
   Cooperation and Recategorization ........................................................................ 163
   A Common Group and the Reduction of Bias .......................................................... 165
   The Relationship between Bias and Group-related Work Outcomes ..................... 168
   The Relationship between Bias and Attitudes toward Outgroup Members ............ 171
   Limitations and Future Directions .......................................................................... 175
   Practical Considerations ......................................................................................... 181
   Conclusions ............................................................................................................ 181
   Summary ................................................................................................................ 184

List of References ....................................................................................................... 186
### Appendices

<table>
<thead>
<tr>
<th>A: Final Questionnaire</th>
<th>204</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Questionnaire #1</td>
<td>210</td>
</tr>
<tr>
<td>C: Questionnaire #2</td>
<td>216</td>
</tr>
<tr>
<td>D: Panel of Experts</td>
<td>223</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>119</td>
</tr>
<tr>
<td>3.2</td>
<td>127</td>
</tr>
<tr>
<td>4.1</td>
<td>140</td>
</tr>
<tr>
<td>4.2</td>
<td>142</td>
</tr>
<tr>
<td>4.3</td>
<td>143</td>
</tr>
<tr>
<td>4.4</td>
<td>144</td>
</tr>
<tr>
<td>4.5</td>
<td>144</td>
</tr>
<tr>
<td>4.6</td>
<td>147</td>
</tr>
<tr>
<td>4.7</td>
<td>148</td>
</tr>
<tr>
<td>4.8</td>
<td>150</td>
</tr>
<tr>
<td>4.9</td>
<td></td>
</tr>
</tbody>
</table>
4.10 Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and satisfaction with the performance of outgroup members (N = 325) .......................................................... 151

4.11 Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and preference to work with outgroup members (N = 325) ................................................................ 153

4.12 Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and intergroup bias (N = 325) ................................................................. 154

4.13 Summary of hierarchical regression analysis testing the mediating effects of bias on the relationship between perceptions of the aggregate as one group and satisfaction with the performance of outgroup members (N = 325) ............................ 155

4.14 Summary of hierarchical regression analysis testing the mediating effects of bias on the relationship between perceptions of the aggregate as one group and preference to work with outgroup members (N = 325) ................................................................. 156
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Table</th>
<th>Illustrative summary</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>of hypotheses</td>
<td>23</td>
</tr>
<tr>
<td>2.1</td>
<td>Illustrative summary of diversity research in organizational sciences</td>
<td>31</td>
</tr>
<tr>
<td>3.1</td>
<td>Illustrative summary of the pretest-posttest control group design</td>
<td>108</td>
</tr>
<tr>
<td>3.2</td>
<td>Illustrative summary of Solomon four group design</td>
<td>110</td>
</tr>
<tr>
<td>3.3</td>
<td>Illustrative summary of posttest only control group design</td>
<td>111</td>
</tr>
<tr>
<td>3.4</td>
<td>Illustrative summary of mediation analysis</td>
<td>159</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

In following Thomas (1996), diversity is defined as “any mixture of items characterized by differences and similarities” (p. 5). As Chelladurai (2001a) notes, this definition allows for a broad interpretation of diversity, as it can be thought of as the mixture of items, including all organizational variables, human and capital. We can, therefore, also restrict the definition to the collection of persons that are (dis)similar with regard to race, ethnicity, gender, age, organizational tenure, educational background, functional background, cultural background, sexual orientation, values and attitudes, religious affiliation, physical ability, and cognitive functioning. For several reasons outlined in greater detail below, organizational diversity has become a “hot” topic for both practitioners and organizational science researchers. Because of this interest, researchers have devoted considerable time and energy to the study of diversity.

There are several reasons for this interest. First, the demographic mix of the United States has traditionally only gradually changed. Now, however, the proportion of persons that have traditionally held racial minority status is growing exponentially compared to the proportion of Whites. For instance, Farley (1997) reported that the average Hispanic woman has three children during her lifetime, a number considerably
higher than the 1.79 children the average White woman has during her lifetime. Other figures from the U.S. Census Bureau indicate that by the year 2050, Whites will comprise roughly 53% of the U.S. population, a decline of approximately 20% from the 1997 figures. These changes are likely to also impact the demographic characteristics of persons entering the workforce as well. Thus, as the world around us becomes more racially diverse, so too will the workplace. In this way, diversity will no longer be a chosen practice in the workplace, but a reality.

Other proponents of diversity take a justice approach. For instance, Mai-Dalton (1993) suggests that the first and only reason one should support cultural diversity in the workplace is due to a social or moral obligation to treat others fairly. Other authors in the organizational science literature have echoed these claims in suggesting that organizations have an obligation to provide a work environment in which all persons are treated fairly, all persons are comfortable with the work context, and all persons have an equal chance to excel (Cox, 1991; DeSensi, 1995; Doherty & Chelladurai, 1999; Morrison, 1992; Thomas, 1991).

While some may adopt a justice perspective, a business-case for diversity will likely be more influential in promoting workplace diversity (Robinson & DeChant, 1997; Thomas, 1991). This orientation stems from the argument that effective diversity management can possibly serve to save the firm money, provide an ideal medium for marketing to a diverse population, and provide the firm with invaluable human resources (Cox & Blake, 1991; Richard, 2001; Robinson & Dechant, 1997). Thus, basing the diversity argument on these potential benefits to the organization can
possibly provide a more salient rationale for advocating diversity than a perceived social obligation to provide equitably for all persons.

Irrespective of the motivation for interest in organizational diversity, there is a considerable literature devoted to the topic. Despite the claims of many diversity theorists that heterogeneity within the workplace results in benefits to the organization, empirical research concerning the impact of diversity on organizational life remains mixed. In fact, after a review of 40 years of diversity research, Williams and O’Reilly (1998) noted that diversity within groups can have deleterious effects on group functioning (e.g., social integration, communication, conflict, intergroup bias, etc.) and on affective reactions (e.g., commitment, satisfaction, stay intentions, etc.) of members of diverse groups. Similar findings were reported in Milliken and Martins’ (1996) review of the research from 1989 – 1994. There is also substantial research, however, that has demonstrated the positive impact diversity can have on work group and organizational outcomes (Milliken & Martins, 1996; Williams & O’Reilly, 1998). Thus, a central question in diversity research is how organizations are able to leverage the positive aspects of diversity while also mitigating its negative consequences. The present study takes steps in answering this question. Specifically, using the Common Intergroup Identity Model (Gaertner & Dovidio, 2000; Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993), I propose that the process of recategorization can help to mitigate the negative effects of diversity.

Below, I outline the traditional theoretical underpinnings used to guide diversity research, review the relevant diversity research, outline Common Ingroup Identity Model, and provide hypotheses for the study. It is important to note that in outlining the
research, I restrict the literature review to those studies that examined the effects of heterogeneity in dyads, groups, or organizations. Thus, the studies that have examined only simple demographics have not been included. While excluding much of the sport management research related to women and racial minorities in coaching and administrative positions, this omission is consistent with the aforementioned definition of diversity (Thomas, 1996) as well as the conceptualization of relational demography framework – “the comparative demographic characteristics of members of dyads or groups who are in position to engage in regular interactions” (Tsui & O’Reilly, 1989, p. 403).

**Theoretical Underpinnings of Diversity Research**

To fully understand the impact of diversity in organizational life, it is important to first quickly examine the theoretical underpinnings that drive many of the studies. Most studies that examine dissimilarity among members of groups or vertical dyads have formulated hypotheses based on self-categorization theory (Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), social identity theory (Tajfel & Turner, 1979; Turner, 1982), or the similarity/attraction paradigm (Bryne, 1971). Social identity and self-categorization theories predict that persons have a desire to maintain high levels of self-esteem, something that is often accomplished through comparison with others. In making such comparisons, individuals first define themselves and then classify others into social categories. These categories can be based on demographic variables, such as age, gender, race, etc., or other membership criteria, such as team membership. This process allows for individuals to define themselves in terms of a social identity (Tajfel & Turner, 1979). Insomuch as the membership in a group allows one to assume a
positive identity of self, he or she may seek to maximize distinctions between groups by
perceiving outgroups as less attractive (Kramer, 1991) or by emphasizing the positive
distinctiveness of his or her ingroup (Gaertner & Dovidio, 2000). In a somewhat similar
vein, the similarity / attraction paradigm predicts that similarity in specific attributes,
including values and demographic variables, increases interpersonal attraction and
liking.

Diversity Research

Below, I present a brief review of the diversity research. This review is only
meant to highlight the important areas related to diversity in groups and organizations.
A more extensive review is offered in Chapter 2.

Diversity has been widely studied in the business and sport management
literatures. In the business literature, for example, differences in vertical dyads are
related to lower perceptions of leader-member exchange (Green, Anderson & Shivers,
1996; Pelled & Xin, 2000), less frequent communication between the supervisor and
subordinate (McNeilly & Russ, 2000), higher levels of role stress (i.e., role conflict and
role ambiguity) (McNeilly & Russ, 2000; Tsui & O’Reilly, 1989), and lower
performance ratings and supervisor affect for the subordinate (Tsui & O’Reilly, 1989).
Further, persons dissimilar from others in the group have lower levels of attachment, as
measured by commitment, stay intentions, and frequency of absences (Mueller, Finley,
Iverson, & Price, 1999; Tsui, Egan, & O’Reilly, 1992). Interestingly, these effects are
more salient for men than for women and for Whites when compared to non-Whites,
thereby supporting the nonsymmetrical hypothesis (Tsui et al., 1992). Additionally,
Elvira and Cohen (2001) found that the number of women in upper levels within an organization affected other women's turnover intentions.

In the literature related to sport, Sagas, Cunningham, and Ashley (2001) found that women in mixed-gender coaching dyads had fewer intentions to become a head coach than did those women with females as head coaches. Additional research has focused on the relationship between the female athlete and her coach. These studies have indicated that female student-athletes are more likely to (a) aspire to be a head coach (as opposed to an assistant coach) (Lirgg, DiBrezzo, & Smith, 1994) (b) view their coach as a role model (Whitaker & Molstad, 1988), and (c) perceive discrimination not to be a barrier to becoming a coach (Everhart & Chelladurai, 1998) when they have a woman, as opposed to a man, as a coach. There is also evidence from Anshel (1990; Anshel & Sailes, 1990) and Evans (1978) that Black athletes, when compared to their White counterparts, are less trusting and more distant from White coaches.

At the group level of analysis, research that has examined the relationship between diversity and process outcomes has been equivocal. For example, diverse teams are likely to initially have less team cohesion (Harrison, Price, & Bell, 1998; Thomas, Ravlin, & Wallace, 1996) and lower levels of team consideration (Cady & Valentine, 1999). However, others have found no relationship between gender diversity and task and emotional conflict (Pelled, Eisenhardt, & Xin, 1999), cohesion (Riordan & Shore, 1997; Rogelberg & Rumery, 1996), or time on task (Rogelberg & Rumery, 1996). To further complicate the issue, other researchers have found that gender diversity is positively related to process outcomes, such as a positive diversity climate (Kossek & Zonia, 1993) and team integration (Lichtenstein et al., 1997). Further, Richard (2000)
proposed that a racially diverse workforce served as a competitive advantage to the firm because it could be considered as valuable, rare, and imperfectly imitable.

Consistent with the equivocal findings related to process outcomes, the findings related to the association between group heterogeneity and group outcomes have been mixed. For example, Riordan and Shore (1997) found no relationship between gender diversity and work group productivity, but did find effects for racial diversity; additionally, Cady and Valentine (1999) noted an inverse relationship between gender diversity and the quantity of ideas generated. However, Rogelberg and Rumery (1996) found that groups with a single female outperformed others in terms of decision quality, while Siciliano (1996) found that gender diversity in YMCA executive boards was significantly and positively related to social performance. Further, O’Reilly, Williams, and Barsade (1998) found that racially diverse teams produced more creative solutions to problems than racially homogenous teams. Fenwick and Neale (2000) reported similar findings in their experiment, as the presence of women on the team increased the team’s performance. Therefore, these studies demonstrate that diversity, whether at the dyadic or group level, can have both positive and negative effects on subsequent outcomes.

Therefore, it is necessary to further understand the dynamics behind diversity. Williams and O’Reilly (1998), after their review of over 40 years of diversity research, suggested that an “important gap in our understanding of diversity concerns how successful groups are able to leverage diversity” (p. 118). These authors further noted that “While it is clear that there are potentially negative consequences from social categorization processes operating in groups, it remains unclear how successful groups
overcome these obstacles” (pp. 118 – 119). As previously mentioned, one method of understanding how to effectively leverage the effects of diversity comes from the underpinnings of the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) – a framework that is outlined below.

Self-Categorization and the Common Ingroup Identity Model

As previously mentioned, self-categorization theory (Turner, 1985) has been used extensively in diversity research (Williams & O'Reilly, 1998). Tsui et al. (1992) suggest that the self-categorization process “is fundamental to the formation of ingroups and the widely documented tendency of individuals to prefer homogeneous groups of similar others” (p. 552). The negative effects of diversity on individual and group level outcomes, as outlined above, can be attributed to the self-categorization process (Williams & O'Reilly, 1998). Thus, to the extent that persons within a heterogeneous group define themselves and others based on categories other than group membership, such as gender, the effects of diversity on group functioning are likely to be negative. Therefore, efforts made to emphasize group membership, as opposed to individual differences, could serve to decrease the deleterious effects of diversity.

The Common Ingroup Identity Model proposed by Gaertner, Dovidio, and colleagues (Gaertner & Dovidio, 2000; Gaertner et al., 1993) provides a means of assessing this challenge. According to Gaertner et al. (1993), the Common Ingroup Identity Model has its foundations in the social categorization approach to intergroup functioning (Brewer, 1979; Brown & Turner, 1981; Tajfel & Turner, 1979) and “asserts that intergroup bias and conflict can be reduced by factors that transform members’ cognitive representation of the memberships from two groups to one group” (p. 2).
Fundamental to the model is the idea of recategorization, or the notion that, if members of separate groups can be induced to conceive of themselves as a single group, then former biases against outgroup members will become more positive through the "processes involving pro-ingroup bias" (Gaertner et al., 1993, p. 6). Theoretically, the process by which a superordinate group identity can reduce intergroup bias rests in two premises: (a) intergroup bias is characterized by ingroup enhancement, as opposed to outgroup devaluation, and (b) the formation of a one-group identity serves to bring outgroup members closer to the self, while the association between ingroup members and the self remains relatively unchanged. Practically, recategorization from two groups to one can be achieved through (a) promoting the salience of a common superordinate group membership, or (b) through introducing new factors, such as interdependent tasks or common fate, that group members perceive to share among one another.

Empirical support for the model is found in numerous studies completed by Gaertner, Dovidio, and their associates. For example, in their early study, Gaertner, Mann, Murrell, and Dovidio (1989) studied how categorization and cognitive representations impacted intergroup bias. Persons in separate groups of three, and then in an aggregate of six persons, discussed the "Winter Survival Problem" (Johnson & Johnson, 1975) – a problem that requires participants to rate the most important items they would take if they were in a plane crash in Minnesota during the winter months. As a primary focus, Gaertner et al. manipulated the situation (through spatial arrangement, interdependence, and the assignment of group names) to induce perceptions of the
aggregate as a single group (i.e., recategorization), two separate groups, or a collection of individuals (i.e., decategorization). Subsequent tests verified that the manipulation was successful.

Further analyses indicated that bias was reduced in the recategorization condition because evaluations of former outgroup members were enhanced. As Gaertner et al. (1989, p. 240) suggest, the increase in evaluations of former outgroup members occurs because "the social distance with former out-group members has decreased and the social distance with former in-group members has remained relatively close."

Further, while biases were reduced through recategorization (as well as decategorization, through a different process), bias in the two-group condition remained; that is, the salience of the intergroup boundary remained in the two-group condition. Additional analyses revealed that, when asked to vote for a leader of the team, persons in the one-group condition were less likely to vote for an ingroup member (44%) than were persons in the two-group condition (62%).

Later work by Gaertner and his associates (Gaertner, Mann, Dovidio, Murrell, & Pomare, 1990) that contributed to the formation of the Common Ingroup Identity Model was aimed at further understanding the impact that intergroup cooperation had on the formation of a single superordinate group. As with their previous study, students initially worked in separate three-person groups before merging to form six-person groups. Cooperative interaction, the manipulation thought to drive perceptions of the superordinate group, was characterized by groups interacting with common goals and common fate (i.e., common rewards). In the no-cooperation condition, both groups together listened to recordings of another group's discussion. Consistent with their
predictions, when groups that initially conceived the aggregate to represent two groups were put in the cooperative condition, perceptions of a superordinate group increased (15.8% to 48.3%), while biases in evaluative ratings (i.e., how well members liked the other groups members and considered them as honest, cooperative, and similar to themselves) decreased. Additional analyses showed that perceptions of the aggregate mediated the relationship between cooperative interaction and positive evaluations of outgroup members.

While the two aforementioned studies laid the groundwork for the Common Ingroup Identity Model, subsequent research by Gaertner, Dovidio, and their colleagues in the laboratory (e.g., Dovidio, Gaertner, Validzic, Matoka, Johnson, & Frazier, 1997; Gaertner, Dovidio, Rust, Nier, Banker, Ward, Mottola, & Houlette, 1999; Mottola, Bachman, Gaertner, & Dovidio, 1997; Nier, Gartner, Dovidio, Banker, & Ward, in press [study 1]) and field (Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1994; Murrell & Gaertner, 1992; Neir et al., in press [study 2]) settings have provided further support. Additionally, while some (e.g., Hewstone, 1996) question the applicability of the recategorization process given the powerful ethnic and racial divides between groups, Nier et al. (in press; see also Gaertner & Dovidio, 2000) note that the development of a superordinate group identity does not require groups to altogether forsake their less inclusive identity. They allude to a football team to illustrate this point, as groups (i.e., offensive and defensive units) can still maintain their distinctiveness within the context of a superordinate identity (see also Murrell & Gaertner, 1992).

Therefore, there is empirical evidence that cooperation, which entails interaction, a common problem requiring a consensus solution, and common fate, can serve as a tool
for recategorization. These findings are also in line with Wilder's (1986) theoretical predictions. In the current study, participants were assigned to originally work in groups of three. Participants then worked with another three-person group. In line with Gaertner et al. (1989, 1990), participants in the original three-person group served as ingroup members while persons in the other three-person group served as outgroup members. It is during the time that the two three-person groups worked with one another that the experimental manipulation took place (i.e., cooperation or no-cooperation). Based on the theoretical and empirical evidence presented above, it was expected that cooperation would transform participants' cognitive representation of the aggregate from two groups to one. Accordingly, I hypothesized:

**Hypothesis 1:** When compared to those persons in conditions without cooperation, group members in cooperative conditions will perceive the aggregate to represent one group as opposed to two groups.

**Outcomes of a Common Ingroup Identity**

Within the context of the current study, the Common Ingroup Identity Model can have substantial implications. As previously mentioned, much of the diversity research is centered around the underpinnings of three theories — social identity (Tajfel & Turner, 1979; Turner, 1982), self-categorization (Turner, 1985; Turner et al., 1987), and similarity/attraction (Byrne, 1971). In short, the hypotheses derived from these theories posit that persons similar to others in their vertical dyads or work groups are likely to have more positive work experiences, greater career advancement opportunities, and remain in the organization longer than are persons that are dissimilar to others in the workplace. Further, deficiencies in the productivity of diverse groups is
often attributed to the notion that these groups were unable to overcome the process losses that their homogenous counterparts did not encounter. Thus, in diverse groups, the differences among persons are salient, which, in turn, affects group functioning, productivity, and individual level outcomes. However, according to the Common Ingroup Identity Model, the process of recategorization should make these differences less pronounced. That is, the recategorization process shifts the focus from the individual differences among team members to the superordinate identity of the group – a one-group membership. Thus, the presence of a superordinate group should mitigate the process losses that occur in diverse groups.

In this study, I drew from the concepts of the Common Ingroup Identity Model (Gaertner et al., 1993; Gaertner & Dovidio, 2000) to examine the extent to which recategorization could impact four outcomes. First, I followed the previous work of Gaertner, Dovidio, and their associates in examining the extent to which recategorization served to reduce bias among group members. Second, I extended their work by investigating the extent to which bias was related to additional outcomes – preference for working with the group, satisfaction with the group, and satisfaction with the process. The rationale for including each of these concepts and specific hypotheses for each is given below.

*Intergroup Bias*

One of the fundamental premises of the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) is that intergroup bias can be reduced through recategorization. As Gaertner and Dovidio (2000) note, “if members of different groups are induced to conceive of themselves within a single group rather than
completely separate groups, attitudes toward former outgroup members will be more positive through cognitive and motivational processes involving pro-ingroup bias” (p. 46). Thus, through recategorization, persons that were formerly outgroup members are brought closer to the self, thereby facilitating positive interpretations of these persons.

Early laboratory research by Gaertner and his associates (1989; 1990) has provided support for this postulate. Specifically, members were asked to complete evaluative ratings of other group members (e.g., the degree to which each person in the group was liked and perceived to be cooperative, honest, and valuable). Next, an index, comprised of the average of the ratings for each participant, was calculated for ingroup and outgroup members. As expected, bias was reduced in the one-group conditions by increasing evaluations of former outgroup members. Subsequent research in the laboratory (Dovidio, Gaertner, & Valdizic, 1998; Dovidio et al., 1997; Nier et al., in-press [study 1]) and field settings (Gaertner et al., 1994) have provided similar results in that cognitive representations of one-group serve to decrease intergroup bias.

In applying these concepts to the current study, bias would occur between the two 3-person groups working together. Thus, in the absence of recategorization, it is expected that one would have higher ratings of the 2 other members of his or her 3-person group (i.e., ingroup members) and have lower ratings of the 3 members of the opposing 3-person group (i.e., outgroup members). However, through recategorization, bias against outgroup members should be reduced. Accordingly, I hypothesized:

Hypothesis 2: Persons who perceive the aggregate to represent one group will have less intergroup bias than those persons who perceive the aggregate to be two groups.
A reduction in bias should result in various work outcomes. For example, research has indicated that bias is negatively associated with attitudinal favorability (Gaertner et al., 1994), helping behavior (Dovidio et al., 1997; Nier et al., in press), and self-disclosure (Dovidio et al., 1997). In extending these findings, this research examined the extent to which a reduction in bias was related to work outcomes – preference to work with the group and satisfaction – both with coworkers and with the process. This is the first research to explicitly examine the relationship between bias and these work outcomes. The theoretical background and specific hypotheses are presented below.

Preference to Work with the Group

A reduction in group bias should result in a more positive work environment and more positive attitudes and behaviors. For example, in their field study of students in a multi-ethnic high school, Gaertner et al. (1994) found that bias in affective reactions was significantly and positively related to overall attitudinal favorability toward others (β = .53). Mottola, Bachman, Gaertner, and Dovidio (1997) reported similar findings in their study of merger acquisitions. Specifically, when acquisition patterns were inclusive of both organizations, personnel reported higher levels of organizational commitment. This is in contrast to when the acquisition pattern was such that the merged organizations seemed to be separate entities. Therefore, it is likely that bias is related to work-related attitudes as well.

In the current study, I examine the extent to which bias is related to preference to work with the group. Conceptually, this outcome is similar to that of affective team commitment. Affective team commitment can be thought of as an attachment or
identification with the team in which one works. Further, one component of team commitment is the extent to which one has a strong desire to maintain membership in the team (Bishop and Scott, 2000). However, by and large, commitment is perceived as a lasting attitude (Meyer & Allen, 1997). This is troublesome in this study, as teams in experimental conditions are not lasting. In fact, these teams resemble project teams, in that a one-time output is produced and then members disband (see Cohen & Bailey, 1997). Because project teams are not in tact for a long duration of time, it is unlikely that commitment would appropriately capture the attitudes of the members. However, preference to work with the group would adequately describe positive attitudes that would result from a decrease in bias toward group members.

Because they are conceptually related, it is possible to use portions of the literature related to commitment to formulate hypotheses concerning preference to work with the group. As previously noted, diversity scholars have found that being different (with respect to gender) from the supervisor or other group members is related to lower levels of commitment (McNeilly & Russ, 2000; Tsui et al., 1992). However, research utilizing the Common Ingroup Identity Model has indicated that perceptions of a superordinate group identity is related to increased levels of commitment among (a) persons in the midst of a corporate merger (Mottola et al., 1997) and (b) college students (Gaertner & Dovidio, 2000). Though not directly tested in the aforementioned studies, predictions from the Common Ingroup Identity Model would suggest that commitment to the organization, or in this case, the team, would result from a reduction in bias.

These findings can be applied to the current context and the examination of preference to work with the team. Specifically, it is suggested that, as a result of
recategorization processes, team members will have a reduction in bias. Thus, other team members should be evaluated similar to the self. As a result of this process, it is thought that team members will have positive interpretations of group functioning, and therefore have a preference to work with the team and its members again. Accordingly, I hypothesized:

*Hypothesis 3:* Persons with low levels of bias will have greater preference to work with the group than will those persons with high levels of bias.

*Satisfaction*

In addition to examining the preference to work with the group, I also examined the extent to which bias was related to satisfaction. Researchers have found that persons working in diverse groups or in dissimilar vertical dyads have less satisfaction than those working with similar others. For instance, Wesolowski and Mossholder (1997) found that subordinates in mixed-race dyads had less job satisfaction than those working in same-race dyads. Similar findings were noted for teachers, as White educators who worked in schools in which the teacher and student population were similar in race to themselves had greater job satisfaction than educators working in mixed-race schools (Mueller et al., 1999). Thus, there is evidence that work group diversity can lead to a lower level of satisfaction.

There is also evidence, however, that recategorization can help to mitigate the negative effects of diversity on satisfaction. For example, Gaertner and Dovidio (2000), in their re-analysis of previous data from Niemann & Dovidio (1998), found that job satisfaction among psychology professors was dependent upon the extent to which persons felt like part of the department. This is consistent with predictions from the
Common Ingroup Identity Model in which affective consequences are dependent upon the extent to which persons have cognitive representations of the aggregate as one group. In extending this argument, it is likely that the relationship between satisfaction and a one-group cognitive representation of the aggregate is mediated by a reduction in bias. This extension is also consistent with the previous hypothesis concerning preference to work with the group. Therefore, it is likely that persons with lower levels of bias will have greater satisfaction than will those with higher levels of bias.

It is important to note, however, that satisfaction is a multidimensional construct. For example, workers can be satisfied with the specific work they accomplish, their coworkers, their supervisor, etc. The multidimensionality of satisfaction is also seen in the construction of satisfaction questionnaires. For example, Riemer and Chelladurai’s (1998) Athlete Satisfaction Questionnaire consists of 15 dimensions, while Hackman and Oldham’s (1980) Job Diagnostic Questionnaire is comprised of 5 dimensions. Thus, it is important to distinguish the specific dimensions of satisfaction studied.

In the current study, I examined two forms of satisfaction – satisfaction with the process and satisfaction with coworkers. Satisfaction with the process refers to the extent to which the participants were satisfied with the decision-making process of the group (Thomas et al., 1996). Past research has indicated that differences among group members in heterogeneous groups is likely to result in process losses (Thomas et al., 1996; Thomas, 1999). For instance, in Thomas’s (1999) study, he suggested that the performance differences between heterogeneous and homogenous groups was due to process losses that the former group was unable to overcome. In the current study, it is
likely that, through reduction in bias between ingroup and outgroup members, recategorization will mitigate these process losses. In this way, it is likely that there is a negative relationship between bias and satisfaction with the process. Accordingly, I hypothesized:

_Hypothesis 4a:_ Persons with low levels of bias will have greater satisfaction with the process than will those with high levels of bias.

Satisfaction with coworkers refers to the satisfaction a person has with the other persons in the group in which he or she works. When demographic characteristics, such as age, race, or gender, are salient in the categorization process, then self-categorization (Turner, 1985; Turner et al., 1987) and social identity (Tajfel & Turner, 1979; Turner, 1982) theories would suggest that persons will seek to maximize intergroup differences by viewing other ingroup members in a more positive light than outgroup members. Thus, in groups comprised of both ingroup and outgroup members, it is likely that satisfaction with all coworkers will be low. However, as a result of recategorization, former outgroup members are brought closer to the self (Gaertner et al., 1993; Gaertner & Dovidio, 2000), and, consequently, all group members are considered ingroup members. Thus, when bias is reduced through recategorization, it is expected that satisfaction with coworkers will increase. As a result, I hypothesized:

_Hypothesis 4b:_ Persons with low levels of bias will have greater satisfaction with coworkers than will those with high levels of bias.

**Mediating Effects of Satisfaction**

There is some debate as to the causal relationship between job satisfaction and organizational commitment (Bateman & Strasser, 1984; Curry, Wakefield, & Price,
However, there are several authors (Aryee, Chay, & Chew, 1994; Bishop & Scott, 2000; Lee, Carswell, & Allen, 2000; Meyer & Allen, 1988) that make an argument for satisfaction serving as an antecedent to commitment. In following these authors, I propose that the two forms of satisfaction examined in this study serve as antecedents of preference to work with the group. In this way, it could be expected that the two forms of satisfaction mediate the relationship between bias and preference to work with the group. Therefore, I hypothesized:

Hypothesis 5a: The relationship between bias and preference to work with the group will be mediated by satisfaction with the process.

Hypothesis 5b: The relationship between bias and preference to work with the group will be mediated by satisfaction with coworkers.

Control Variables

Within this research project, it is important to control for factors other than those explicitly studied that could possibly account for variance. Past research has demonstrated three such variables – gender, race, and orientations. There is considerable evidence to suggest that persons different from others in a group, with respect to gender, have less desirable work experiences and work outcomes than do those that are similar to their cohorts. For example, Tsui and her associates (1992) found that persons dissimilar to others in the group had less psychological attachment and fewer stay intentions while having an increase in absences. In a similar fashion, McNeilly and Russ (2000) found that females in mixed-gender dyads had less organizational commitment.
and greater role stress than females in same-sex dyads. Due to these findings, one's gender dissimilarity from others in the group served as the first control variable.

Research has also demonstrated the importance of racial diversity in relation to individual and group level outcomes. For example, persons racially different than their supervisors or other persons in their workgroup are likely to have job burnout, less job satisfaction, and less commitment, and fewer stay intentions than are those persons racially similar to their coworkers (Jeanquart-Barone, 1996; Tsui et al., 1992; Wesolowski & Mossholder, 1997). Racially diverse groups are also likely to have poorer process outcomes than their homologous counterparts. As workgroups in this experiment were randomly assigned, it is possible that some groups had greater racial diversity than others. Therefore, one's racial dissimilarity from others in the group served as another control variable.

Third, there is evidence that differences in psychological characteristics, such as group members' personality, values, and attitudes can impact individual and group outcomes as well. For example, Meglino, Ravlin, and Adkins (1989) found that value incongruency in vertical dyads was inversely related with subordinate job satisfaction, commitment, and punctuality. Jehn, Northcraft, and Neale (1999) found that value diversity was related to low levels of process outcomes and group productivity. There is also evidence that one's collectivist or individualist orientation might impact attitudes toward group work (Thomas, 1999). Specifically, collectivists view group work in a more positive light than do individualists. In the current study, it is possible that diversity among group members in attitudes toward group work (i.e., dissimilarity in
collectivist and individualist orientations) might impact the functioning of the group. Therefore, the orientation of the participants in the various work groups served as the third control variable.

In summary, the purpose of this study was to utilize the Common Ingroup Identity Model to examine the degree to which recategorization of group members served to decrease the negative effects of diversity within work groups. Specifically, it was expected that members of groups in cooperative conditions would perceive the aggregate as a one-group (i.e., superordinate) representation (Hypothesis 1). Next, persons with perceptions of the aggregate as one group were thought to have lower levels of bias against outgroup members than are those persons who perceived the aggregate to represent two groups (Hypothesis 2). Third, it is expected that bias would impact preferences for working with the group such that those persons with low levels of bias were thought to have a greater preference to work with the group than were those persons with high levels of bias (Hypothesis 3). Fourth, it was expected that persons with low levels of bias would have more satisfaction with the process (Hypothesis 4a) and with coworkers (Hypothesis 4b). Finally, it was expected that the relationship between bias and preference to work with the group would be mediated by satisfaction with the process (Hypothesis 5a) and with coworkers (Hypothesis 5b). These hypothesized relationships were tested while controlling for differences in gender, race, and orientations among group members. An illustrative summary of the study hypotheses is presented in Figure 1.1.
Figure 1.1: Illustrative summary of the hypotheses
Delimitations

There are several delimitations to the current study. First, I have consciously chosen university students as participants in the study. It is possible that university students might have a more cosmopolitan outlook than other persons in society and thus be more open to diversity. Further, university students are typically of just one age group. Therefore, it is possible that persons of older age groups or persons interacting in heterogeneous groups with respect to age will have different responses than will persons in this age group.

Limitations

The biggest limitation of this experiment is the nature of the research design, in that experiments that take place in laboratories are oftentimes thought to have less external validity than those that take place in the field (Kerlinger & Lee, 2000). A second limitation comes with persons completing questionnaires, as it is possible that participants will respond in a socially desirable manner when completing the questionnaires. A final limitation comes in the possible threat to the external validity of the study with the interaction of selection and \( X \) (Campbell & Stanley, 1963). Related to this concern is the possible limitation of generalizing to a broader population due to the use of college students as participants.

Operational Definitions

1. *Diversity* – Thomas (1996) defines diversity as “any mixture of items characterized by differences and similarities” (p. 5). Thus, while diversity can be thought of as any mixture of organizational variables, both human and capital, the operational definition used here is more specific in that it refers to the collection of persons that
are (dis)similar with regard to race, ethnicity, gender, organizational tenure, educational background, functional background, cultural background, sexual orientation, values and attitudes, religious affiliation, cognitive functioning, or disabilities.

2. **Recategorization** – Gaertner and Dovidio (2000) define recategorization as the process by which members of different groups come to regard themselves as “belonging to a common group – *one group* that is inclusive of both memberships” (p. 33, italics original).

3. **Ingroup** – An ingroup consists of members of a group that are similar to the self with respect to a salient characteristic. In this study, ingroup membership is related to persons in a group that are similar to the self with respect to gender.

4. **Outgroup** – An outgroup consists of members of a group that are dissimilar to the self with respect to a salient characteristic. In this study, outgroup membership is related to persons in a group that are dissimilar to the self with respect to gender.

5. **Bias** – Bias represents the evaluative ratings of outgroup members subtracted from the evaluative ratings of ingroup members.

6. **Cooperation** – In the experimental manipulation, cooperation consists of interaction among group members, a common problem requiring a consensus solution, and common fate.

7. **Preference to Work with the Group** – Similar to the notion of workgroup commitment, preference to work with the group refers to the affective attachment to the group as seen in partiality of a group member to work with others in the group again.
8. *Satisfaction with the process* – Satisfaction with the process refers to the extent to which persons were satisfied with the decision-making process of the group (Thomas et al., 1996).

9. *Satisfaction with coworkers* – Satisfaction with coworkers refers to the extent to which a person is satisfied with the other persons in the group in which he or she works.
CHAPTER 2

REVIEW OF THE LITERATURE

This chapter provides a literature review regarding the key elements of this study. Specifically, the first section of the chapter outlines the diversity research that has taken place in the broader context of organizational science. This review is followed by a review of the diversity-related research in sport management. The focus of both of these sections is on empirical research, as opposed to any conceptual pieces, which has been completed. These reviews are then followed by a review of the recategorization literature. This is then followed by a review of the satisfaction and commitment literature in order to provide additional rationale for the hypotheses put forth in Chapter 1.

Diversity Research in the Organizational Sciences

In following Thomas (1996), diversity is defined as “any mixture of items characterized by differences and similarities” (p. 5). Thus, as Chelladurai (2001a) notes, this definition allows for a broad interpretation of diversity, as it could include “all organizational variables, material and human” (p. 390). It is also possible, however, to narrow the interpretation of the definition. In this way, diversity within an organizational context includes, but is not limited to, the mix of persons that are

27
(dis)similar with regard to race, ethnicity, gender, age, organizational tenure, educational background, functional background, cultural background, sexual orientation, values and attitudes, religious affiliation, physical ability, and cognitive functioning. For several reasons outlined in greater detail below, organizational diversity has become a “hot” topic for both practitioners and organizational science researchers. In fact, Konrad, Winter, and Gutek (1992) suggested that the changing demographic composition of the U.S. labor force was one the most pressing issues for managers today. Because of this interest, researchers have devoted considerable time and energy to the study of diversity.

There are several reasons for this interest. First, the demographic mix of the United States has gradually changed until recently. Now, the proportion of persons that traditionally held racial minority status is growing exponentially compared to the proportion of Whites. For instance, Farley (1997) reported that the average Hispanic woman has three children during a lifetime, a number considerably higher than the 1.79 children the average White woman has during her lifetime. Other figures from the U.S. Census Bureau indicate that by the year 2050, Whites will comprise roughly 53% of the U.S. population, a decline of approximately 20% from the 1997 figures. Thus, as the world around us becomes more racially diverse, so too will the entrants into the workforce. In this way, diversity will no longer be an optional practice in the workplace, but a reality.

Other proponents of diversity take a justice approach. For instance, Mai-Dalton (1993) suggests that the first and only reason one should support culturally diversity in the workplace is due to a social or moral obligation to treat others fairly. Other authors
in the organizational science literature have echoed these claims in suggesting that organizations have an obligation to provide a work environment in which all persons are treated fairly, all persons are comfortable with the work context, and all persons have an equal chance to excel (Cox, 1991; DeSensi, 1995; Doherty & Chelladurai, 1999; Morrison, 1992; Thomas, 1991).

While some may adopt this perspective, a business-case for diversity will likely be more influential in promoting workplace diversity (Robinson & DeChant, 1997; Thomas, 1991). This orientation stems from the argument that effective diversity management can possibly serve to save the firm money, provide an ideal medium for marketing to a diverse population, and provide the firm with invaluable human resources (Cox & Blake, 1991; Richard, 2000; Robinson & Dechant, 1997). Thus, basing the diversity argument on these potential benefits to the organization can possibly provide a more salient rationale for diversity than a perceived social obligation to provide equitably for all persons. This perspective of diversity is consistent with Cox, Lobel, and McLeod’s (1991) “value-in-diversity hypothesis,” which posits that “when properly used, cultural diversity in the work forces brings value to organizations and ultimately improves their performance” (p. 827). Thus, in addition to being a social issue, managing diversity can also be viewed as an economic issue (Cox & Blake, 1991; Cox et al., 1991; Richard, 2000; Robinson & Dechant, 1997).

Irrespective of the motivation for interest in organizational diversity, there is a considerable literature devoted to the topic. This interest has led to numerous studies in the management and organizational psychology literature. In order to provide a systematic review of the literature, I first provide a brief overview of the theoretical
underpinnings of much of the diversity research that is currently completed. I then organize and review the diversity research based on prominent themes (i.e., antecedents and outcomes) at two levels—individual and group. An illustrative summary of the diversity research can be seen in Figure 2.1. Following the review of research related to persons in groups and teams, I also review the literature concerning different diversity management strategies. These studies are concerned with approaches to managing these diverse groups of persons.

Theoretical Underpinnings

To fully understand the impact of diversity in organizational life, it is important to first examine the theoretical underpinnings that drive many of the studies. Most studies that examine dissimilarity among members of groups or vertical dyads have formulated hypotheses based on self-categorization theory (Turner, 1985; Turner et al., 1987), social identity theory (Tajfel & Turner, 1979; Turner, 1982), or the similarity/attraction paradigm (Bryne, 1971). Social identity and self-categorization predict that persons have a desire to maintain high levels of self-esteem, something that is often accomplished through comparison with others. In making such comparisons, individuals first define themselves and then classify others into social categories. These categories can be based on demographic variables, such as age, gender, race, etc., or other membership criteria, such as team membership. This process allows for individuals to define themselves according in terms of a social identity. Insomuch as the membership in a group allows one to assume a positive identity of self, he or she may seek to maximize distinctions between groups by perceiving outgroup members as less attractive (Kramer, 1991) or ingroup members as more attractive. In a somewhat similar
Figure 2.1: Illustrative summary of diversity research in organizational sciences
vein, the similarity / attraction paradigm predicts that similarity in specific attributes, including values and demographic variables, increases interpersonal attraction and liking.

Integrated Framework

In examining the diversity research, several themes, and thus, classification schemes, become apparent. In developing an integrated framework, I draw primarily from the work of Williams and O’Reilly (1998). The model presented by Williams and O’Reilly had four primary foci – the underlying theory, effects on group process, effects on group performance, and possible moderators. Specifically, Williams and O’Reilly examined the use of three theoretical frameworks – information and decision making (Gruenfeld, Mannix, Williams, & Neale, 1996; Wittenbaum & Stasser, 1996), social categorization (Tajfel, 1981; Turner et al., 1987), and similarity-attraction (Bryne, 1971) – and their underlying assumptions. For example, the information and decision making perspective holds that groups will have increased problem solving perspectives as well increased information availability.

The group characteristics predicted by the theoretical framework are then thought to affect group processes. Again looking at the information and decision making paradigm, the increase in perspectives and information available to group members is thought to be positively related to better use of information, demands on cognitive processing, and more careful analysis. As a result of these processes, there are outcomes that are thought to result, such as greater problem solving ability and greater creativity. However, the relationship between the group process and group performance is thought
to be moderated by the nature of the task and the interdependence among group members. Williams and O'Reilly (1998) outline the other paradigms in a similar manner.

While the Williams and O'Reilly (1998) framework is ideal for assessing group performance, it does not incorporate individual level effects. This is unfortunate, especially when considering that many of the outcomes examined in the research are at an individual level, such as affective attachment to the team/organization, stay intentions, turnover intentions, and organizational citizenship behavior. Further, the authors do not take into account organizational-level outcomes, such as firm performance. As decisions made by the top management team can often effect subsequent firm outcomes (e.g., Simons, Pelled, & Smith, 1999), it is also important to remain cognizant of these effects.

In order to understand the effects of diversity on individual-, group-, and organization-level outcomes, it is necessary to slightly re-conceptualize Williams and O'Reilly's (1998) model. Specifically, rather than examining the group processes that impact group performance, I view these processes as antecedents of overall consequences of diversity. In this way, it is also possible to examine antecedents (both proximal and distal) of individual level outcomes as well as overall firm performance. For instance, research has indicated that a person's commitment to the group will impact subsequent turnover intentions (Meyer & Allen, 1997). Thus, rather than viewing commitment as overall outcome, as Williams and O'Reilly do, it is seen as an antecedent of a final outcome of diversity.
In this study, I utilize the illustrative summary provided in Figure 2.1. As previously noted, this classification depicts the various effects of performance (i.e., antecedents and outcomes) seen at two levels of analysis (i.e., individual and group). The outcomes of each level of analysis are shown on the far right side of the model. These include individual level outcomes (i.e., turnover intentions), group level outcomes (i.e., quality of ideas generated), and firm level outcomes (i.e., return on investment). The model also includes antecedents of these outcomes. While group level antecedents can possibly be thought of as process outcome variables, at the individual level, these would be considered work experiences and affective reactions to these experiences. It is also important to note the arrows between individual level and group level, thereby indicating that outcomes at one level can impact those at another level. (These effects are not discussed in this chapter, however). Below, I outline the outcomes and their antecedents of various forms of diversity. These include the effects of gender diversity, racial and cultural diversity, age, tenure, background, and values and attitudes.

As diversity is considered to be “any mixture of items characterized by differences and similarities” (Thomas, 1996, p. 5), any discussion of diversity should move beyond the direct effects of demographic variables and toward the interaction among persons (Pfeffer, 1983; Tsui & O’Reilly, 1989). Therein lies the notion of relational demography, or “the comparative demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions” (Tsui & O’Reilly, 1989, p. 403). In following the premise of relational demography, I limit the discussion of diversity to those studies that have examined the interaction among heterogeneous individuals, and the consequences thereof.
Gender Diversity

As Williams and O'Reilly (1998) suggest, “Organizational demography researchers’ concern with the effects of sex or gender has a long history” (p. 104). Many of the earlier studies had their theoretical foundations in the similarity / attraction paradigm, while more recent research utilized concepts derived from social categorization theory or decision making frameworks (e.g., Tsui et al., 1992).

**Individual Level**

*Antecedents.* Social categorization and similarity/attraction theory would suggest that gender diversity could have detrimental effects on work experiences – a notion supported by empirical research. For instance, Tsui and O'Reilly (1989) and McNeilly and Russ (2000) found that women in mixed gender dyads have high levels of role stress (i.e., role ambiguity and role conflict). However, women’s role clarity increases when working in groups in which the gender composition approaches a 50/50 split (Lichtenstein et al., 1997). McNeilly and Russ also found that, when compared to men, women in mixed gender dyads had less contact with their sales manager. Subsequent analyses by these authors indicated that the frequency of contact mediated the relationship between gender diversity and role stress. Tsui and O'Reilly also found that subordinates in mixed-gender dyads had poorer performance ratings and were liked less well than those persons in same-gender dyads. In fact, women with women as superiors had the most positive work experiences in terms of performance ratings, supervisor affect, and role stress.

Several researchers have found that differences in gender are related to lower levels of commitment (McNeilly & Russ, 2000; Tsui et al., 1992). Though Riordan and
Shore (1997) did not find these effects, their sample was drawn from an organization comprised of 80% women, and thus, the generalizability of the findings could be limited. Tsui and her associates also found nonsymmetrical findings in that the effects of diversity were more salient for men than for women.

Research has also indicated that gender composition in vertical work dyads is related to perceptions of leader-member exchange (LMX). Green et al. (1996) proposed that gender dissimilarity would lead to misunderstandings between the leader and subordinate, less communication, and greater social distance. Support was found for this proposition as persons in mixed-gender dyads had lower perceptions of LMX than those in same-gender dyads. Pelled and Xin (2000) reported similar findings as gender similarity in superior-subordinate dyads was related to subordinates’ perceptions of LMX and trust. These authors also thought that national culture would moderate the relationships among dyadic diversity, and LMX and trust – a proposition that was only partially supported. Finally, Karakowsky and Siegel (1999) found that the gender composition of the group interacted with the nature of the task to predict leadership. Thus, for example, when a man is completing a “female oriented task” such as discussing a sexual harassment case (Karakowsky & Siegel, 1999), then he is less likely that a female is to assume a leadership role. These effects were especially salient for persons who were minorities in the specific group. However, the effects were not more salient for women than for men – findings that could most likely be explained by the “male - oriented” nature of the tasks.

In summary, consistent with the theoretical predictions, gender similarity was related to positive work experiences. Specifically, persons in same-gender work dyads
have less role stress, more frequent communication with superiors, higher performance ratings, and are liked better by their supervisors than their counterparts in mixed-gender dyads. At the group level, gender diversity is related lower levels of affective attachment. Research in the group context has also shown that, as the composition approaches an equal split between men and women, perceptions of role clarity increase. Thus, the literature indicates that women working predominantly with men have less desirable work experiences, and vice-versa.

Outcomes. Consistent with the previous findings, research has indicated that persons in diverse dyads and groups have less desirable work outcomes. Tsui and her colleagues (1992) found that gender diversity was related to an individual’s intent to stay in the organization and the frequency of absences. Similar to their findings in relation to commitment, Tsui et al. also noted nonsymmetrical effects in that the impact of being different has a more negative impact for men than for women. Specifically, men that were in minority positions within the group were absent more often and had greater turnover than women in similar positions. Additionally, Elvira and Cohen (2001) found that the proportion of women in the firm affected subsequent turnover rates of women.

In summary, gender diversity is related to increased turnover and absences, and fewer stay intentions. Interestingly, these effects are more salient for men than for women, possibly because men are not accustomed the role of the minority (Tsui et al., 1992). These findings are also consistent with those related to work experiences in that gender diversity can have an adverse effect on both.
Group Level

Antecedents. Research has indicated that gender diversity has varying effects on group processes. Contrary to predictions based on Pelled’s (1996a) intervening process theory, which predicts that social category variables should be related to emotional conflict, Pelled, Eisenhardt, and Xin (1999) found that gender diversity was not related to either task or emotional conflict. In a somewhat similar manner, Riordan and Shore (1997) found that heterogeneity in terms of gender was not related to perceptions of cohesiveness. Similarly, Rogelberg and Rumery (1996) found no effects of gender diversity on group cohesion or time on task. On the other hand, Harrison et al. (1998) found that, initially, gender diversity was negatively related to group cohesion; however, over time, these effects were weakened or neutralized as persons spent more time with one another. Further, Lichtenstein et al. (1997) found that when group membership was equally diverse with regard to the representation of men and women, women’s perceptions of team integration also increased. Finally, Kossek and Zonia (1993) found that gender diversity within an academic department was positively related to a favorable diversity climate. Contrary to the findings in other studies, Cady and Valentine (1999) found an inverse relationship between gender diversity and team consideration.

By way of summary, the findings of these studies indicate that the impact of gender on team processes is mixed, with the majority of the studies finding minimal effects. However, in certain situations, it is possible for the gender heterogeneity to have a positive impact on group functioning.
Outcomes. Very little research has examined the effects of gender diversity on group-level outcomes. In the studies identified that did examine this relationship, the effects of gender were mixed. Riordan and Shore (1997) found that gender diversity was not related to perceptions of work group productivity, in terms of efficiency, innovation, and quality. However, Cady and Valentine (1999) found that gender diversity was negatively correlated with the quantity of ideas generated. Similarly, Pelled (1996b) noted an indirect negative effect on perceived productivity. Rogelberg and Rumery (1996) found that, when compared to other teams of various levels of diversity, teams with a lone female member had the highest performance in terms of decision quality. In explaining these findings, Rogelberg and Rumery proposed that all male teams tended to be overly aggressive and competitive, while the addition of a female might counteract these qualities by adding a socioemotional dimension to the team processes. These findings are similar to those reported by Fenwick and Neale (2001), as, when compared to other groups with varying demographic compositions, groups with at least two women exhibited superior performance in the MARKSTAT computer simulation. Given the overall paucity of research examining the association between mixed-gender groups and group outcomes, however, generalizations should be advanced with caution.

Racial and Cultural Diversity

In this section, I review the management and organizational psychology literature that has addressed racial and culturally diversity. Rationale for including the two in the same section is seen in Richard’s (2000) work as he operationalized culturally diversity as referring to racial diversity. It should be noted, however, that race and culture are separate concepts, as the former is concerned with a biological trait, while
the latter is a social phenomenon. Thus, the findings related to cultural diversity might not be the same as those for racial diversity. In such a case, differences are so noted.

Following the general format of the integrated model shown in Figure 2.1, I outline and summarize the findings related to racial and cultural diversity at the individual and group level.

**Individual Level**

**Antecedents.** The research related to racial and cultural diversity has indicated that persons in heterogeneous groups have less desirable work experiences than those persons in homogenous groups. For example, persons in mixed race dyads have lower perceptions of procedural justice, are more likely to experience burnout, have less job satisfaction, have fewer developmental opportunities, and experience less supervisor support than persons in same race dyads (Jeanquart-Barone, 1996; Wesolowski & Mossholder, 1997). Interestingly, Tsui and O'Reilly (1989) found that racial diversity in vertical dyads was related to greater affect shown to the subordinate by the supervisor, and lower levels of role stress. However, the low number of mixed race dyads in the sample ($n = 20, 8\%$) possibly serves to limit the generalizability of these results.

Similar findings have been reported for persons that are racially different than other group members. Tsui et al. (1992) reported that racial dissimilarity was associated with less commitment to the group, while Thomas et al. (1996) reported that dissimilar others had lower levels of job satisfaction. Tsui et al. also reported nonsymmetrical findings in that being different had a greater impact on Whites than it did on other racial minorities. These findings were substantiated by Mueller et al. (1999), who found that Whites working in schools comprised predominantly of White teachers and students had...
higher levels of school commitment and job satisfaction than those teachers in other settings. Black teachers' affective reactions did not differ according to the demographic makeup of the school. While nonsymmetrical results have generally been supported, Riordan and Shore (1997) did report that group composition does sometimes affect the affective reactions of racial minorities. In their study of over 1,500 employees of an insurance company, these authors found that Whites in predominantly minority groups had lower levels of commitment than Whites in other group settings. However, group composition also affected the reactions of Hispanics and Blacks as well. Specifically, Blacks in predominantly White groups had the lowest level of commitment of all Blacks, while Hispanics in predominantly White and in predominantly minority groups had lower commitment than Hispanics in groups of equal racial compositions. According to Riordan and Shore, these results suggest that the composition of the group must be considered as it affects persons of different racial background differently.

Finally, research by Nier and his associates (Nier et al., in press) has indicated that attitudes toward a Black person in dependent upon ingroup perceptions of that person. In their first study, Nier et al. found that participants who shared a common ingroup membership with a Black confederate female had more positive attitudes toward her than when she was viewed as an outgroup member; however, the manipulation of the group representation did not affect attitudes toward the White confederate female. Subsequent field research provided additional support for their laboratory findings, as White fans were more likely to provide assistance to Blacks when they perceived common ingroup membership as opposed to perceiving Blacks as outgroup members. Again, group membership did not affect helping behavior toward
Whites. That helping behavior toward Blacks was contingent upon group membership also mirrors the results reported by Dividio et al. (1997).

In summary, the available literature strongly suggests that persons that are different from their superior or other group members are likely to have detrimental work experiences. Not only are dissimilar persons likely to have a lower affective attachment to the group or organization, but they also experience less satisfaction with their job, and perceive fewer advancement opportunities. Results from experimental and field research also indicate that affect toward and help given to Blacks is dependent upon common ingroup membership. Further, while the findings are somewhat mixed, there is substantial evidence that White persons that are the minority in groups or organizations are effected more so than racial minorities in similar situations. The extent to which racial diversity effects individual-level outcomes is discussed below.

*Outcomes.* Consistent with the findings related to work experiences, research has indicated that individuals that are racially different than their superior and/or other group members have deleterious work outcomes. In one of the only studies to examine this subject, Tsui et al. (1992) found that persons dissimilar than others in their group were more likely to be absent from work and less likely to stay in the organization. When considering that dissimilar persons in Tsui et al.’s study also reported low attachment to the team, the findings support other organizational psychology literature (e.g., Meyer & Allen, 1997) in suggesting that commitment and stay intentions are positively related.

42
**Group Level**

**Antecedents.** At the group level of analysis, researchers have examined the effects of racial diversity on group process measures. Results are generally consistent with the findings at the individual level of analysis in that racial diversity is negatively related to group process outcomes such as boundary spanning, guard activities, and shared leadership (Thomas et al., 1996), team consideration (Cady & Valentine, 1999), general group efficacy (Sargent & Sue-Chan, 2001), outcome self-efficacy (Sargent & Sue-Chan, 2001), group cohesion (Thomas et al., 1996), and emotional conflict (Pelled et al., 1999). However, Pelled et al. (1999) also found that task routineness served to diminish the effects of racial diversity on emotional conflict. Other research (Watson, Kumar, & Michaelsen, 1993) has demonstrated that time can serve as a moderating factor as well. Specifically, Watson et al. found that initial differences in group processes between culturally homologous and culturally heterogeneous groups became nonexistent as groups spent more time together. These results were later found by Pelled et al. as well. Additionally, Richard (2000) built an argument for viewing a racially diverse workforce as a source of competitive advantage as a diverse set of employees is valuable, rare, and imperfectly imitable.

Thus, in summarizing these findings, racial diversity among group members is initially related to lower levels of affective, as opposed to substantive, process-related variables, such as cohesion and conflict. However, it is important to note that the effects of diversity on these variables are likely to diminish with the passage of time or in tasks that are routine in nature. Further, to the extent to which the racially diverse human
resources of the department are seen as valuable, imperfectly imitable, and rare, these persons can be viewed as a source of competitive advantage.

**Outcomes.** Research concerning group level outcomes has provided mixed results. For example, Cady and Valentine (1999) found a positive correlation between racially diverse groups and quantity, but not quality, of ideas generated, while Pelled et al. (1999) found that racial diversity was not related to group performance, as measured by a global measure of efficiency and number of innovations produced. However, Thomas (1999) found that culturally homogenous groups outperformed heterogeneous groups in complex tasks across five time periods, possibly because of the process loss in the latter groups. While Watson et al. (1993) initially found similar results, differences in performance, as measured by the quality of ideas, range of perspectives, problem identification, and alternatives generated, between homogenous and heterogeneous groups dissipated with the passage of time. Watson and colleagues also found that continuous feedback also served to minimize initial differences. Similar support was found by Daily, Whatley, Ash, and Steiner (1996), as diverse groups using a support system outperformed homologous groups using the same support system. These findings are mirrored by those of O’Reilly, Williams, and Barsade (1998), who found that racial diversity within teams at a major clothing manufacturer and retailer was positively related to both creativity and the ability to implement work. Likewise, McLeod, Lobel, and Cox (1996) found that ethnically diverse groups produced ideas that were significantly more feasible and more effective than those produced in homogenous groups.
With respect to organizational outcomes, Richard (2000) found that the presence of a racially diverse workforce interacted with the firm’s growth strategy to predict firm performance. Specifically, firms that were racially diverse and had a growth strategy (as opposed to a downsizing strategy) had high levels of productivity, return on equity, and overall market performance. Given the findings, Richard suggested that racial diversity alone was not likely to affect the bottom line; rather, “the effects are likely to be determined by the strategies a firm pursues and by how organization leaders and participants respond to and manage diversity” (p. 174).

In summary, there is some support for the notion that racial diversity serves to increase innovation and creativity of group outcomes. Conversely, homologous groups are thought to work more efficiently than their diverse counterparts. However, any differences between the two are likely to decrease with the passage of time and/or continuous feedback. Further, when the firm has a growth strategy, a racially diverse workforce can impact levels of productivity, return on equity, and overall market performance.

Age Diversity

To a certain extent, the effects of diversity in terms of age are likely to be similar to those of race and gender (Pelled, 1996a). That is, because all are readily observable demographic characteristics, the categorization process for these kinds of diversity variables are more similar than unobservable characteristics. Persons different in age likely have different life experiences and perceptions about the world around them. Thus, according to self-categorization theory (Turner et al., 1987), social identification theory (Turner, 1982), or the similarity/attraction paradigm (Bryne, 1971), persons are
likely to form attitudes about a person based on the similarity or lack thereof one has with that person. Given this background, I follow the same pattern and outline the individual and group level antecedents and outcomes that result from age diversity.

**Individual Level**

*Antecedents.* Little research has been conducted examining the work experiences of persons in diverse groups and dyads with respect to age. Of the research that has been completed, Tsui and O’Reilly (1989) found that persons dissimilar to their supervisors had greater levels of role ambiguity. In a subsequent study of vertical dyads, Wesolowski and Mossholder (1997) found that age was not related to perceptions of procedural justice, burnout, or job satisfaction. However, in their study of nurses, Judge and Ferris (1993) did find that similarity in vertical dyads was related to greater supervisor affect for the subordinate.

*Outcomes.* Despite the paucity of literature related to work experiences, the extant research has provided consistently indicated that being different in terms of age is related to turnover. Jackson et al. (1991) found that persons that were dissimilar from others in terms of age and different in terms of educational background, experience outside the industry, and college curriculum were likely to leave. Similar results were reported by Tsui et al. (1992) and O’Reilly, Caldwell, and Barnett (1989). In Tsui et al.’s study, those persons, young or old, that were different from other members of the group were likely to turnover, while O’Reilly et al. found that both individual and group-level age heterogeneity was related to individual turnover rates. In a similar manner, Perry, Kulik, and Zhou (1999) found that age dissimilarity in work dyads was related to increased subordinate absenteeism. Thus, although there are relatively few
studies, the results are consistent in that age diversity is related detrimental work outcomes (i.e., turnover and absenteeism).

**Group Level**

*Antecedents.* Research has generally indicated that age diversity is negatively related to team process outcomes. For instance, Lichtenstein et al. (1997) found that age diversity was negatively related to all three indicators of team consideration – individual participation, role clarity, and team functioning. While Cady and Valentine (1999) reported that age diversity did not affect team integration, they used a unidimensional measure of the construct; therefore, it is possible that these authors did not fully measure the breadth of team integration, thereby limiting their results. Additionally, Pelled et al. (1999) found that age diversity was related to emotional conflict, but not task conflict. Finally, Zenger and Lawrence (1998) noted that similarity in age among group members was positively associated with the amount of technical communication both within and outside project groups. By way of summary then, the results indicate that work groups with members diverse in age are likely to have process problems as the result of less communication and team integration and increased levels of social conflict.

*Outcomes.* Relatively little research has examined the effects of age diversity on group or organizational level outcomes, and the findings are mixed. For instance, Kilduff and his associates found that diversity was positively related to performance (i.e., market share) in a computer simulation. However, Cady and Valentine (1999) found that age diversity was not related to either the quality or the quantity of the ideas generated. Pelled and her colleagues (1999) noted similar results, as age diversity in teams from electronics divisions was not related to the manager’s perceptions of group
performance. Further, in a study of top management teams, Simons et al. (1999) found that was not related to sales or profitability. In another study, Jackson et al. (1991) reported that age heterogeneity was positively related to team turnover. Thus, while the effects of age diversity might impact a group's affective responses (e.g., turnover rates of the group as a whole), most of the literature has indicated that it is not related to task related outcomes. Thus, in line with Pelled (1996a), it is possible that age is not considered a job-related factor, as, when compared to education background, functional background, or organizational tenure diversity, its effects on firm performance are minimal.

Tenure Diversity

Much of the research in diversity was stimulated by Pfeffer's (1983) thesis of organizational demography and was concerned with the tenure heterogeneity among work groups. According to Williams and O'Reilly (1998), the fundamental premise behind this work is “that individuals identify with others who enter the organization at the same time” (p. 93). This identification is expected to positively influence group processes and, ultimately, the performance of the group or organization.

Individual Level

Antecedents. Tsui and O'Reilly (1989) found that subordinates different from their superiors in terms of organizational tenure had poor work experiences. Specifically, these persons had high role ambiguity, received poorer performance ratings, and were liked less well by their superiors. On the other hand, in group settings, being different in tenure from other group members is related to higher attachment, as measured by commitment, stay intentions, and frequency of absences (Tsui et al., 1992).
**Outcomes.** However, other research has indicated that turnover is likely in groups that have high tenure diversity (Alexander, Buchols, Bloom, & Lee, 1995; Jackson et al., 1991; O'Reilly et al., 1989; Pfeffer & O'Reilly, 1987; Wiersema & Bird, 1993). O'Reilly et al. (1989) further found that group level social integration moderated the relationship between tenure diversity and turnover. Thus, these overall results indicate that being different from others, whether it is the supervisor or other group members, is likely related to subsequent turnover.

**Group Level**

**Antecedents.** Research has demonstrated that diversity with respect to tenure is likely to have differential effects on group functioning. For example, Lichtenstein et al. (1997) found that tenure diversity was negatively related to one form of team integration – role clarity. Further, in their study of groups within electronic divisions, Pelled and her colleagues (1999) found that tenure diversity was related to emotional conflict, but was unexpectedly not related to task conflict. Pelled et al. also noted, however, that group longevity mitigated the effects of diversity on emotional conflict. On the other hand, Ancona and Caldwell (1992) found that tenure diversity was positively related to process outcomes (i.e., the group's ability to define goals, develop work plans, and prioritize work). Zenger and Lawrence (1989) found that frequent communication took place within the group for persons that had entered the organization at the same time – with similar results reported in later research by Smith, Smith, Olian, Sims, O'Bannon, and Scully (1994) and O'Reilly, Snyder and Boothe (1993); further, tenure similarity has a greater effect on communication outside of project groups than does age.
similarity. Thus, persons that have been in the organization for a number of years are not likely to communicate with newcomers in different project groups.

Research of top management teams has shown that tenure diversity is positively associated with the breadth of decisions made. For instance, in their study of firms in the airline industry, Hambrick, Cho, and Chen (1996) found that tenure diversity was positively related to the firm's propensity to initiate action and to the scope of the responses made in turbulent environments. In a similar manner, Simons et al. (1999) found that diverse top management teams that debated topics were more likely to have decision comprehensiveness than those teams that did not take part in debate. However, this breadth of decision making comes at a price – time. Specifically, research has also shown that diverse teams are likely to be slower than their counterparts in initial actions and responses to environmental stimuli (Hambrick et al., 1996). Further, the propensity of diverse teams to respond to stimuli is not as great as that of homologous teams. These findings align with theoretical advancements in that heterogeneity is positively related to the scope and comprehensiveness of decisions, but negatively related to the speed in which these actions are carried out.

In summary then, it is possible that tenure diversity among work groups will result in lower levels of group affect (e.g., Pelled et al., 1999). However, the value of tenure diversity is seen in the increased amount of external communication with others and the comprehensiveness of decision making. While this decision making invariably takes time, as seen by the slowness of responses, it is often correlated with desirable work outcomes, as seen in the next section.
Outcomes. There are several studies that have demonstrated the positive effects of tenure diversity on work group and organizational outcomes. For example, Ancona and Caldwell (1992) found that diversity was positively related to performance through an increase in group process outcomes. Additionally, tenure diversity is also related to increased firm performance (Hambrick et al., 1996; Iaquinto & Frederickson, 1997; Keck & Tushman, 1993; Simons et al., 1999). For example, Hambrick et al. found that tenure heterogeneity in top management teams was positively associated with both market share and profitability. These results were echoed by Murray (1989), who found that diversity was positively related to long-term performance in oil companies. Similarly, Simons et al. found that the interaction of tenure diversity and debate served to predict change in sales among electronics components manufacturing firms. Finally, Keck and Tushman noted that organizations that survived environmental shifts were likely to possess diverse teams in terms of organizational tenure. Based on these results, it appears that differences among top management team members can significantly and positively impact the overall performance of the firm.

Background Diversity

In this section, I discuss the effects of both functional and educational background diversity. While these forms of diversity possibly have varying effects on the same variable, in which case the differences will be duly noted, an individual’s educational background often predicates the specific line of work he or she enters, and thus also affects that person’s functional expertise (see also Jehn et al., 1999). Groups with functional heterogeneity are expected to perform better than their homogeneous counterparts because persons with various functional backgrounds will bring diverse
information into the decision making process whereas persons from similar backgrounds hold the same knowledge (Jackson, 1992). Further, functional diverse groups are expected to “contain more relevant expertise than homogeneous groups” (Williams & O’Reilly, 1998, p. 99). However, this functional heterogeneity possibly makes internal process outcomes, such as task conflict, suffer (Williams & O’Reilly, 1998).

**Individual Level**

**Antecedents.** In studying superior-subordinate dyads, Tsui and O’Reilly (1989) found that subordinates with different education backgrounds than their superiors were liked less well by their supervisors but also had less role ambiguity than those persons with similar educational backgrounds as their superiors. However, these work outcomes are not as salient as they are for subordinates of different gender or race than their superiors. Scott (1997) found that persons that are different than other group members in terms of functional background had lower levels of social identification than those group persons similar to other group members. As social identification was also related to managerial support and recognition (Scott, 1997), these differences have important consequences for the employee and his or her work outcomes.

**Outcomes.** As noted above, work attitudes that are affected by functional or educational background can impact subsequent individual-level work outcomes. For example, Jackson and her colleagues (1991) found that groups that are heterogeneous with respect to experience outside the industry or educational curriculum are likely to experience high turnover. However, these findings are different than those of Tsui and associates (1992), in that persons different from other group members with respect to educational background were more likely to stay in the organization. Given the
contradictory findings of the two studies, the extent to which the background of the individual relates to subsequent turnover remains unclear.

*Group Level*

**Antecedents.** Research has indicated that groups consisting of persons with different functional or educational backgrounds are likely to have greater amounts of external communication, but lower levels of process outcomes, such as cohesion. For instance, Jehn et al. (1999) found that informational diversity, which consisted of educational background and functional background diversity, was positively related to task conflict. Others have noted similar results (Pelled et al., 1999); however, these forms of diversity are not related to emotional conflict. Research has also indicated that the power of functional background diversity resides in the breadth of decision making (Hambrick et al., 1996; Simons et al., 1999) and the communication group members have with persons outside the group (Ancona & Caldwell, 1992; Keller, 2001; Scott, 1997). However, as Keller noted, the increase in external communication comes at a price, as this is likely to decrease group cohesion.

**Outcomes.** As a result of these group process outcomes, teams that are heterogeneous with respect to functional and educational backgrounds are likely to have desired performance outcomes. For example, Keller (2001) found that functionally diverse groups had better performance outcomes, operationalized as technical quality, budget performance, and schedule performance, through external communications. Jehn et al. (1999) noted similar results concerning the performance of these groups. Sethi and his colleagues (Sethi, 2000; Sethi, Smith, & Park, 2001) found that functional heterogeneity was related to product quality, but not creativity. Pelled and her associates
(1999) found that the task conflict common with functionally diverse groups actually served to increase subsequent manager-rated performance. These findings are consistent with Pelled's (1996a) intervening process theory, in that task conflict is thought to predict subsequent performance more so than emotional conflict or cohesion. Further, Simons and his associates (Simons, 1995; Simons et al., 1999) found that teams that debated and were diverse with respect to functional or educational background had higher profitability and sales than those teams that did not debate. These effects were likely to be seen through the comprehensiveness of the decisions made. Additionally, Hambrick et al. (1996) found that functional and educational background diversity in top management teams was significantly related to firm performance, as measured by growth in market shares and profit. Thus, these results indicate that heterogeneous groups, through their communication with others outside the group, comprehensive decision-making, and task conflict, are likely to see greater performance outcomes than their homologous counterparts.

Values and Attitudes Diversity

One of the tenets of relational demography research is that persons categorize others based on demographic characteristics. This categorization is based on the assumption that persons similar to one another hold like values, attitudes, and beliefs – a belief that has received varying levels of support, depending on the diversity variable studied (Kilduff et al., 2000; Thomas et al., 1996). However, as Harrison et al. (1998) suggest, as time passes by, deep-level diversity (i.e., attitudinal) becomes a more salient factor in group and individual level outcomes. Several researchers have begun to again examine the importance of attitudinal diversity in the work group. As Williams and
O’Reilly (1998) note, several of the earliest studies concerning diversity were aimed at delineating the effects of cognitive difference between team members. Studies by Hoffman (1959) and Triandis, Hall, and Ewen (1965) demonstrated that attitudinal and personality differences were associated with higher quality outputs and increased creativity, respectively. More recently, researchers have sought to examine value diversity and its relationship with individual, group, and organizational level outcomes. It should first be noted that the grouping of values, attitudes, and personality into the same category is not meant to imply that the three are the same. Rather, it is likely that differences among group members for any of the three variables will likely have the same consequences.

*Individual Level*

Value congruence has been linked to quality affective reactions to work. For example, Meglino, Ravlin, and Adkins (1989) found that value congruence in vertical dyads was positively associated with subordinate job satisfaction, commitment, and punctuality. Additionally, Antonioni and Park (2001) noted that, even after controlling for personal affect, similarity in Conscientiousness was positively associated with peer ratings that measured work behaviors desirable to the company. In their study of 62 CEOs of US companies and 239 of their top managers, Barsade, Ward, Turner, and Sonnenfield (2000) found that the more similar one was to others in the group with respect to trait positive affect, the more likely that person was to be satisfied with the interpersonal relations in the group. This relationship was also found for the perceived influence persons believed they had in the group. These results indicate that persons with similar value and affective structures have more desirable work experiences than
those persons in groups that are diverse for this attribute. These findings would also appear to coincide with Schneider’s (1987) attraction-selection-attrition (ASA) framework, which posits that persons are attracted to and remain in organizations in which they have similar value structures with other persons in the organization. Though no explicitly examined in the above studies, other diversity research and Schneider’s framework would suggest that persons dissimilar from others in the organization in terms of values and affective responses would be more likely to leave the organization than similar others.

Group Level

Research has consistently indicated that value diversity within groups is associated with process loss, conflict, and low cohesion. For example, Jehn and her associates (1999) found that value diversity was positively associated with relationship conflict, task conflict, and process conflict. Similar results were provided by Barsade et al. (2000). What’s more, Jehn et al. found that value diversity was negatively related to perceived performance, actual performance, and group efficiency. In a similar vein, Kilduff et al. (2000) found that teams that were successful during a computer simulation were able to decrease their interpretive ambiguity over the course of the experiment. Conversely, unsuccessful teams reported increased ambiguity as the simulation carried on. Thus, the results from these studies mirror those reported at the individual level of analysis in that value diversity is associated with detrimental outcomes, such as process outcomes losses and poor firm performance.
Diversity Management Strategies

In the past, reviews of diversity research have focused on group settings, and the mix of persons within such aggregates (Milliken & Martins, 1996; Williams & O’Reilly, 1998). A notable omission in these reviews is any mention of the effects that various diversity management strategies have on outcomes, both for the employees and the organization as a whole. This is understandable, especially when considering (a) the past reviews have sought to focus solely on the impact of diversity on group functioning, and (b) much of the literature concerning diversity strategies is conceptual in nature, rather than empirical. However, there are recent articles that demonstrate the importance of various diversity management strategies to the overall effectiveness of the firm. Within this discussion, affirmative action is viewed as one type of diversity management strategy, albeit one that could be considered “reactive” (Fink & Pastore, 1999). These articles are reviewed below.

Several studies have demonstrated the advantages of hiring women and racial minorities under diversity management initiatives, as opposed to affirmative action. In an interesting series of studies, Gilbert and Stead (1999) examined the perceptions of applicant qualifications when the persons were hired under diversity management as opposed to affirmative action hires. In both experiments, students read job bulletins of two different firms, one which was committed to recruiting, retaining, and promoting “women, people of color, and Vietnam veterans,” while the other organization simply sought to comply with “Affirmative Action Guidelines” (p. 246). In each condition, the average new hire was 26 years old, had a minimum of two years of experience, and had held at least one position in the field prior to this one. In the first study, women hired to
the company under diversity management initiatives were viewed as more qualified than were those hired under affirmative action auspices. Similar results were seen in the second study, as racial minorities were viewed more positively than were affirmative action hires. These results are also consistent with previous research (Heilman, Block, & Lucas, 1992), who noted that White women and Black men and women hired under affirmative action were viewed as less competent than those that were not. Additional work by Heilman and her associates (Heilman & Alcott, 2001; Heilman et al., 1992; Heilman, Block, & Stathatos, 1997) indicates that women hired affirmative action were likely to receive smaller salary increases, were more timid in their work decisions, had negative self-regard, and had fewer opportunities for career advancement. Together, these results demonstrate that recruiting and hiring persons under diversity management initiatives, as opposed to those of affirmative action, can (a) benefit the organization by attracting women and racial minorities, and (b) aid the personal development of women and racial minorities in the workplace.

Other studies have examined the effects of affirmative action programs on firm outcomes and worker attitudes. Wright, Ferris, Hiller, and Kroll (1995) examined the stock valuation of firms with poor or exemplary affirmative action programs. Results of their analyses indicate that firms receiving the U.S. Department of Labor’s Exemplary Voluntary Efforts Award, a measure of quality affirmative action programs, had significant and positive stock returns. Conversely, firms that agreed upon discrimination settlements, thereby indicating poor affirmative action programs, had significant and negative stock price changes. Based on these findings, Wright and his associates suggest that “high-quality affirmative action programs contribute to sustaining a competitive
advantage and are valued in the marketplace” (p. 283). With respect to worker attitudes, Parker, Baltes, and Christiansen (1997) examined the relationship among perceptions of support for affirmative action programs and perceptions of organizational justice, career development, and work attitudes (i.e., loyalty and job satisfaction). Consistent with their predictions, these relationships tended to be more salient for women and racial minorities (i.e., Hispanics and Blacks) than for White men. Further, Hispanics and Blacks viewed organizational support for affirmative action more positively than did women. Interestingly, Parker et al. also found that, for White men, perceptions of support for affirmative action were positively associated with justice perceptions, career opportunities, and loyalty to the organization. Based on these findings, these authors conclude that support for affirmative action “is generally viewed as fair and has positive attitudinal consequences” (p. 376).

Finally, Gilbert and Ivancevich (2001) studied two organizations with vastly different diversity management strategies to examine the relationship between such strategies and employees’ organizational attachment. In the first organization (Organization 1) promoting diversity is a fundamental initiative in the firm, so much so that diversity is one of four equally weighted standards in determining managers’ salaries and bonuses. Employees are expected to join outside volunteer organizations in which they are the minority and also participate in organizational initiatives to promote a diverse workplace. Finally, human resource functions are set such that the organization has a steady stream of women and racial minorities as new hires. In contrast, Organization 2 has no initiatives for hiring women or racial minorities, and employees are not held accountable in performance-related reviews for achieving
diversity-related goals. Results of their analyses indicate that, when compared to those at Organization 2, women and racial minorities in Organization 1 generally experienced greater attachment and less absenteeism. Based on these findings, Gilbert and Ivancevich suggest that organizations that move beyond general affirmative action programs, as Organization 1 did, are more likely to "reap benefits beyond those of enhanced recruiting and advancement for minority groups" (p. 1346).

Summary of the Organizational Science Diversity Research

As is seen in the preceding review, there is a substantial literature in the management and organizational psychology literature that has addressed the issue of diversity. There are four main points that can be taken from this review: (a) overall, different diversity variables will affect outcomes in different ways; (b) in following Pelled (1996a), there appears to be a trend in the types of diversity variables that will impact emotional and affective outcomes and those that will impact task-related and performance outcomes; (c) consistent with previous theorizing, there is empirical support that diversity management strategies can impact both individual and organizational outcomes; and (d) diversity scholars have begun to develop more elaborate conceptualizations and use more elegant statistical analyses to study diversity. Each of these issues is addressed below.

Differential Impact of Diversity

Research has demonstrated that various forms of diversity are possibly related to the same outcome in different ways. For example, Tsui et al. (1992) found that being different from others in a group in terms of race was negatively related to psychological commitment. However, these effects were not found for being different than others.
according to age or to educational background. Additionally, Jehn et al. (1999) found that informational diversity, which includes functional background and educational background diversity, was related to task conflict, but not relationship conflict or process conflict. In contrast, value diversity was positively associated with all three forms of conflict. These are just two of the many examples given above. Thus, by examining the diversity variables independently, we are able to see the different effects each has on various outcomes. As Tsui, Xin, and Egan (1995) suggest, “combining all relational demographic variables into one index may wash out the differential effects of different demographic factors” (p. 104). Thus, it is important to recognize that in making blanket statements about the effects of diversity or combining various types of diversity into a single index (e.g., Chatman, Polzer, Barsade, & Neale, 1998), researchers are possibly dismissing the dynamic nature of individual diversity variables.

This reasoning can also be extended to studies related specifically to cultural or racial diversity. That is, it is not uncommon for scholars, when conducting research in field settings, to divide racial groups into Whites and “others”, with the “other” category consisting of persons of different races and cultural backgrounds (e.g., Parker et al., 1997). The problem with such methodological procedures rests in the findings that persons of different races react differently to diversity in the workplace. For instance, Riordan and Shore (1997) found that Blacks working in mostly White groups had lower levels of commitment than Blacks working in mostly minority groups. However, Hispanics that worked in mostly White groups and those that worked in mostly minority groups had lower affective reactions (i.e., perceptions of productivity) than did Hispanics that worked in groups with an equal racial composition. Thus, it is important
for researchers to remain cognizant of these differences and to differentiate between various racial groups rather than grouping all non-Whites into a single category.

Affective and Task Outcomes

Research has indicated that there are certain types of diversity variables that might correlate more so with certain outcomes than other types of diversity variables. Let us take gender diversity as an example. Pelled's (1996a) intervening process theory is based on the conflict, whether substantive or affective, that takes place in groups. She proposes that visible demographic characteristics, such as gender, race, age, or nationality, are likely to be related to affective conflict as opposed to substantive conflict. In turn, affective conflict within groups is thought to give rise to turnover of group members. While there are some potential limitations to using conflict as an intervening variable (see O'Reilly et al., 1998), the literature reviewed above appears to generally support aspects of Pelled's propositions, as do the reviews offered by Millikens and Martin (1996) and Williams and O'Reilly (1998). That is, any effect gender diversity is likely to have on individuals or groups will be in the area of affective reactions. While I used gender as an example, these effects are should be consistent for observable demographic characteristics – age, race, and gender. However, unobservable characteristics, such as organizational tenure, educational background, and functional background – characteristics that are more job-related (Simons et al., 1999) – are more likely to be related to substantive or task conflict and subsequent performance. Pelled et al.'s (1999) work in the electronics industry supports this proposition, as does the conceptual model proposed by Milliken and Martins (1996). While these diversity
characteristics can possibly be grouped into different categories, it is not meant to undermine the importance that each variable has independently, as I noted above.

I would extend Pelled's (1996a) argument in suggesting that gender and age diversity are more likely to affect the individual than the group as a whole. For instance, the majority of the research previously outlined was concerned with work experiences, such as role stress, commitment, or LMX, and subsequent work outcomes, such as organizational citizenship behavior (OCB), stay intentions, and turnover. Given the lack of consistent or meaningful findings at the group and organization level, it is likely that the effects of gender and age diversity are confined to the individual. However, this limitation does not extend to racial diversity, as racial heterogeneity has been shown to reliably impact affective responses and group performance.

Diversity Management Strategies

Third, there is considerable literature among scholars that effective diversity management strategies can improve organizational performance (e.g., Cox & Blake, 1991; Robinson & Dechant, 1997; Thomas, 1991), a notion that Cox and his associates (1991) deemed the "value-in-diversity hypothesis" (p. 827). As previously outlines, there have recently been several studies that have supported this hypothesis, as diversity management strategies were linked to stock valuation (Wright et al., 1995), justice perceptions (Parker et al., 1997), attachment, (Gilbert & Ivancevich, 2001; Parker et al., 1997), and organizational citizenship behavior (Gilbert & Ivancevich, 2001). While these studies provide a solid starting point, there is need for additional research in this area. Specifically, do the improved attitudes in organizations with effective diversity management strategies translate into performance improvement for the firm? How does
the context in which the firm operates affect such management strategies? Richard (2000) has taken steps to move beyond the initial findings listed above as he examined the extent to which the diversity of the firm interacted with the firm’s growth strategy to impact financial performance. To avoid “black box” research (Lawrence, 1997), future researchers should follow Richard’s lead in further understanding the lasting effects of various diversity management programs.

*Extending Diversity Research*

Finally there is evidence in some of the more recent studies that scholars are beginning to formulate more advanced conceptual models and to use more elegant statistical techniques to examine the impact of diversity in the workplace. Past researchers, and to a certain extent some still today, examined the relationship between diversity and an outcome without specifying or including intervening variables. This omission is what Lawrence (1997) referred to as the “black box” of demography research. Indeed, researchers that have used intervening variables in their models have provided more consistent findings that those that do not. For example, in researching informational diversity (i.e., functional and educational background), research that has included external communication as a mediating variable has largely supported the notion that informational diversity leads to group performance (e.g., Scott, 1997). Others have found that moderating variables such as culture (Thomas, 1999), group composition (Lichtenstein et al., 1997; Riordan & Shore, 1997), debate (Simons, 1995; Simons et al., 1999), time (Harrison et al., 1998; Watson et al., 1993), task routineness
(Pelled et al., 1999), common goals (Williams & O’Reilly, 1998), and feedback (Daily et al., 1996; Watson et al., 1993) can serve to impact the relationship between forms of diversity and various outcomes.

Others (e.g., Pelled, 1996a) have developed specific theories related to diversity. As briefly described earlier, the Intervening Process Theory posits that visible demographics characteristics (e.g., race) are positively related to affective conflict, while more job-related demographic characteristics (e.g., functional background) are positively associated with substantive conflict. In turn, affective conflict is posited to be positively related to turnover, while cognitive task performance is predicted by both substantive and affective conflict. Further, group longevity is thought to mitigate the effects of diversity on conflict. Subsequent empirical work has supported aspects of Pelled’s theory (Pelled et al., 1999).

There is also evidence that scholars are beginning to use more elegant statistical techniques, such as path analysis and hierarchical linear modeling, in their studies. For instance, in recognizing that diversity can impact both individual and group level outcomes simultaneously, Lichtenstein et al. (1997) used hierarchical linear modeling in their study. Specifically, Lichtenstein et al. were interested in the group membership of members on teams as well as the mix of relationships on teams as they relate to group integration. Thus, there were two levels of analysis – teams and individuals. These analyses allowed the authors to find that, as groups became more diverse in terms of identity group and organizational group characteristics, relations among group members and team integration both decreased. While other techniques, such as structural equation modeling, might be inappropriate due to the low number of teams often available to
study, it is important to note that we are able to gain a better understanding of the impact of diversity on various work and organizational outcomes through more thorough designs and analytical techniques.

Diversity in Sport

Having summarized and critiqued the management and organizational psychology research pertaining to diversity, I now move to the research that has been conducted in the context of sport. Following earlier conceptualizations advanced in the management literature (e.g., Chesler & Crawfoot, 1990; Cox, 1991; Golembiewski, 1995; Morrison, 1992; Thomas, 1991) several authors have provided conceptual and theoretical frameworks for understanding diversity in organizations (Chelladurai, 2001; DeSensi, 1994, 1995; Doherty & Chelladurai, 1999; Fink & Pastore, 1999).

There is also considerable empirical research related to race and gender. Since Title IX was passed in 1972, the representation of girls and women in sport and physical activity has been an area of extended research. Specifically, many studies have been conducted to document and attempt to explain why the proportion of women in coaching and other administrative positions within sport is so low (see, for example, Acosta & Carpenter, 2000; Lovett & Lowry, 1995; Pastore, Inglis, & Danylchuk, 1996). In addition to these studies, other researchers have sought to understand why the proportion of Blacks in coaching and administrative positions is disproportionately low, especially when considering the predominance of the Black athlete in many aspects of intercollegiate athletics (e.g., Cunningham, Sagas, & Ashley, 2001). Other studies
related to race and ethnicity have examined the concept of stacking (Loy & McElvogue, 1970), along with other areas of perceived injustices, such as salary discrimination (e.g., Purdy, Leonard, & Eitzen, 1994).

However, there are several problems with including a summary of these studies in a discussion of diversity. First, as previously noted, I have followed Thomas’s (1996) definition of diversity and the concept of relational demography (Tsui & O’Reilly, 1989) in limiting the review to those studies that examined the interaction of persons with similar or different characteristics. However, most of the research related to gender and race in sport has examined demographic direct effects; that is, the consequences of interaction among different persons have not been examined. While there are notable exceptions, which are duly noted, by and large, empirical studies in sport and physical activity that are related to race and gender have not considered the context of the group composition, or the relational effects (e.g., Tsui & O’Reilly, 1989). Therefore, I limit the review to those studies that have explicitly studied diversity from a relational perspective. Consequently, much of the research related to women and racial minorities in coaching is not included in this discussion.

Second, the stacking hypothesis is limited in today’s sport context in several ways. For instance, Coakley (1998) noted that, as opposed to year’s past, today’s coaches have taken over the thinking tasks such as play calling and setting formations. Accordingly, “this has affected the extent to which racial ideology is expressed in player position patterns” (p. 262). Further, Chelladurai (2001a) questions the merit of the stacking argument as a whole. Building from the previous work of Chelladurai and Carron (1977), Chelladurai argued that running backs and wide receivers serve to
advance the ball in football, and therefor are central to the functions of the offensive unit. Thus, although the quarterback is in the geographically central location, “all actions initiated by the quarterback have to be completed by one of the geographically non-central but functionally central positions” (p. 413). Thus, the argument that there is discrimination against Blacks in football as a result of stacking cannot be supported. Rather, it could be asserted that White players are precluded from positions that are functionally central to the offensive unit (Chelladurai, 2001a).

Based on these arguments, the following discussion of diversity in sport does not include much of the research of racial minorities and women in coaching and administrative positions or a discussion of the stacking literature. Of the research identified, most is related to gender diversity or racial diversity. Discussion of these findings follows the general framework of the paper in highlighting the effects on individuals and groups. Because there are relatively few studies, the antecedents and outcomes are discussed simultaneously.

Gender Diversity

*Individual Level*

At the individual level, the extant research has examined the effects of diversity on coaches and student-athletes. Drawing from self-categorization theory and the relational demography literature, Sagas, Cunningham, and Ashley (2001) hypothesized that persons in mixed-gender dyads would have poorer work experiences (job satisfaction, career advancement opportunities, and occupational commitment) and work outcomes (head coaching aspirations) than would persons in same-gender dyads. For men, the gender of the head coach did not affect any of the outcome measures.
However, women with a male as a head coach had fewer intentions to become a head coach, though the relational variable did not affect the work experiences of the female coaches. As a result, Sagas et al. reasoned that the gender of the head coach might not be a salient determinant of work experiences.

Other studies have examined diversity in the relationship between the player and the coach. For example, in their study of female interscholastic athletes, Lirrg, DiBrezzo, and Smith (1994) found that most players with female head coaches wanted to be a head coach, while those with male head coaches were evenly divided in their aspirations to be a head or assistant coach. Further, those players with male head coaches rated competition as a purpose of basketball higher than did players with a female head coach. No differences were noted for coaching self-efficacy. In another study, Whitaker and Molstad (1988) found that female high school athletes were more likely to view female coaches, when compared to their male counterparts, as role models. However, interscholastic and intercollegiate players differed in their perceptions of who they wanted to be like, as the former group favored female coaches, while the latter favored the male coach. Everhart and Chelladurai (1998) found that female intercollegiate basketball players with males as a head coach (a) were more likely to perceive discrimination as a barrier to becoming a coach and (b) were likely to perceive coaching as having less valence than those basketball players with females as a head coach. Others have found that athlete preference for a male or female coach is dependent upon the sport type (i.e., athletes prefer a male coach in “masculine” sports such as basketball, while those in “gender-neutral” sports such as volleyball or track and field have no preferences; Frankl & Babbitt, 1998; Habif, Van Raalte, & Cornelius, 1998).
2001). Finally, Office and Rosenfeld (1985) noted that the type of information (i.e., impersonal versus personal) female interscholastic athletes disclosed to their coach was dependent upon the gender of the coach.

Taken together, these results suggest that diversity in superior-subordinate dyads (whether in a working relationship or player/coach relationship) is related to affect toward the supervisor, communication patterns, and work outcomes (i.e., head coaching aspirations). However, the extant research has yet to fully develop the pattern in which these outcomes are linked together.

**Group Level**

Very little research has examined the effects of gender diversity on group functioning. In one study, Knoppers, Meyer, Ewing, and Forrest (1993) examined the degree to which men and women communicated with similar and different others as the proportion of women in the department increased. Results indicated that “an increase in the gender ratio was accompanied by an increase in the interaction of women with women” (Knoppers et al., 1993, p. 264) while the interaction of women with men and men with both sexes did not change. In suggesting that the increase of women in the workplace sharpened the gender lines, Knoppers et al. concluded that “Projects that work to increase the number of women coaches may lead to a more rigid demarcation of gender boundaries in the sports world and at the same time provide more same-sex support for women” (p. 266).

Second, in her study of YMCA boards, Siciliano (1996) examined the effects of gender diversity on subsequent organizational performance. When controlling for organization size, gender diversity was positively related to the social performance (as
rated by a staff consultant), but negatively associated with the level of donations. In response to these findings, Siciliano suggested that the multiple perspectives that result from gender diversity contributed to the board's ability to fulfill the organization's social purpose; however, she proposed that “women may not have access to needed economic, social and political resources, which may have influenced their success in the fundraising arena” (p. 1319).

Race Diversity

*Individual Level*

Studies of racial diversity have typically focused on Black athletes' reactions toward being racially different from others on the team. For instance, when compared to their White counterparts, Black athletes are less trusting of and more distant from White coaches (Anshel & Sailes, 1990; Evans, 1978). Interviews with Black athletes have indicated that they “unequivocally perceived a sense of unfairness, racism, and general lack of psychological support by white coaches” (Anshel, 1990, p. 235). While Black athletes might have poor relationships with White coaches, Anshel and Sailes (1990) found that this was not true for their relationship with White players on the team. These findings are consistent with previous research (Thirer & Wieczorek, 1984), thereby leading to the suggestion that “racial harmony on sports teams due, at least in part, to the similar social attitudes of all athletes” (Anshel & Sailes, 1990, p. 96). Thus, while racial dissimilarity does affect the relationship between Black athletes and White coaches, these effects are not seen between racially different athletes.

In a notable exception to the research of athletes, Fink, Pastore, and Riemer (2001) examined the relationship among supervisor-subordinate similarity and
perceptions of effective diversity management. Effects were found for race and parental status, as persons similar to their athletic director had significantly higher scores on a diversity management strategy (i.e., compliance and proactive) than did persons who differed from the athletic director.

Group Level

One study was found that examined diversity in group settings, as Timmerman (2000) examined the effects of racial and age diversity on team performance. In his archival study of major league teams from 1950-1997, Timmerman (2000) hypothesized that task interdependence would moderate the relationship between diversity (both age and racial) and performance, such that the relationship would be stronger for teams with high interdependence (i.e., basketball) than those with low interdependence (i.e., baseball). Results supported the propositions for both diversity variables, thereby indicating that “the relationship between team composition and team performance is moderated by team task” (Timmerman, 2000, p. 601 – 602).

Other Research

As studies of other forms of diversity in the sport context are rare, I include a summary of the remaining studies in one section.

Two studies (Siciliano, 1996; Zald, 1967) have examined the effects of board diversity on subsequent organization performance in YMCAs. Zald found that the proportion of business leaders on a board is positively related to organizational efficiency and program quality, while Siciliano noted that both functional background diversity and age diversity were positively associated with fundraising. Siciliano also found a positive relationship between functional background diversity and social
performance. Together, these studies indicate that the variety of perspectives a board has as a function of diversity is positively associated with overall firm performance.

Widmeyer and Williams (1991) investigated the extent to which tenure diversity was related to perceptions of cohesion. Their study was based on data gathered from group members participating in a coactive sport (i.e., golf). Results indicated that heterogeneity in playing experience was positively related to social cohesion among team members. These authors, however, did not provide explanations as to why this occurred.

One final study has examined the effects of diversity management strategies on subsequent firm outcomes. In their study of Division I athletic departments, Fink et al. (2001) examined the extent to which different diversity management techniques were related to various firm outcomes (i.e., diverse workplace and talent base, the ability to attract and retain workers, group decision making, worker satisfaction, creative workers, the avoidance of lawsuits, and productivity). Results indicated that both proactive and compliance diversity management strategies significantly contributed to the variance in all outcomes measures (with the exception of the relationship between and attracting a diverse fan base). Further, proactive strategies, viewed by the authors as the best strategy for managing diversity, had the largest beta weights for most of the outcome measures. Thus, organizations that have a broad interpretation of diversity, strongly believe in the value that diversity can bring to the organization, are proactive in their dealings with diversity, and are characterized by open lines of communication (all
characteristics of a proactive strategy for managing diversity) are likely to be more successful than their counterparts that incorporate other diversity management strategies (Fink et al., 2001).

Summary of the Sport Management Research

When compared to other disciplines, the sport management literature is in its infancy of diversity research. Much of the research scholars point to as examples of diversity research in sport examines demographic main effects (as is the case with research concerning racial and gender issues in coaching and administration) rather than interaction among persons. Other studies, such as those related to stacking, are either no longer relevant (Coakley, 1998) or have conceptual inadequacies (Chelladurai, 2001). Of the diversity research that does exist, we are able to draw certain conclusions: (a) diversity in vertical dyads is related to subordinates’ perceptions of the work environment and subsequent career intentions; (b) the nature of the task (i.e., the degree of interdependence) will moderate the relationship between diversity and group performance, such that age and racial diversity in teams with high levels of task interdependence is associated with lower levels of performance than in teams where players are not dependent upon one another; and (c) the progressiveness of the diversity strategy employed by an organization is positively associated organizational outcomes.

It appears, then, that sport management is marked more so by what we do not know than what we do. For example, though some researchers have examined diversity in vertical dyads (Fink et al., 2001; Sagas et al., 2001), there were only a limited number of studies identified that examined the effects of diversity on the work group (Siciliano, 1996; Timmerman, 2000; Widmeyer & Williams, 1991; Zald, 1996). Thus, we do not
know if the racial or gender composition of the work group is related to work experiences and work outcomes for racial minorities and women in coaching and administrative positions. Though some have speculated that the nature of the coaching profession (i.e., that it is dominated by White, heterosexual, able-bodied males) affects subsequent outcomes for women (e.g., Knoppers, 1992; Knoppers, Meyer, Ewing, & Forrest, 1991), the dynamics of work groups has not been explicitly examined.

Additionally, while the traditional emphasis in sport management has been on issues of race and gender, there is little research on other forms of diversity, such as age, functional background, educational background, organizational tenure, or values and attitudes (of course, see Siciliano, 1996; Timmerman, 2000; Widmeyer & Williams, 1991; and Zald, 1996 for exceptions). There is a growing body of literature related to top management teams in national sport organizations (e.g., Kikulis, Slack, & Hinings, 1995a; 1995b). However, there was not literature identified that examined how diversity affects process and performance outcomes within these organizations. Further, sport organizations are increasingly depending on volunteers for the delivery of their product. It is likely that these persons will have different functional and educational backgrounds, and, thus, informational diversity (e.g., Jehn et al., 1999) could particularly impact outcomes in these groups.

Further, some perceive athletes to be the beneficiaries of sport organizations, and thus could be considered as clients (e.g., Riemer & Chelladurai, 1998). In this way, the satisfaction of the athlete would be of primary interest (Riemer & Chelladurai, 1998). While there is some research concerning the effects of gender and racial diversity in the relationship between the head coach and the player, there is little information about the
effects of other forms of diversity, such as tenure or value, impact individual and team outcomes. Further, when considering that the demographic makeup of the group can impact affective outcomes of group members from various racial backgrounds (e.g., Riordan & Shore, 1997; Tsui et al., 1992), it is important to know if these effects are also seen in athletic teams. If, as previous research in the management and organizational psychology has demonstrated, the composition of the work group affects subsequent levels of commitment, satisfaction, or turnover intentions, then staffing and/or diversity management decisions would be impacted.

Leveraging Diversity

Given this review, an important question remains. Specifically, what processes allow successful groups to leverage diversity better than their unsuccessful counterparts? This is similar to the question posed by Williams and O'Reilly (1998) after their review of over 40 years of diversity research in the group setting as they asked, “if social categorization and similarity/attraction biases are the driving forces behind the negative effects of diversity, what actions may be taken to address these directly?” (p. 119). Put another way, what are factors that mitigate the negative aspects of diversity and allow the group to function effectively?

One way of conceptualizing these processes is through centripetal and centrifugal forces. This is similar to Sheremata’s (2000) classification of forces that affect the development of radical new product development. According to Sheremata, centrifugal forces “pull an organization outward, away from its conceptual center. In contrast, centripetal forces are structural elements and processes that integrate dispersed ideas, knowledge, and information into collective action. They pull an organization
inward, toward its conceptual center” (p. 390). In the context of her discussion, Sheremata proposed that decentralization, reach (similar to boundary spanning), and free flow of information served as centrifugal forces, while connectedness, project manager influence, cross-function team influence, and temporal pacing served as centripetal forces. While these forces were explicitly outlined in her taxonomy, Sheremata also suggested that other forces could serve as centrifugal forces, such as organizational diversity, or centripetal forces, such as team-based initiatives.

It is possible to expand Sheremata’s (2000) reasoning to the current discussion of diversity, as did Chelladurai (2001b). Based on his argument, Chelladurai proposed that the differences in values and beliefs between groups would serve as centrifugal forces, thereby pulling away from one another. On the other hand, centripetal forces are those organizational initiatives designed to integrate the diverse elements together, thereby maximizing the possible positive influence of diversity upon group and organizational performance. As he notes, centripetal forces serve to pull diverse elements toward the core of the organization, its purposes and mission. As his discussion was centered around the management of human resources, and more specifically, managing diversity, Chelladurai suggested that valuing diversity was comprised of the recognition and acceptance of the centrifugal forces, while the management of diversity entailed creating centripetal forces that pulled these diverse elements toward the center of the organization, and thereby closer to the central aims of the firm. In this way, effective diversity management is comprised of a dynamic equilibrium that balances centripetal and centrifugal forces.
The key, then, is delineating the centripetal forces that serve to align diversity within the organization. Diversity scholars have provided numerous strategies that are believed to aid in the management of diversity. At one level, there are macro level strategies. These contributions typically outline different types of organizations (depending on the extent to which each “values” diversity) and strategies that add context to the framework. There are also micro level contributions. The term micro is used because these studies usually focus on the groups within the organization. These contributions are concerned with categorization processes, the effects group composition, and the like. In this study, I focus on a micro strategy used to leverage the effects of diversity. In doing so, I draw from the social psychology and intergroup relations literature to examine the effects of recategorization on diverse groups. Below, I outline this literature and the rationale for the hypotheses put forth in Chapter 1.

Categorization and Intergroup Bias

Examination of the group relations literature indicates that a focus on categorization processes can possibly serve to help mitigate the negative consequences of diversity. Specifically, research related to mutual intergroup differentiation, decategorization, and recategorization has indicated that these processes can serve to reduce intergroup biases, albeit through different means. Below, I (a) discuss the role of categorization in intergroup bias, and (b) outline the manner through which recategorization reduces bias among group members.

As previously mentioned, self-categorization theory (Turner, 1985; Turner et al., 1987) has been used extensively in diversity research (Williams & O’Reilly, 1998). Tsui et al. (1992) noted that the self-categorization process “is fundamental to the formation
of in-groups and the widely documented tendency of individuals to prefer homogeneous groups of similar others" (p. 552). The negative effects of diversity on individual and group level outcomes, as outlined above, can be contributed to the self-categorization process (Williams & O’Reilly, 1998). Thus, to the extent to which persons within a heterogeneous group define themselves and others based on categories other than group membership, such as age, race, or gender, the effects of diversity on group functioning are likely to be negative. Consequently, efforts made to emphasize group membership, as opposed to individual differences, could serve to decrease the deleterious effects of diversity. Therefore, it is first necessary to fully understand the manner in which categorization impacts intergroup bias.

As Gaertner and Dovidio (2000) note, “Categorization enables decisions to be made swiftly about incoming information because the instant an object is categorized, it is assigned the properties shared by other category members” (p. 34). When persons are categorized into groups, actual differences of within group members are trivialized and not taken into account when making decisions (Tajfel, 1969). Thus, ingroup members are seen as more similar than they actually are. Therefore, categorization-amplified perceptions of group distinctiveness as ingroups members are seen as similar to one another while perceptions of differences between groups become salient.

Turning to Tajfel and Turner’s (1979) social identity theory, it is thought that persons have a need to maintain or achieve positive social identity. Social identity is based on positive comparisons between the ingroup and a relevant outgroup, where the ingroup is perceived to be sufficiently distinct from another relevant outgroup. Finally, when social identity is unsatisfactory, persons will either (a) leave their ingroup and join
an alternative group or (b) takes steps to make the ingroup more distinct. Social identity theory also states that one can categorize himself or herself along a continuum, where, at one end the self is part of a collective or group and, at the other, the person is perceived as a separate individual with personal motives, goals, and aspirations.

Turner’s (1985) self-categorization theory is similar to social identity theory, but “is a more general theory of inter- and intra-group processes and places a greater emphasis on the cognitive processes involved” (Gaertner & Dovidio, 2000, p. 36). Self-categorization theory also places an emphasis on the collective and individual self, and has predictions related to each. When the personal self is primed, behavior is a result of the individual’s attitudes, needs, and motives. In contrast, when the collective self is salient, “people come to see themselves more as interchangeable exemplars of a social category than as unique personalities defined by their individual differences from others” (Turner et al., 1987, p. 37). Therefore, the activation of the personal or social identity shapes the subsequent behavior of the person. As Gaertner & Dovidio note, “the social categorization into ingroups and outgroups may lay the foundation for intergroup bias and ethnocentrism to develop” (p. 37).

Categorization research has supported the general predictions posited by Tajfel and Turner related to group relations (Tajfel & Turner, 1979; Turner, 1985; Turner et al., 1987). For example, Tajfel, Billing, Bundy, and Flament (1971) found that persons are likely to allocate rewards to ingroup as opposed to outgroup members. Others have found that help is offered more readily to ingroup than to outgroup members (Schroeder, Penner, Dovidio, & Piliavin, 1995); people are more likely to be cooperative and exercise restraint when using scarce resources shared among other ingroup members.
than with others (Kramer & Brewer, 1984); people have different attitudes and cognitive processing toward ingroup members than they do toward outgroup members (Park & Rothbart, 1982; Wilder, 1981); and people are likely to use different pronouns (i.e., “we” or “they”) when describing ingroup and outgroup members – pronouns that can impact, whether consciously or unconsciously, beliefs and attitudes toward the group members (Perdue, Dovidio, Gurtman, & Tyler, 1990).

Thus, it is clear from the preceding examples that categorization is a process that is the basis of intergroup bias. As a result, there have been efforts among social psychologists to improve intergroup bias by targeting categorization processes. There are three approaches to reducing bias among group members – mutual differentiation, decategorization, and recategorization. While mutual differentiation is concerned with encouraging persons to emphasize their mutual distinctiveness while in the context of cooperative interdependence (Hewstone & Brown, 1986), decategorization is concerned with reducing group boundaries in efforts to reduce bias (Brewer & Miller, 1984). According to Gaertner and Dovidio (2000), decategorization “encourages members to de-emphasize the original group boundary and to conceive of themselves as separate individuals rather than as members of different groups” (p. 33, italics original). The third strategy, recategorization, “encourages the members of both groups to regard themselves as belonging to a common, superordinate group – one group that is inclusive of both memberships” (Gaertner & Dovidio, 2000, p. 33, italics original). As the present research is primarily concerned with recategorization, the remaining discussion focuses on the theoretical underpinnings and empirical research related to the concept.
Recategorization and the Common Ingroup Identity Model

Much of the research related to recategorization is based on the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993), and therefore, the concepts behind this model are discussed here. (It should be noted, however, that although the focus of this review is on Gaertner and Dovidio's model and its relation to recategorization, others, such as Sherif and his associates, 1961, have made reference to the recategorization process in their earlier research projects). As mentioned above, recategorization is concerned with encouraging members to consider themselves as part of a larger, superordinate group—a group inclusive of both ingroup and outgroup members (Gaertner & Dovidio, 2000). Thus, in contrast to the notion of decategorization, where the aim is to reduce or eliminate categorization, recategorization efforts have the purpose of creating a new, more inclusive group in efforts to reduce bias. Further, while bias was reduced in decategorization through the devaluation of former ingroup members, recategorization reduces bias in the opposite manner—former outgroup members are brought closer to the self through cognitive and motivational processes involving pro ingroup biases (Gaertner & Dovidio, 2000; Gaertner et al., 1993; Gaertner, Dovidio, Nier, Banker, Ward, Houlette, & Loux, 2000b).

In short, the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) posits that "different types of intergroup interdependence and cognitive, perceptual, linguistic, affective, and environmental factors can either independently or in concert alter individuals’ cognitive representation of the aggregate" (p. 48). These cognitive representations of the aggregate come in the form of one group,
two subgroups within one group (i.e., dual identity), two groups, or separate individuals. The resulting representations are then hypothesized to give rise to specific affective (e.g., positive affect), cognitive (e.g., perceived similarity to self), and behavioral (e.g., helping) consequences. Therefore the cognitive representation of the aggregate is thought to mediate, at least partially, the association between the causal factors and the affective, cognitive, and behavioral consequences.

Critics of the Common Ingroup Identity Model (e.g., Hewstone, 1996) question the applicability of the recategorization process given the powerful ethnic and racial divides often seen between groups. It is important to note, however, that the presence of a superordinate group does not require group members to necessarily forsake their less inclusive identities entirely (Gaertner & Dovidio, 2000; Gaertner, Dovidio, Banker, Houlette, Johnson, & McGlynn, 2000a). For instance, in the case of a football team, it is possible for members to still maintain positive distinctiveness according to their functional areas (i.e., offensive and defensive units) within the context of the superordinate group (i.e., the football team itself). Gaertner and Dovidio (2000) have termed this as dual identity, or the presence of two subgroups within one group.

Empirical support for the model is found in numerous studies completed by Gaertner, Dovidio, and their associates. For example, in their early study, Gaertner et al. (1989) studied how categorization and cognitive representations impacted intergroup bias. Persons in separate groups of three, and then an aggregate of six persons, discussed the “Winter Survival Problem” (Johnson & Johnson, 1975) – a problem that requires participants to rate the most important items they would take if they were in a plane crash in Minnesota during the winter months. As a primary focus, Gaertner et al.
manipulated the situation (through spatial arrangement, interdependence, and the assignment of group names) to induce perceptions of the aggregate as a single group (i.e., recategorization), two separate groups, or a collection of individuals (i.e., decategorization). Subsequent tests verified that the manipulation was successful.

Further analyses indicated that bias was reduced in the recategorization condition because evaluations of former outgroup members was enhanced. As Gaertner et al. (1989, p. 240) suggest, the increase in evaluations of former outgroup members occurs because “the social distance with former out-group members has decreased and the social distance with former in-group members has remained relatively close.”

Further, while biases were reduced through recategorization (as well as decategorization, through a different process), bias in the two-group condition remained; that is, the salience of the intergroup boundary remained in the two-group condition.

Additional analyses revealed that, when asked to vote for a leader of the team, persons in the one-group condition were less likely to vote for an ingroup member (44%) than were persons in the two-group condition (62%).

Later work by Gaertner, Dovidio, and their associates (1990) that contributed to the formation of the Common Ingroup Identity Model was aimed at further understanding the impact that intergroup cooperation had on the formation of a single superordinate group. As with their previous study, students initially worked in separate 3-person groups before merging to form 6-person groups. Cooperation interaction, the manipulation thought to drive perceptions of the superordinate group, was characterized by groups interacting with common goals and common fate (i.e., common rewards). In the no-cooperation condition, both groups together listened to recordings of another
group’s discussion. Consistent with their predictions, when groups that initially conceived the aggregate to represent two groups were put in the cooperative condition, perceptions of a superordinate group increased (15.8% to 48.3%), while biases in evaluative ratings (i.e., how well members liked the other groups members and considered them as honest, cooperative, and similar to themselves) decreased. Further, following Baron and Kenny’s (1986) guidelines for mediation, Gaertner et al. found that perceptions of the aggregate mediated the relationship between cooperative interaction and positive evaluations of outgroup members.

Later work in the laboratory setting has provided additional support for these initial findings (e.g., Dovidio et al., 1998; Gaertner, Dovidio, Rust, Nier, Banker, Ward, Mottola, & Houlette, 1999). Subsequent research also tested the relationship between similarity in dress, positive affect, the type of corporate merger, and race on the reduction in bias. For instance, Dovidio et al. (1995) found that positive affect and similarity in dress both led to perceptions of a superordinate group representation, which, in turn, led to a reduction in evaluative ratings (i.e., bias). In their study of the impact of corporate mergers, Mottola et al. (1997) found that more inclusive merger patterns indirectly impacted perceptions of organizational unity (i.e., one group representation). Organizational unity was then negatively associated with employee threat, which then predicted organizational commitment. Finally, Nier et al. (in press, Study 1) found that White females who shared a common group membership with a Black female confederate rated her more positively than when the participants were in a separate individuals condition. Thus, perceptions of team membership impacted the ratings of a racially dissimilar other.
There is also evidence from the field to support the Common Ingroup Identity Model. For example, in their study of students in a multiethnic high school (Gaertner et al., 1994), conditions of contact (Allport, 1954) such as equal status, interaction, interdependence, and supportive norms were positively related to perceptions of the student body as one group. In turn, one-group representations were significantly and positively related to bias in affective reactions—a variable that was then positively related to bias in overall attitudinal favorability. Additionally, in providing further support to Dovidio et al.'s (1997) laboratory study, Nier et al. (in press, Study 2) found that White respondents were more apt to help a Black interviewer when they perceived him or her to attend the same university, as opposed to a rival university. Thus, help provided to racially dissimilar others was contingent upon common ingroup membership.

Research from Gaertner, Dovidio, and their associates has demonstrated several techniques that can be utilized to induce perceptions of a superordinate group identity. For example, Gaertner and Dovidio (1986) found that proximity of group members can impact the degree to which members view themselves as one unit rather than two. In their study, more persons perceived the aggregate to be one unit (65.6%) when the seating arrangement of eight persons was fully integrated (ABABABAB) than when the two groups were segregated (AAAABBBBB). In subsequent studies, Gaertner, Dovidio, and their associates (Gaertner et al., 1989; 1990) also included a cooperation manipulation. Specifically, groups in the cooperative condition interacted with one another, were required to reach a consensus about decisions, and shared a common fate. Tests indicated that the manipulations were effective, as participants in cooperative
groups were more likely to indicate that the aggregate felt like one group as opposed to
two (57% vs. 28%). Further, cooperative conditions were shown to reduce bias of group
members. Later work by Gaertner et al. (1999) indicated that, “Creating opportunities
for intergroup interaction was sufficient to reduce bias in self-reported evaluations
whether or not the groups shared a common fate” (p. 398).

The findings presented above are also consistent with Wilder’s (1986)
theoretical predictions in that cooperation between members of an aggregate is expected
to transform perceptions of the aggregate to a single group. In the current study,
participants were randomly assigned to groups of three, where they completed a task.
This served to form ingroup membership. Next, participants in each group were told that
they would work with another group on a subsequent task. It was during this time that
the experimental manipulation took place (i.e., cooperation vs. no-cooperation).
Therefore, the two other persons in the original 3-person group in which the participant
worked served as ingroup members; on the other hand, persons in the other 3-person
group served as outgroup members. In accordance with the empirical and theoretical
research presented above, I hypothesized that, when compared to those persons in
conditions without cooperation, group members in cooperative conditions will perceive
the aggregate to represent one group as opposed to two groups.

Outcomes of a Common Ingroup Identity

There are several potential outcomes of transforming group members’ cognitive
representations of the aggregate to a superordinate group. According to the Common
Ingroup Identity Model (Gaertner et al., 1993; Gaertner & Dovidio, 2000), such
outcomes can be seen in the cognitive, affective, and behavioral domain. In the current
study, I drew from concepts of the Common Ingroup Identity Model to examine the extent to which recategorization impacted several affective outcomes. First, I followed the previous work of Gaertner, Dovidio and their associates by examining the extent to which recategorization served to reduce intergroup bias. Second, I extended these findings by examining the extent to which reduced bias lead to subsequent affective outcomes, including satisfaction with the process, satisfaction with coworkers, and preference to work with the group. It was expected that there would be an inverse relationship between bias and the three work outcomes studied here. This marked the first study that explicitly examined the relationship between bias and work related outcomes. The rationale for including each of these variables and specific hypotheses for each is presented below.

*Intergroup Bias*

One of the key elements of recategorization is the reduction of intergroup bias. Predictions based on mutual differentiation (Hewstone & Brown, 1986), decategorization (Bettencourt, Brewer, Croak, & Miller, 1992; Miller & Brewer, 1984), and recategorization (Gaertner et al., 1993; Gaertner & Dovidio, 2000) all propose that intergroup bias is reduced, but through different mechanisms. For instance, with decategorization, bias is reduced through the devaluation of former ingroup members, while with mutual differentiation, bias is reduced by recognizing the contributions of both groups. Conversely, the Common Ingroup Identity Model (Gaertner et al., 1993; Gaertner & Dovidio, 2000) posits that intergroup bias is reduced as a result of bringing former outgroup members closer to the self. As Gaertner and Dovidio (2000) note, “if members of different groups are induced to conceive of themselves within a single..."
group rather than completely separate groups, attitudes toward former outgroup members will be more positive through cognitive and motivational processes involving pro-ingroup bias” (p. 46). Therefore, as a result of recategorization, former outgroup members are cognitively brought closer to the self, thereby facilitating positive interpretations of these persons.

Research has provided support for these postulates. For example, Gaertner et al. (1989; 1990) and Dovidio et al. (1998) found that when persons conceived the aggregate to represent one group, there were lower levels of bias. Specifically, participants were asked to complete evaluative ratings (i.e., the extent to which the persons were liked and viewed as cooperative, honest, and valuable) of other participants in the aggregate. Next, an index, comprised of the average of the ratings for each participant, was calculated for ingroup and outgroup members. A bias rating was then calculated by subtracting the outgroup index from the ingroup index. As expected, bias was reduced through recategorization, such that persons that perceived the aggregate to represent one group had higher evaluative ratings of former outgroup members than did members who perceived the aggregate to represent two groups or a collection of individuals.

In a similar vein, Dovidio et al. (1997) examined the extent to which other forms of bias (i.e., self-disclosure and helping behavior) could be reduced through recategorization. Their results indicated that, when compared to persons participating in a two-group condition, persons participating in a one-group condition had significantly less bias against outgroup members. These results were also found in a field study by Nier et al. (in press, Study 2). Specifically, Whites were more likely to offer help to Blacks when Blacks were perceived to be from the same school as opposed to a rival
school. There were no differences in the helping behavior of Whites toward other Whites, regardless of the school affiliation.

Therefore, there is considerable evidence that recategorization efforts can serve to reduce bias against outgroup members. In applying these findings to the current study, bias would occur between members of opposing 3-person groups. Thus, it is expected that members of one 3-person group would have higher evaluative ratings of the 2 other persons in their group than they would of the 3 person in the opposing group, and vice versa. However, participants' evaluative ratings of outgroup members should be reduced in recategorization conditions. Accordingly, as seen in Chapter 1, I hypothesized that persons who perceived the aggregate to represent one group would have less intergroup bias than would those persons who perceived the aggregate to represent two groups.

Preference to Work with the Group

Conceptually, a reduction in bias should result in more positive interpretations of the work environment and more positive attitudes and behaviors. Empirical support for this is seen in Gaertner et al.'s field study of multi-ethnic high school students. Specifically, Gaertner et al. (1994) found that bias in affective reactions was significantly and positively related to overall attitudinal favorability toward others ($\beta = .53$). Mottola et al. (1997) reported similar findings in their study of merger acquisitions. Specifically, when acquisition patterns were inclusive of both organizations, personnel reported higher levels of organizational commitment. This is in contrast to when the
acquisition pattern was such that the merged organizations seemed to be separate entities. Therefore, it is likely that bias is related to attitudes related to group functioning as well.

In the current study, I examine the extent to which bias is related to preference to work with the group. Conceptually, this outcome is similar to that of affective team commitment. Affective team commitment can be thought of as an attachment or identification with the team in which one works. Further, one component of team commitment is the extent to which one has a strong desire to maintain membership in the team (Bishop and Scott, 2000). However, by and large, commitment is perceived as a lasting attitude (Meyer & Allen, 1997). This is troublesome in this study, as teams in experimental conditions are not lasting. In fact, these teams resemble project teams, in that a one-time output is produced and then members disband (see Cohen & Bailey, 1997). Because project teams are not in tact for a long duration of time, it is unlikely that commitment would appropriately capture the attitudes of the members. However, preference to work with the group would adequately describe positive attitudes that would result from a decrease in bias toward group members.

Because of the conceptual relationship between team commitment and preference to work with the group, it is possible to use portions of the literature related to the former construct in order to formulate hypotheses concerning the latter. As previously noted, there have been several studies that have examined the impact of diversity on commitment to the organization and to the workgroup. For example, in McNeilly and Russ's (2000) study of salespersons, they found that women in mixed-gender dyads had less organizational commitment and fewer stay intentions than did
those in same-gender dyads. Similarly, Tsui et al. (1992) found that persons had low psychological commitment to the organization when they were dissimilar with respect to gender from others in the group. These effects remained even after entering simple demographics and job satisfaction into the equation. Thus, there is evidence that diversity in the group or vertical dyad is related to low levels of commitment.

However, research related to the Common Ingroup Identity Model has shown that cognitive representations of a superordinate group are related to high levels of commitment. For instance, Mottola et al. (1997) examined the effects of different types of merger acquisitions on organizational commitment. Findings indicated that when the acquisition was such that the two organizations merged to form a new, single organization, employees had higher organizational commitment than when the merger was such that the two organizations were seen as separate in some respect. Additionally, when re-analyzing Snider and Dovidio's (1996) data, Gaertner and Dovidio (2000) found that college students that felt as if they were “part of the university” had higher levels of commitment to the university than did those students that did not feel as if they were “part of the university.”

These findings can be applied to the current context and participants’ preference to work with the group. Specifically, it is suggested that, as a result of recategorization processes, team members will have a reduction in bias. Thus, other team members should be evaluated similar to the self. As a result of this process, it is thought that team members will have positive interpretations of group functioning, and therefore have a preference to work with the team and its members again. Accordingly, as seen in
Chapter 1, I hypothesized that persons with low level of bias would have greater preference to work with the group than would persons with high levels of bias.

**Satisfaction**

In addition to examining the preference to work with the group, another component of this study is the extent to which bias is related to satisfaction. There is considerable evidence in the organizational science literature that persons different from their supervisors and/or other group members have less satisfaction than do those persons that work with similar others. For example, in their study of employees working in service-oriented companies, Wesolowski and Mossholder (1997) found that persons dissimilar than their supervisors had lower job satisfaction than did their counterparts working in homologous vertical dyads. In a similar vein, Mueller et al. (1999) studied teachers in schools of varying racial compositions. White teachers in schools that had predominantly White teachers and students had greater job satisfaction than did White teachers that were teaching in schools with predominantly Black teachers and Black students. Thus, when persons are dissimilar to their bosses or other persons in the organization, it is likely that they will not be satisfied.

There is also evidence, however, that recategorization can mitigate the negative effects that dissimilarity has on satisfaction. Specifically, the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) posits that one consequence of recategorization is affective reactions, which includes positive affect. Additionally, in their re-analysis of Niemann and Dovidio’s (1998) data, Gaertner and Dovidio (2000) found that job satisfaction among psychology professors was dependent upon the extent to which persons felt like part of the department. This is consistent with predictions...
from the Common Ingroup Identity Model in which affective consequences are dependent upon the extent to which persons have cognitive representations of the aggregate as one group. In extending this argument, it is likely that the relationship between satisfaction and a one-group cognitive representation of the aggregate is mediated by a reduction in bias. This extension is also consistent with the previous hypothesis concerning preference to work with the group. Therefore, it is likely that a reduction in bias will lead to greater satisfaction among group members.

It is important to note, however, that satisfaction is generally viewed as a multidimensional construct. This notion is witnessed in both theoretical arguments and empirical research. For example, Chelladurai and Riemer's (1997) conceptual classification of athlete satisfaction included seven broad facets — performance, improvement, leadership, teammates, support staff, administration, and community support. Empirical research has also demonstrated the multidimensionality of satisfaction in such measures as the Athlete Satisfaction Questionnaire (15 dimensions; Riemer & Chelladurai, 1998) and the Job Diagnostic Questionnaire (5 dimensions; Hackman & Oldham, 1980). Therefore, it is important to distinguish the specific dimensions of satisfaction studied.

In the current examination, I studied two forms of satisfaction — satisfaction with the process and satisfaction with coworkers. In building from Thomas et al.'s (1996) study, satisfaction with the process refers to the extent to which the participants were satisfied with the decision-making process of the group. One of the detriments of diversity within workgroups is the process loss that often occurs, especially during the early phases of working with one another. As an example, Thomas et al. (1996) found a
negative relationship between diversity and satisfaction with the process. In another study, Watson and his colleagues (1993) found that, initially, heterogeneous groups had poorer performance and greater process losses than did their homogenous counterparts. These authors also found that over time, the initial process losses were overcome such that overall performance between the two groups was the same after 4 months. However, diverse groups are not always able to overcome these process losses. In Thomas's (1999) study, he found that culturally homogenous groups consistently outperformed diverse groups over 10 weeks. He proposed that this finding “suggests that culturally heterogeneity resulted in process losses that influenced performance of the groups and that the culturally heterogeneous groups were unable to overcome these losses to achieve their performance potential” (p. 254).

From a social identity (Tajfel & Turner, 1979; Turner, 1982) and self-categorization (Turner, 1985; Turner et al., 1987) perspective, it is likely that intergroup biases resulted in process losses within the heterogeneous groups. However, through recategorization efforts, intergroup biases are expected to diminish, such that, since all participants will be perceived as group ingroup members, heterogeneous groups will function as homogenous groups. In this way, the reduction in bias should lead to greater satisfaction with the processes. Therefore, as seen in Chapter 1, I hypothesized that persons with low levels of bias would have greater satisfaction with the process than would those persons with high levels of bias.

In addition to studying satisfaction with the process, I also studied satisfaction with coworkers. As Tsui et al. (1992) note, there is a preference among personnel to work with persons similar to themselves. In again turning to social identity (Tajfel &
Theories, similarity in diverse groups is often based on demographic characteristics, such that persons dissimilar in these characteristics are thought to be in different groups. When demographic characteristics are salient in the categorization process, theory suggests that persons will seek to maximize intergroup differences by viewing other ingroup members in a more positive light than outgroup members. Thus, holding all other elements constant, in diverse groups, where some participants are ingroup members and others are outgroup members, the overall satisfaction with coworkers is likely to be low. This is in contrast to homogenous groups, where satisfaction with coworkers, all of whom are seen as ingroup members, will likely be high.

However, recategorization should bring former outgroup members closer to the self (Gaertner & Dovidio, 2000; Gaertner et al., 1993). In this way, former outgroup members are now seen as ingroup members. Therefore, through the reduction in bias, it is expected that satisfaction with coworkers will increase. Accordingly, as seen in Chapter 1, I hypothesized that persons with low levels of bias would have greater satisfaction with coworkers than would those persons with high levels of bias.

Mediating Effects of Satisfaction

Thus far, I have hypothesized that there are three outcomes of bias, preference to work with the group (a concept similar to that of commitment), satisfaction with the processes, and satisfaction with coworkers. There is some debate, however, as to the causal relationship between satisfaction and commitment (preference to work with the group) (Bateman & Strasser, 1984; Curry et al., 1986; Lease, 1998; Mannheim et al., 1997; Mathieu, 1991). For example, in her review of the organizational psychology
literature from 1993 – 1997, Lease depicted job satisfaction and organizational commitment as equally affecting the other. However, there are several authors (Aryee et al., 1994; Bishop & Scott, 2000; Lee et al., 2000; Meyer and Allen, 1988) who view satisfaction as an antecedent of commitment.

I follow these authors in proposing the following argument. It is reasonable to say that satisfaction one has with the work process and with coworkers in a group could be the reason that he or she seeks to work with the group again. However, it makes less sense to submit that because one wants to work with the group, he or she will be satisfied with these aspects of his or her work. Thus, for the purpose of this study, I view the two facets of satisfaction as antecedents to preference to work with the group. In this way, it was hypothesized that satisfaction with the process and satisfaction with coworkers would mediate the relationship between bias and preference to work with the group.

Control Variables

Within this research project, it is important to control for factors other than those explicitly studied that could possibly account for variance. Past research has demonstrated three such variables – gender, race, and orientations. There is considerable evidence to suggest that persons different from others in a group, with respect to gender, have less desirable work experiences and work outcomes than do those that are similar to their cohorts. For example, Tsui and her associates (1992) found that persons dissimilar to others in the group had less psychological attachment and fewer stay intentions while having an increase in absences. In a similar fashion, McNeilly and Russ (2000) found that females in mixed-gender dyads had less organizational commitment.
and greater role stress than females in same-sex dyads. These findings are also seen in
the sport literature as Sagas et al. (2001) found that female assistant coaches in mixed-
gender dyads had fewer intentions to become a head coach than did those women with
other women as head coaches. Due to these findings, one’s gender dissimilarity from
others in the group served as the first control variable.

Research has also demonstrated the importance of racial diversity in relation to
individual and group level outcomes. For example, persons racially different than their
supervisors or other persons in their workgroup are likely to have job burnout, less job
satisfaction, and less commitment, and fewer stay intentions than are those persons
racially similar to their coworkers (Jeanquart-Barone, 1996; Tsui et al., 1992;
Wesolowski & Mossholder, 1997). Racially diverse groups are also likely to have
poorer process outcomes than their homologous counterparts. As workgroups in this
experiment were randomly assigned, it is possible that some groups would have greater
racial diversity than others. Therefore, racial dissimilarity of participants from other
group members served as the second control variable.

Third, there is evidence that differences in psychological characteristics, such as
group members’ personality, values, and attitudes can impact individual and group
outcomes as well. For example, Meglino et al. (1989) found that value incongruency in
vertical dyads was inversely related with subordinate job satisfaction, commitment, and
punctuality. Jehn et al. (1999) found that value diversity was related to low levels of
process outcomes and group productivity. There is also evidence that one’s collectivist
or individualist orientation might impact attitudes toward group work (Thomas, 1999).
Specifically, collectivists view group work in a more positive light than do
individualists. In the current study, it is possible that diversity among group members in attitudes toward group work (i.e., dissimilarity in collectivist and individualist orientations) might impact the functioning of the group. Therefore, the individualism-collectivism orientation of the participants in the various work groups served as the third control variable.

Summary

In summary, the purpose of this chapter was to more fully expound on the key concepts put forth in Chapter 1. In doing so, I gave a detailed description of the diversity research that has been completed in the sport management literature as well as the research completed in other organizational sciences. As seen in Figure 2.1, I summarized the literature according to common themes. In doing so, this review extends on previous reviews (Milliken and Martins, 1996; Williams & O’Reilly, 1998) by examining the diversity literature at two levels of analysis. Finally, I provided a summary of the current diversity research, elaborating on “what we know” and “what we do not know.”

Second, I provided a summary of the theoretical underpinnings of the current research. Specifically, I outlined the main premises behind social identity theory and self-categorization theory. I then provided a summary of the Common Ingroup Identity Model. The theoretical foundations of and empirical support for the model were also presented.

After these reviews, I provided the rationale for the current study. In doing so, I outlined the areas in which the study extends previous work related to recategorization and the Common Ingroup Identity Model. I also provided a review of the literature.
related to commitment, and its relation to preference to work with the group, and satisfaction. A summary of the hypotheses put forth for the study is as follows: (a) when compared to those persons in the no-cooperation condition, participants in cooperative condition (i.e., those in which group members interact, have a common problem requiring a consensus solution, and have a common fate) will perceive the aggregate in which they work to represent one group; (b) persons who perceive the aggregate to represent one group will have less intergroup bias than will those persons who perceive the aggregate to represent two groups; (c) persons with low levels of bias will have greater preference to work with the group than will those persons with high levels of bias; (d) persons with low levels of bias will have greater satisfaction with the process and with coworkers than will those persons with high levels of bias; and (e) the relationship between bias and preference to work with the group will be mediated by satisfaction with the process and satisfaction with coworkers. Finally, I outlined the rationale for including the control variables in the study.
CHAPTER 3

METHODOLOGY

The purpose of this chapter is to describe the methodological procedures for the study and testing the hypotheses espoused in Chapter 1. The methods are described in relation to the (a) type of research, (b) selection of sample, (c) variables, (d) instrumentation, (e) data collection procedures, and (f) data analysis procedures.

Research Design

At the most basic level, researchers have differentiated between two types of research – quantitative and qualitative (Fraenkel & Wallen, 2000). According to Denzin and Lincoln (2000), "qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of meanings people bring to them" (p. 3). Accordingly, qualitative research involves the use of case studies, personal experience, interviews, artifacts, introspection, observation, and cultural texts and productions. In short, "qualitative researchers deploy a wide range of interconnected interpretive practices, hoping always to get a better understanding of the subject matter at hand" (Denzin & Lincoln, 2000, p. 4). In contrast, quantitative research, emanating from the post-positivistic tradition (Heppner, Kivlighan, & Wamplo, 1992), is more concerned with issues of how much, how well, or to whom an issues applies (Fraenkel
Most of the research in organizational sciences is quantitative (Kerlinger & Lee, 2000) - a paradigm in which the researcher "makes inferences based on direct observations or derivatives of the direct observations" with the primary goal "to describe cause and effect" (Kerlinger & Lee, 2000, p. 590). Given the experimental nature of this study (discussed in greater detail below), the following sections concentrate on quantitative methods.

Kerlinger and Lee (2000) suggest that there are two types of quantitative research - experimental and nonexperimental. Experimental research includes true experiments, quasi-experiments, and N = 1 studies (Kerlinger & Lee, 2000). Nonexperimental research, described as "empirical inquiry in which the scientist does not have direct control over independent variables because their manifestations have already occurred or because they are inherently not manipulable" (Kerlinger & Lee, 2000, p. 558), includes correlational, causal-comparative, and survey research (Fraenkel & Wallen, 2000). Correlational research is performed to determine relationships among two or more variables, whereas causal-comparative research "is intended to determine the case for or the consequences of differences between groups of people" (Fraenkel & Wallen, 2000, p. 10). Finally, survey research is used to determine specific characteristics of groups (Fraenkel & Wallen, 2000).

Most of the diversity research in sport management can be characterized as correlational or causal-comparative, and this can also be said for the research within the field related to diversity. For instance, Everhart and Chelladurai (1998), in assessing perceptions of discrimination as a barrier to entering the coaching profession, compared the responses of women with a male coach to those with a female coach (i.e., causal-
comparative). On the other hand, in using regression analyses (which are based on
correlations), Sagas et al. (2001) found that the gender of the head coach in
intercollegiate coaching dyads was related to aspirations to become a head coach (i.e.,
correlational research). Fink et al. (2001) used a similar method in determining whether
differences in demographics between athletic directors and their subordinates was
related to perceptions of diversity management strategies.

Despite the predominance of nonexperimental research designs in the sport
management literature in general, and specifically in the research related to diversity,
there are several drawbacks of such practices. As noted in the definition of
nonexperiemtmental research provided above, a distinguishing characteristic of this
research is the lack of control over independent variables. Thus, “Inferences about
relations among variables are made without direct interventions, from concomitant
variation of independent and dependent variables” (Kerlinger & Lee, 2000, p. 558). Due
to this lack of control “of x and other possible xs, the ‘truth’ of the hypothesized relation
between x and y cannot be asserted with the confidence of the experimental situation”
(Kerlinger & Lee, 2000, p. 559). When considering the importance of the
MAXMINCON principle (i.e., the researcher should seek to maximize the systematic
variance under study, minimize the error variance, and control the extraneous systematic
variance), one can see the inherent flaws in nonexperimental research (Kerlinger & Lee,
2000).

Thus, the fundamental weakness of nonexperimental designs, control, also
provides the most important distinction between experimental and nonexperimental
research. For this reason, Kerlinger and Lee (2000, p. 467) suggest that “The ideal
103
science is the controlled experiment.” In supporting their claim, these authors suggest that, in conducting the controlled experiment, the researcher has the confidence that relations observed in the experiment is what he or she thinks it is. Given the advantages of the experimental design over its nonexperimental counterpart and the nature of the research being conducted in this study, an experimental design was used in this project. Accordingly, I outline the basic experimental designs below. In following Campbell and Stanley (1963), I discuss the relative merit of each design in relation to the forms of external and internal validity. Consequently, it is first necessary to partake in a discussion of these kinds of validity.

Internal Validity

Campbell and Stanley (1963) list eight threats to internal validity. As Kerlinger and Lee (2000) suggest, any variables that affect the controls of the design are considered threats to internal validity. If not controlled, these variables could possibly produce “effects confounded with the effect of the experimental stimulus” (Campbell & Stanley, 1963, p. 5). In drawing principally from Campbell and Stanley’s (1963, p. 5, italics original) seminal work, an explanation of each is given below:

1. History, the specific events occurring between the first and second measurement in addition to the experimental variable.

2. Maturation, processes within the respondents operating as a function of the passage of time per se (not specific to the particular events), including growing older, growing hungrier, growing more tired, and the like.

3. Testing, the effects of taking a test upon the scores of a second test.
4. *Instrumentation*, in which changes in the calibration of a measuring instrument or changes in the observers or scorers used may produce changes in the obtained measurements.

5. *Statistical regression*, operating where the groups have been selected on the basis of their extreme scores.

6. Biases resulting in differential *selection* of respondents for the comparison group.

7. *Experimental mortality*, or differential loss of respondents from the comparison groups.

8. Selection-maturation interaction, etc., which in certain of the multi-group quasi-experimental designs, such as Design 10, is confounded with, i.e., might be mistaken for, the effect of the experimental variable.

Additionally, there are also considerations related to the external validity of the findings. According to Fraenkel and Wallen (2000), external validity refers to “the degree to which results are generalizable, or applicable, to groups and environments outside the research setting” (p. 664). Typically, experimental studies lack the external validity of their nonexperimental counterparts. Therefore, in considering that threats to external validity might limit the generalizability of the study, Campbell and Stanley (1963, p. 5 – 6, italics original) outlined four particular threats, each of which is described below:

9. The *reactive or interactive effect of testing*, in which a pretest might increase or decrease the respondent’s sensitivity or responsiveness to the experimental
variable and thus make the results obtained for a pretested population unrepresentative of the effects of the experimental variable for the unpretested universe from which the experimental respondents were selected.

10. The interaction of effects of selection biases and the experimental variable.

11. Reactive effects of experimental arrangements, which would preclude generalization about the effect of the experimental variable upon which persons being exposed to it in nonexperimental conditions.

12. Multiple treatment interference, likely to occur whenever multiple treatments are applied to the same respondents, because the effects of prior treatments are not usually erasable.

Having reviewed the possible threats to internal and external validity, it is now possible to (a) examine the types of experimental designs and (b) discuss the possible threats to the validity of the findings in the design used in the current study. I draw from Campbell and Stanley (1963) to list the strengths and weaknesses of each design.

Experimental Designs

There are three types of experimental designs – pre-experimental, true experimental, and quasi-experimental. Kerlinger and Lee (2000) discuss the many requisite characteristics of the true experiment. Specifically, the true experiment has at least two groups, with one receiving the treatment and the other not receiving the treatment or receiving it in a different form. Further, the true experiment requires the presence of one independent variable, the random assignment of participants to groups, and the random assignment of the treatment to groups. Pre-experimental designs are
typically referred to as inadequate designs (Kerlinger & Lee, 2000) because of the numerous threats to internal and external validity.

One of the most important distinctions between true experimental and quasi-experimental designs is the randomization of participants in that the former, as opposed to the latter, have subjects that are randomly assigned to different groups. Without such randomization, there is a selection threat to internal validity in that it cannot be said with certainty that differences between the experimental groups are not due to something other than the treatment. However, “the use of random assignment allows the researcher to form groups that, right at the beginning of the study, are equivalent – that is, they differ only by chance in any variables of interest” (Fraenkel & Wallen, 2000, p. 286, italics original). This premise has led Kerlinger and Lee (2000) to suggest that, whenever possible, researchers should randomize. That is, researchers should “select participants at random, assign participants in groups at random, assign experimental treatments to groups at random” (Kerlinger & Lee, 2000, p. 474, italics original).

I follow Campbell and Stanley (1963) inasmuch as in the discussion of the designs below, an $X$ represents the exposure of the group to an experimental event, the effect of which is to be measured, while an $O$ delineates some process or observation. As read from left to right, $X$s and $O$s indicate the temporal order, while $X$s and $O$s seen vertical to one another are simultaneous. Campbell and Stanley (1963) outline the three true experimental designs – the pretest-posttest control group design, Solomon four-group design, and posttest-only control group design. Each of these designs has its
merits and shortcomings. The following discussion outlines each of these designs and provides the rationale for choosing the final design, the posttest only design, for the current study.

*Pretest-Posttest Control Group Design*

Participants in a pretest-posttest control group design are first randomly assigned to two groups – one control and one experimental. As is seen in Figure 3.1, the two groups are then given a pretest to ensure equivalence, as is seen in the depiction below (Campbell and Stanley, 1963).

![Figure 3.1: Illustrative summary of the pretest-posttest control group design](image)

This design neatly controls for all threats to internal validity. An important aspect of this design is the use of a control group, thereby assuring that any effect, such as history, maturation, or testing, on the experimental group will also be seen on the control group (Kerlinger & Lee, 2000). Testing effects are controlled through the use of a standardized instrument, such as giving the same questionnaire in the same form to both groups. As Campbell and Stanley (1963) note, however, when observers or...
interviewers are used, the problem becomes more serious. Regression "is controlled for as far as mean differences are concerned, no matter how extreme the group is on pretest scores, if both experimental and control groups are randomly assigned from this same extreme pool" (Campbell & Stanley, 1963, p. 15). In such a case, the control group would be expected to regress the same as the experimental group does. Selection is controlled for through the randomization of participants to experimental conditions. Finally, this design allows the researcher to assess whether mortality offers a plausible explanation - a threat that can play an important role in longer experiments.

Despite these strengths, the pretest-posttest control group design has shortcomings that result from the use of a pretest (Campbell & Stanley, 1963; Kerlinger & Lee, 2000). Specifically, a pretest can have a priming or sensitizing effect on participants. In this case, participants would be more attuned to events in the environment as a result of the pretest than they would have if no pretest had been given. If the pretest is an attitudinal measure, it can sensitize participants to the problems addressed in the measure. Then, when the participants receive the treatment, responses might not be due to the influence of the treatment as much as they are "a combination of their increased sensitivity to the issues and the experimental manipulation" (Kerlinger & Lee, 2000, p. 495). Another problem resulting from the pretest rests in the generalizability of the results (Kerlinger & Lee, 2000). It is not often in environments other than the laboratory that persons are pretested. Thus, while it is possible to generalize to pretested groups, the lack of such groups in the world severely limits the external validity.
Solomon Four-Group Design

The Solomon Four-Group Design "is strong and aesthetically satisfying" (Kerlinger & Lee, 2000, p. 498), while making an "explicit consideration of external validity factors" (Campbell & Stanley, 1963, p. 24, italics original). As with the previous experimental design, this design controls for the threats to internal validity. Further, the Solomon Four-Group Design remedies the shortcomings of the pretest-posttest control group design by adding experimental and control groups lacking the pretest. In this way, it is possible to determine the main effects of testing and the interaction of testing and X. Thus, this design provides an improvement over the pretest-posttest control group design. An illustrative summary of the design is presented below in Figure 3.2.

![Diagram of Solomon Four Group design]

Figure 3.2: Illustrative summary of the Solomon Four Group design
However, there are some inherent weaknesses in the design. The first is that of practicality (Kerlinger & Lee, 2000). The Solomon Four-Group Design is basically two experiments in one. Thus, the researcher or research team is faced not only with running two experiments simultaneously, but also with locating more participants of the same kind (Kerlinger & Lee, 2000). There are also statistical problems resulting from the lack of balanced groups. To remedy this, Solomon (1949) suggested a 2 X 2 analysis of variance. With such analytical procedures, we are able to study the main effects, X and No X, and Pretested and Unpretested. We are also able to assess the interaction of pretesting and X in order to get a clear understanding to the previous problem (Kerlinger & Lee, 2000).

*Posttest Only Control Group Design*

As is seen in illustrative summary below (Figure 3.3), the posttest-only control group design is one in which participants are randomly assigned to one of two experimental groups – the one receiving the treatment and the control group.

![Figure 3.3: Illustrative summary of the posttest only control group design](image-url)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
According to Campbell and Stanley (1963), this design controls for all seven threats to internal validity described earlier. Because of this randomization, a possible selection bias is not seen, as randomization assures that any differences between the two groups are due to chance (Campbell & Stanley, 1963). Further, the other threats to internal validity are controlled for through the use of two groups. Thus, in examining the possible threat of history for instance, any historical events that might affect the experimental group will also affect the control group; therefore, since both groups are thought to be affected in a similar manner, any differences between the two groups can be attributed to the treatment of $X$. Of course, as Stanley and Campbell note, it is important that both experimental and control session run simultaneously. However, even in the absence of simultaneous sessions, “history can be controlled if all of the experimental group is run before the control group, etc.” (Campbell & Stanley, 1963, p. 14).

While the pretest-posttest control group design controls for threats to internal validity, there are possible threats to external validity. However, one area that is not a threat is the interaction of testing and $X$. Unlike the pretest-posttest control group design, which is externally invalid due to the interaction of testing and $X$ resulting from the pretest given to participants, the posttest-only control group design controls for this threat by eliminating the pretest. In this way, participants are not attuned to the treatment as a result of a pretest – unlike the pretest-posttest control group design.

Despite controlling for the interaction of testing and $X$, Campbell and Stanley (1963) suggest that posttest-only control group experimental designs are possibly subject to other sources of external invalidity – the interaction selection and $X$ and $Y$. 

112

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
reactive arrangements. With respect to the interaction of selection and \( X \), Campbell and Stanley (1963, p. 19) note that the pretest-posttest control group experimental design "controls for the effects of selection at the level of explaining away experimental and control group differences, there remains the possibility that the effects of validity demonstrated hold only for that unique population from which the experimental and control groups were jointly selected." For example, let us suppose that a researcher studies students in a school. If there is some characteristic that is specific to that school and its students, but not to others, then it is possible that the treatment would be more effective at the school of study than in other schools in the target population. This would serve to limit the results of the study.

The final possible threat to external validity in the pretest-posttest control group design is that of reactive arrangements (Campbell & Stanley, 1963). The artificial nature of the experiment itself is the key source of invalidity. As Campbell and Stanley note, "The play-acting, outguessing, up-for-inspection, I'm a guinea-pig, or whatever attitudes so generated are unrepresentative" (p. 20) of the actual setting in which the experiment is trying to generalize the results. These effects can be seen in all areas of experimentation, from the treatment used to the randomization of participants. A recent example is seen in Pate, Watson, and Johnson's (1998) experiment, in which participants were asked to delineate the most important items they would choose to carry if they crash-landed on the moon. Clearly, this is not an instance in which most persons, within any organization, would find themselves. Thus, while Pate et al.'s study demonstrated that the interaction of cultural diversity and competition can affect quality decision making, the extent to which their results can be generalized to the general
business context is questioned. It should be noted, however, that results could possibly be generalized to teams that undertake problem solving tasks, as that was the main objective of the task in Pate et al.'s study.

Despite these threats possible to external validity, the posttest-only control group design has many strengths, most notably the control for possible effects of internal validity. While some may question the extent to which the groups are equivalent in the absence of a pretest, Campbell and Stanley (1963, p. 25) suggest that "the most adequate all-purpose assurance of lack of internal bias is randomization." Further, as Kerlinger and Lee (2000, p. 486) note, the pretest-posttest control group design "and its variants with more than two groups are probably the 'best' designs for many experimental purposes in behavioral research." Specifically, these researchers provide four advantages of the posttest-only control group design (Kerlinger & Lee, 2000, p. 486): (a) it has the best built-in theoretical control of any design, with one or two possible exceptions in special cases; (b) it is flexible, being theoretically capable of extension to any number of groups with any number of variables; (c) if extended to more than one variable, it can test multiple hypotheses at one time; and (d) it is statistically and structurally elegant. Given these strengths, the posttest-only control group design was chosen as the experimental design in this study.

Participants

With the exception of a few studies (e.g. Kilduff et al., 2000), most true experimental research related to diversity has used students samples (see, for example, Watson et al., 1993; Thomas, 1999). This is also true of much of the research related to the Common Ingroup Identity Model (e.g., Dovidio et al., 1998; Gaertner et al., 1989,
In a similar manner, participants in this study were drawn from a student population. Specifically, I selected students participating in Sport, Fitness, and Health Program (SFHP) classes. SFHP courses are physical activity classes housed in the School of Physical Activity and Educational Services. As the classes are electives, students in these courses come from different colleges and departments around campus.

Several considerations must be made when selecting the sample size — a process that Williams (1978) deemed one of the most difficult in applied statistics. One of the primary considerations that must be made is selecting a sample size adequate to have power in the statistical analyses. Power refers to the “fractional value between 0 and 1.00 that is defined as 1 - β, where β is the probability of committing a Type II error” (Kerlinger & Lee, 2000, p. 453), or failing to reject a false null hypothesis. In contrast, Type I error is rejecting the null hypothesis when it is true. As Thomas and Nelson (1996) suggest, “Having power in the statistical analysis is important because it increases the odds of rejecting a false null hypothesis” (p. 110).

When considering the relationship between sample size and power, the researcher must remain cognizant of samples that are too small or too large. For example, the researcher is limited with small samples (e.g., 20 participants) because there is a limit in both the statistical analyses that can be run and in the power of these tests (Hair, Anderson, Tatham, & Black, 1998). One the other hand, very large samples (e.g., 1000 participants) enable the researcher to run more advanced statistical analyses, but also make significance tests overly sensitive such that even minute differences are
deemed significant (Hair et al., 1998). As Kerlinger and Lee (2000) note, although tests may indicate statistical significance with large sample sizes, these findings might not be practically significant.

While having a sample that is too large is usually not a problem in experimental studies, the researcher is more often confronted with the task of recruiting enough participants to have power in his or her statistical tests. There are multiple methods for calculating the sample size needed in order to have the needed power (≥ .80) in the statistical tests. For example, Hair and colleagues (1998) present a formula to be used in regression analyses in which the sample size needed with a power of .80 is determined by the significance level of the tests (i.e., α = .01 or α = .05) and the number of independent variables. Alternatively, Kerlinger and Lee (2000) provided a formula in which the sample can be determined by dividing the squared specified deviation into the product of the squared standard score corresponding to the specified probability of risk and the squared standard deviation of the population.

In the current study, there are six independent variables in the statistical analyses (described in more detail later). Examination of the table provided by Hair et al. (1998, p. 165) indicates that a sample of at least 100 is needed to detect a minimum $R^2$ value of .12, with a power of .80, and α of .05. This is consistent with previous research related to the Common Ingroup Identity Model in which samples sizes as low as 24 (e.g., Dovidio et al., 1997) have yielded significant path analytic results, thereby demonstrating the robustness of the findings and the model in general. Therefore, based on Hair et al.'s criteria, at least 100 participants are needed. However, because a greater sample size can increase the power of the tests, I intended to have at least 200
participants in the current experiment. However, because I had the opportunity to collect additional data, I collected responses from 330 students. Five responses had to be discarded due to missing data, resulting in a final sample of 325. Participation was voluntary and all participants provided informed, written consent.

Pilot Testing

Prior to the study, I conducted two pilot tests to verify the procedure and validate the questionnaire. It was also during this time that a panel of experts (see Appendix D) reviewed the questionnaire for content validity – the judgement that the items were relevant to the property being measured (Kerlinger & Lee, 2000). I followed Fraenkel and Wallen’s (2000) recommendations during this process. Specifically, the experts were provided with the definitions of the concepts being measured, asked to read the items on the questionnaire, and then indicate which items did not represent the content it should measure. Judges were also given the opportunity to examine the format of the questionnaire. Upon receiving the recommendations from the panel, changes were made to the questionnaire, as outlined below.

Pilot Test 1

In the first pilot test, I distributed questionnaires to two SFHP classes – one serving as the control group (n = 36) and the other as the experimental group (n = 30). Complete data were only available from 60 participants (30 control group and 30 experimental group).

The methods for the pilot test followed Gaertner et al. (1989) as closely as possible. Specifically, participants in both conditions were first assigned to groups of three and were instructed to choose a name for the entire group. Following Gaertner et
al. (1989), it was assumed that the creation of a group name would contribute to the members' group awareness (e.g., Deutsch, 1973). Each group was then given a set of nametags with a letter written on each (letters A, B, and C for one group, D, E, and F for another), and a Winter Survival Problem. Participants were instructed to wear the nametags during the entire activity. Participants were then given a brief explanation of the Winter Survival problem and instructed to work on a solution together, such that a consensus among all group members was achieved for each item. Five minutes were allotted for the actual problem solving process.

The Winter Survival Problem (Johnson & Johnson, 1975) is one in which participants in an aggregate are instructed to imagine that their airplane has crashed in northern Minnesota in mid-January. Temperatures are expected to reach minus 25 during the daytime and minus 40 at night. The participants are also informed that they are 20 miles northeast of the nearest city, and that the depth of the snow varied from ankle to knee deep. After the plane crashed, the participants were able to salvage several items. These items, along with how Johnson and Johnson ranked their importance, are presented in Table 3.1. Participants are asked to rank the items from the most important to the least important to their survival. Though not directly related to sport, this is a decision-making activity, and therefore requires interaction among group members.
<table>
<thead>
<tr>
<th>Item</th>
<th>Expert Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarette lighter (without fluid)</td>
<td>1</td>
</tr>
<tr>
<td>Ball of steel wool</td>
<td>2</td>
</tr>
<tr>
<td>Extra shirt and pants for each survivor</td>
<td>3</td>
</tr>
<tr>
<td>Can of shortening</td>
<td>4</td>
</tr>
<tr>
<td>20 x 20 piece of heavy-duty canvas</td>
<td>5</td>
</tr>
<tr>
<td>Hand ax</td>
<td>6</td>
</tr>
<tr>
<td>Family-size chocolate bar (one per person)</td>
<td>7</td>
</tr>
<tr>
<td>Newspapers (one per person)</td>
<td>8</td>
</tr>
<tr>
<td>Loaded .45 caliber pistol</td>
<td>9</td>
</tr>
<tr>
<td>Quart of 100-proof whiskey</td>
<td>10</td>
</tr>
<tr>
<td>Sectional air map made of plastic</td>
<td>11</td>
</tr>
<tr>
<td>Compass</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 3.1: Items and ranking from Winter Survival Problem (Johnson & Johnson, 1975)

After the three-person groups completed the Winter Survival Problem (Johnson & Johnson, 1975), the groups were informed that they would have subsequent contact with another group. It was during this time that the experimental manipulations took place. I followed Gaertner et al. (1989, 1990) in that cooperation was used to recategorize group members. For the experimental group, participants were instructed that they would next merge with another group. Once the two groups had merged, participants were instructed to create a new group name – one that was not the name of either of the two groups and did not combine the name of the two groups. Next, participants were given a new Winter Survival Problem, and instructed that each group member should contribute to the solution such that a consensus was reached for each item. Participants were also informed that the top three solutions generated from all the experimental conditions would receive a prize of $20, $15, and $10, respectively.
Therefore, the three elements of cooperation (Gaertner et al., 1989, 1990, 1999) – interaction, a common problem requiring a consensus solution, and common fate – were all present in the experimental condition. Each group was given five minutes to complete the new Winter Survival Problem.

In the control condition, participants were told that they would sit with an opposing group and share with that group how they ranked the items in the exercise and the rationale for doing so. Thus, the three elements of cooperation – interaction, common problem requiring a consensus solution, and common fate – were all absent from the control condition. Groups were given three minutes to exchange the necessary information.

After completing these tasks, groups were given a questionnaire to complete (see Appendix B). This questionnaire contained information concerning control variables (e.g., individualism-collectivism and demographic information), the participant’s cognitive representation of the aggregate, preference to work with the group, satisfaction with coworkers, and satisfaction with the process.

Reliability estimates (Cronbach’s alpha) were first calculated for all multi-item measures. All reliability estimates were over the .70 cutoff recommended by Nunnally and Bernstein (1994): ingroup rating 1 (α = .94), ingroup rating 2 (α = .87), outgroup rating 1 (α = .91), outgroup rating 2 (α = .93), outgroup rating 3 (α = .93), collectivism-individualism (α = .89), preference to work with the 6-person group (α = .97), satisfaction with coworkers (α = .93).
Results of the this pilot study indicate that the manipulation was successful, as
persons in the experimental condition were more likely to perceive the aggregate to
represent one group (93.3%) than were persons in the control condition (36.7%) ($\chi^2 = 
21.17, df = 1, p < .001$).

A multivariate analysis of covariance (MANCOVA) procedure was also used to
test the efficacy of the manipulation. In this analysis, the experimental condition served
as the independent variable, perceptions of the aggregate as one group and perceptions
of the aggregate as two groups served as the dependent variables, and the controls (i.e.,
the participants' collectivism - individualism score, and their dissimilarity from others
with respect to race and gender) served as the covariates. Results indicated a significant
multivariate effect, Wilks's $\Lambda = .72, p < .001$. Univariate analyses indicated that
participants in the experimental condition were more likely to perceive the aggregate to
represent one group ($M = 5.77, SD = 1.00$) than were persons in the control condition
($M = 3.73, SD = 2.00$), $F(1, 55) = 19.20, p < .001, \eta^2 = .26$. Conversely, participants in
the control condition were more likely to perceive the aggregate to represent two groups
($M = 4.47, SD = 1.96$) than were persons in the experimental condition ($M = 2.37, SD = 
1.07$), $F(1, 55) = 21.05, p < .001, \eta^2 = .28$. The effect sizes for both tests were large
(Cohen, 1988), indicating that the differences were also practically significant. These
results and those of the chi square analysis presented above support hypothesis 1.

Next, an analysis of covariance (ANCOVA) procedure was run to examine
whether perceptions of the aggregate were related to bias, and thereby test hypothesis 2.
The bias rating was calculated by subtracting the average ratings of outgroup members
from the average ratings of ingroup members. Perceptions of the aggregate as one group or two served as the independent variable, bias as the dependent variable, and the three controls as the covariates. Because of the low total N, levels of significance were relaxed to $\alpha = .10$. Analyses revealed that persons that perceived the aggregate to represent one group had lower bias scores ($M = .18, SD = .54$) than did those persons that perceived the aggregate to represent two groups ($M = .57, SD = .98$), $F(1, 55) = 3.31, p = .07, \eta^2 = .07$. Therefore, perceptions of the aggregate as one group resulted in decreased bias, demonstrating support for hypothesis 2.

Finally, tests were run to examine the relationship among bias and the three outcome measures – preference to work with the 6-person group (hypothesis 3), satisfaction with the process (hypothesis 4a), and satisfaction with coworkers (hypothesis 4b). Specifically, these relationships were tested through hierarchical regression analyses, with the controls entered in the first step, the bias score in the second step, and the three outcome measures serving as the dependent variables, respectively. When preference to work with the 6-person group served as the dependent variable, the controls accounted for 25% of the variance. After controlling for these effects, bias was not related to preference to work with the 6-person group ($\Delta R^2 = .00, \beta = .05, p = .70$). In a similar vein, when satisfaction with the process served as the dependent variable, the controls accounted for 23% of the variance. After controlling for these effects, bias was not related to satisfaction with the process ($\Delta R^2 = .00, \beta = .06, p = .62$). Similar results were found when satisfaction with coworkers served as the dependent variable. Specifically, the control variables accounted for 32% of the
variance. After controlling for these effects, bias was not related to satisfaction with coworkers ($\Delta R^2 = .00, \beta = .07, p = .53$). These results fail to support hypotheses 3, 4a, and 4b. Further, because these hypotheses were not supported, testing hypotheses 5a and 5b becomes moot.

Revisions Based on Pilot Test 1

Further examination of the reliability estimates revealed that preference to work with the 6-person group had an especially high reliability estimate ($\alpha = .97$), indicating that it is possible that the items were simply repeating the same thing again and again. Two of the members from the panel of experts that examined the item made similar comments. Specifically, one member noted the items “were essentially the same thing reworded.” Another panel member recommended that the items be reworked to align more succinctly with Meyer and Allen’s (1991) conceptualization of affective commitment to the organization. Specifically, this panel member requested that items be added to express the ideas of (a) enjoyment in working with the group and (b) a sense of belonging to the group. Thus, the preference to work with the 6-person group scale was reworked according to the recommendations from the panel. This resulted in a different questionnaire (see Appendix C). Subsequent data were collected to test the reliability of the scale and its association with bias.

Pilot Test 2

In the second pilot study, questionnaires were collected from 90 participants (48 control group and 42 experimental). Responses from one participant were unusable, resulting in a total sample of 89 (48 control group and 41 experimental).
The procedures were identical to those outlined above, with one exception. The one change to the experiment was the amount of time given to groups in the control condition to discuss the solutions with the other groups. In the first pilot test, participants in the control condition were given three minutes to discuss their solutions and rationale for selecting the items. In the second pilot study, the groups were given five minutes to discuss this information. There is some research that indicates a negative correlation between the amount of information exchanged and the bias felt toward outgroup members—a process known as decategorization (e.g., Brewer & Miller, 1984). However, it is also possible that three minutes is not enough time for one group to adequately convey the information to the other. Therefore, comparisons were necessary. In doing so, it can be seen that control group participants in the first pilot study were more likely to perceive the aggregate to represent two groups (63.3%) than were control group participants in the second pilot study (50%). Because persons in the control group are expected to perceive the aggregate to represent two groups, the procedures from the first pilot study were used in the final study (i.e., groups were given three minutes to discuss their findings).

After running the experiment, the revised questionnaire was distributed to all participants. In addition to revising the preference to work with the group measure, two items were added to the satisfaction with the process measure in order for the scale to have three items, thereby allowing for reliability estimates to be assessed.

Reliability estimates (Cronbach’s alpha) were first calculated for all multi-item measures. All reliability estimates were over the .70 cutoff recommended by Nunnally and Bernstein (1994): ingroup rating 1 (α = .88), ingroup rating 2 (α = .84), outgroup...
rating 1 (α = .88), outgroup rating 2 (α = .89), outgroup rating 3 (α = .88), collectivism-individualism (α = .89), preference to work with the 6-person group (α = .86), satisfaction with coworkers (α = .84), satisfaction with the process (α = .92).

The same analyses that were run in the first pilot test were run for this pilot test as well, and similar results were found. Specifically, persons in the experimental condition were more likely to perceive the aggregate to represent one group (85.3%) than were those in the control condition (50%) ($\chi^2 = 12.38, df = 1, p < .001$). Results from the MANCOVA procedure indicated a significant multivariate effect, Wilks’s $\Lambda = .82, p < .001$. Univariate analyses indicated that participants in the experimental condition had higher ratings of the aggregate as one group ($M = 5.51, SD = 1.40$) than did those persons in the control condition ($M = 4.19, SD = 1.75$), $F(1, 84) = 13.32, p < .001, \eta^2 = .14$. On the other hand, persons in the control group were more likely to perceive the aggregate to represent two groups ($M = 3.90, SD = 1.69$) than did those persons in the experimental group ($M = 2.46, SD = 1.42$), $F(1, 84) = 17.96, p < .001, \eta^2 = .18$. These results support hypothesis 1.

An ANCOVA procedure was run to test hypothesis 2. Results indicate that persons who perceived the aggregate to represent one group had less bias ($M = .14, SD = .33$) than did those persons who perceived the aggregate to represent two groups ($M = .33, SD = .66$), $F(1, 84) = 3.48, p = .06, \eta^2 = .04$. These findings support hypothesis 2.

As in the first pilot test, hierarchical regression analyses were then run to test hypotheses 3, 4a, and 4b. When preference to work with the 6-person group served as the dependent variable, the controls accounted for 6% of the variance. Bias did not
contribute any unique variance beyond the effects of the controls ($\Delta R^2 = .00$, $\beta = .06$, $p = .58$). Similarly, when satisfaction with process served as the dependent variable, the controls accounted for 16% of the variance, with bias not explaining any unique variance ($\Delta R^2 = .00$, $\beta = -.04$, $p = .70$). Finally, when satisfaction with coworkers served as the dependent variable, the controls accounted for 7% of the variance. Bias did not explain any unique variance beyond the effects of the controls ($\Delta R^2 = .00$, $\beta = -.01$, $p = .93$). These results fail to support hypotheses 3, 4a, and 4b, and also make the testing of hypotheses 5a and 5b moot.

Following these analyses, a principal components analysis with varimax rotation was carried out to determine if the three outcome measures could be explained by a fewer number of variables. In following Stevens (1996), eigenvalues had to be over 1.0, and factor loadings over .52. Table 3.2 provides the results from these analyses.

Results indicated two factors – one pertaining to satisfaction and the other pertaining to preference to work with the 6-person group. I decided to retain the three items with the highest factor loadings from each factor. This yielded three items to measure preference to work with the group: “Given the chance, I would want to work with this group again,” “I would like to complete another task with this group in the future,” and “I would be proud to tell people I work in this group.” This internal consistency estimate (Cronbach’s alpha) for this measure was .84. The three items retained in the second factor all pertained to satisfaction with the process. Thus, the satisfaction measure consisted of the following items: “I am satisfied with the way our group made decisions,” “I am satisfied with the decision making process our group went
through,” and “I am satisfied with the manner in which our group reached the solution for the problem.” The internal consistency estimate (Cronbach’s alpha) for this measure was .92.

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with the manner in which our group reached a solution for the problem.</td>
<td>.91</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the decision making process our group went through.</td>
<td>.86</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the way our group made decisions.</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>How satisfied are you with the decisions made by you and others with whom you worked?</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>How satisfied are you with how well you got along with others with whom you worked?</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>How satisfied are you with how well you and the others with whom you worked work together?</td>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>Given the chance, I would want to work with this group again.</td>
<td></td>
<td>.82</td>
</tr>
<tr>
<td>I would like to complete another task with this group in the future.</td>
<td></td>
<td>.81</td>
</tr>
<tr>
<td>I would be proud to tell people I work in this group.</td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>I enjoyed working with this group.</td>
<td></td>
<td>.68</td>
</tr>
<tr>
<td>I would have rather worked in another group than this one.*</td>
<td></td>
<td>.64</td>
</tr>
<tr>
<td>I do not feel like “part of the family” in this group.*</td>
<td></td>
<td>.60</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>6.91</td>
<td>1.61</td>
</tr>
<tr>
<td>Variance</td>
<td>53.16</td>
<td>12.35</td>
</tr>
</tbody>
</table>

* Items were reverse scored.

Table 3.2: Results from principal components analysis with varimax rotation.
I then conducted subsequent hierarchical regression analyses to determine if bias was related to the newly formed factors. The satisfaction variable contained the same items as the satisfaction with the process factor; therefore, additional analyses were not necessary. When preference to work with the 6-person group was the dependent variable, the controls accounted for 5% of the variance. Bias did not contribute significant variance beyond the effects of the controls ($\Delta R^2 = .00, \beta = .01, p = .92$).

Revisions Based on Pilot Test 2

In addition to running the experiments, I also asked the participants, after all questionnaires were returned, their perceptions of the questionnaire and the experiment as a whole. The most consistent comments were related to one of the items used to assess others with whom the participant was working: “This person is honest.” The participants voiced a concern that they did not have a frame of reference to make this assessment. Thus, it was decided to omit this item from the intergroup ratings.

Additionally, I examined the extent to which the mean of three of the items – “I like this person,” “This person is cooperative,” and “This person is similar to me” – were related to another rating – “This person performed well on the task.” The three items that constituted the bias evaluative score were also used in previous research (e.g., Gaertner et al., 1989, 1990). The item used to assess perceptions of performance on the activity had been added to provide an additional dimension to the evaluative rating. However, it is possible that the three evaluative items might lead to perceptions of the performance on the task. That is, if persons have a bias against outgroup members, then it is likely that they will also deem the performance of these outgroup members to be low. This is consistent with theoretical predictions (e.g., Gaertner & Dovidio, 2000) and
empirical evidence from Anatonioni and Park (2001), as these authors found that similarity between the rater and target was positively associated with higher rating for the target. Conversely, if outgroup members are brought closer to the self, theory would predict that perceptions of performance would increase (e.g., Gaertner & Dovidio, 2000). This is in line with social identity theory (Tajfel & Turner, 1979; Turner, 1982), as when persons are perceived to be similar to the self, then they will be viewed in a more favorable light than when they are viewed as different from the self.

Therefore, I ran additional analyses, with the data from the first pilot study, to determine if the newly formed bias score (i.e., the score composed of evaluative ratings related to how much the participant liked the other member and considered them cooperative and similar to the self) was related to perceptions of performance on the task. Data from the first pilot study was used because of differences in the time allowed for the two groups of three to discuss their solutions during the control condition, as outlined above. Such a change also makes the focus of evaluation (e.g., the individual) the same for both the bias score and the outcome measures.

Results of the ANCOVA indicated that persons who perceived the aggregate to represent one group had less bias ($M = .17, SD = .60$) than persons who perceived the aggregate to represent two groups ($M = .56, SD = 1.06$), $F (1, 55) = 2.82, p < .10, \eta^2 = .05$. Results from bivariate correlations indicated that bias was negatively associated with ratings of performance ($r = -.21, p = .11$), and the magnitude of the association approached significance.

Due to these findings, I decided to have the outcomes at two levels of evaluation – the individual and the group. At the individual level of evaluation, participants are
asked to rate both their satisfaction with the performance of other members with whom they worked and the preference to work with these persons in the future. These ratings were made for all ingroup and outgroup members. At the group level of evaluation, I used the two factors extracted from the second pilot study – preference to work with the 6-person group and satisfaction with the 6-person group.

Study

Results from the two pilot studies provided the rationale for the procedure and questionnaire used in the current study. These are discussed in greater detail below.

Procedure

As previously mentioned, randomization is one of the essential elements of experimental research (Kerlinger & Lee, 2000). Therefore, I randomized whenever possible. Specifically, of the 19 classes selected for the study, I randomly assigned 10 to the control condition and 9 to the experimental condition. Within each class, I then randomly assigned participants to the 3-person group in which they worked. In this way, the conditions of randomization (Kerlinger & Lee, 2000) are satisfied. Participants within each group wore a sticker with a letter on it (A, B, and C for one group, D, E, and F for the other group) such that other group members could identify them when completing the post-experimental questionnaire.

Once the 3-person groups were formed, participants were requested to arrive at a group name. Past research has indicated that the presence of a group name reinforces perceptions of a group and of group membership (Deutsch, 1973). Participants were then given the Winter Survival Problem (Johnson & Johnson, 1975) to complete. This problem has been used previously in similar research projects related to the Common
Ingroup Identity Model (Dovidio et al., 1997, 1998; Gaertner et al., 1989, 1990, 1999). As noted above, this problem requires participants to imagine that their plane has crash-landed in northern Minnesota in mid-January. The participants are informed that they are 20 miles from the nearest city and have been able to salvage 12 items (e.g., loaded pistol, can of shortening) from the plane. Each team was instructed to rank the items, from most important to least important to their survival, such that a consensus was reached on the solution. Though not directly related to sport or physical activity, the purpose of the activity was for group members to go through a decision-making process – something that can be accomplished through the Winter Survival Problem. Teams were given 5 minutes to complete this task. Upon completing the project, each group was informed that it would have subsequent contact with another group. It was during this time that the experimental manipulation took place.

Experimental Manipulation. Following Gaertner et al. (1989, 1990), cooperation was used to recategorize group members. Specifically, in the cooperative condition, two 3-person groups were assigned to work with one another. The groups were instructed to merge into a new, 6-person group. The newly formed group was also instructed to arrive at a new group name – one that did not combine the names of the two previous groups. The groups were then given a new Winter Survival Problem (Johnson & Johnson, 1975) on which to work. Groups were instructed that each member should contribute to the problem such that a consensus was reached for each item. Additionally, the groups were informed that the top three solutions would receive a prize of $40, $30, and $20, respectively, to be split among all group members. Therefore, the three elements of cooperation – interaction, a common problem requiring a consensus solution, and
common fate (Gaertner et al., 1989, 1990, 1999) were all present in the cooperative condition. Each 6-person group was given five minutes to complete the new Winter Survival Problem.

In the no-cooperation condition, the elements of cooperation were absent. Rather, two 3-person groups were instructed to share their answers with one another such that the opposing group was aware of how the items were ranked and the rationale for doing so. Additionally, each 3-person group was reminded to write the group name on the Winter Survival Problem solution, thereby reinforcing distinctiveness between the two groups. As noted above, participants in the pilot study that were given 3 minutes to share the information were more likely to perceive the aggregate to represent 2 groups (63.3%) than participants that were given 5 minutes to share the information (50%). Therefore, groups were given 3 minutes to share the information. Accordingly, the interaction among group members, a common problem requiring a consensus solution, and common fate – all elements of cooperation – were absent in the no-cooperation condition.

Following the experimental manipulation, participants were given a postexperimental questionnaire to complete. After all questionnaires were completed and collected, the participants were debriefed such that all participants were made aware of the purpose of the study.

Measures

The postexperimental questionnaire contained (a) items to check the efficacy of the experimental manipulation, (b) evaluative ratings of other participants within the aggregate, (c) items to assess the satisfaction with the performance of and preference to
work with the other participants within the aggregate, (d) a measure to assess satisfaction with the group, (e) a measure to assess the preference to work with the group, (f) items to assess the participants' collectivism – individualism orientation, and (g) demographic information. The questionnaire is found in Appendix A. Two rounds of pilot testing and a panel of experts (N = 4) confirmed the validity of the measures.

Experimental Manipulation. I followed Gaertner et al. (1989, 1990) to assess participants' cognitive representation of the aggregate. Specifically, participants responded to the following item, “What description best characterizes your impression of the 6 of you currently participating in this experiment” by marking either “it felt most like one group” or “it felt like two groups.” Participants also responded to two items, each anchored by a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly disagree): “When working on this task, it felt like we were two groups” and “when working on this task, it felt like we were one group.”

Evaluative ratings. Evaluative ratings of participants within the aggregate were made by responding to three items: “I like this person,” “This person is cooperative,” and “This person is similar to me.” Participants responded to items using a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). In following previous research from Gaertner and Dovidio and their associates, the average ratings of the two other participants in the original 3-person group constituted ingroup ratings (IndexIN). The average ratings of the three persons in the other 3-person group constituted outgroup ratings (IndexOUT). A bias score was then computed by subtracting IndexOUT from IndexIN.
Outcome measures. Single-item measures were used to assess satisfaction with the performance of and preference to work with members of the aggregate: “I am satisfied with this person’s performance” and “I would like to work with this person in the future.” Both items were measured on 7-point Likert-type scales ranging from 1 (strongly disagree) to 7 (strongly agree).

Satisfaction with the 6-person group. Three items were used to measure satisfaction with the 6-person group: “I am satisfied with the way our group made decisions,” “I am satisfied with the decision making process our group went through,” and “I am satisfied with the manner in which our group reached the solution to the problem.” All items were anchored by a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). The mean of the three items was used as the final score.

Preference to work with the 6-person group. Preference to work with the 6-person group was measured using three items: “I would like to complete another task with this group in the future” “Given the chance, I would want to work with this group again,” and “I would be proud to tell people I work in this group.” Participants responded to items using a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). The mean of the three items was used for the final score.

Collectivism – individualism. Three items from Wagner’s (1995) study were used to assess the participant’s collectivist-individualist orientation “I prefer to work with others in a group rather than working alone,” “Given the chance, I would rather work alone rather than doing a job where I have to work with others in a group” (reverse scored), and “Working with a group is better than working alone.” Participants
responded to items using a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). The mean of the three items was used for the final score.

Demographics. The questionnaire contained items to assess the participant's age, gender, race, college classification, and college major. As previously mentioned, I controlled for the participant's dissimilarity from others in the aggregate with respect to race and gender. This was done by using the Euclidean distance formula used by Tsui et al. (1992). According to these authors, the formula is "the square root of the summed squared differences between an individual $S_i$'s value on a specific demographic variable and the value on the same variable for every other individual $S_j$ in the sample for the work unit, divided by the total number of respondents in the unit (n)" (p. 562, italics original). The following formula was used:

$$\sqrt{\frac{1}{n} \sum_{j=1}^{n} (S_i - S_j)^2}$$

A relational score was computed for both gender and race. By way of example, if a female was in a group of six with five other males, then she would receive a relational score of .91 for gender, while the males in the group would receive a score of .41. Likewise, if a group of 6 was comprised of 3 Whites and 3 Blacks, then every member would receive a relational score of .71 for race.

Analyses

Previously, Gaertner, Dovidio, and their associates (Gaertner et al., 1989, 1990, 1999; Dovidio et al., 1997, 1998) conducted analyses at the group level because of the possible interdependence among participants in the experimental sessions. However, there is evidence through much of the diversity literature and in other research by these
authors (Nier et al., in press) that analysis can be conducted at the individual level of
evaluation as well. Accordingly, analyses were conducted at the individual level.

Means, standard deviations, distribution frequencies, and reliability estimates
(where appropriate) of all data were calculated. Internal consistency estimates
(Cronbach’s alpha) over .70 were deemed acceptable (Nunnally & Bernstein, 1994).

Hypothesis 1 predicted that persons in cooperative conditions would perceive the
aggregate to represent one group more so than persons in the no-cooperation condition.
This hypothesis also served as a manipulation check. This hypothesis was tested in two
ways. First, a chi square analysis was run to examine differences in the proportion of
participants who perceived the aggregate to represent one or two groups according to
experimental condition. Next, a multivariate analysis of covariance (MANCOVA)
procedure was run. In this analysis, the controls (collectivism – individualism, racial
dissimilarity, and gender dissimilarity) served as covariates, the experimental condition
served as the independent variable, and the ratings of the aggregate as one group and as
two groups served as the dependent variables. Analysis of covariance (ANCOVA)
procedures were run upon finding a significant multivariate effect. The effect size (\(\eta^2\))
of the tests were also calculated.

Hypothesis 2 predicted that persons with a cognitive representation of the
aggregate as one group would have less intergroup bias than would persons with a
cognitive representation of the aggregate as two groups. This hypothesis was tested
through an ANCOVA, with the control variables serving as covariates, perceptions of
the aggregate (as one group or two) serving as the independent variable, and the bias rating serving as the dependent variable. The effect size ($\eta^2$) of the test was also calculated.

Hypothesis 3 predicted that an inverse relationship between bias and preference to work with the 6-person group. This hypothesis was tested through a hierarchical regression analysis. The controls were entered in the first step, bias was entered in the second step, and preference to work with the 6-person group served as the dependent variable.

Hypothesis 4a predicted an inverse relationship between bias and satisfaction with the process, while hypothesis 4b predicted an inverse relationship between bias and satisfaction with coworkers. However, the pilot tests revealed that the two satisfaction measures were actually assessing one concept — satisfaction. Therefore, in altering the hypothesis, I predicted an inverse relationship between bias and satisfaction with the 6-person group. This hypothesis was tested through a hierarchical regression analysis. The controls were entered in the first step, bias was entered in the second step, and satisfaction with the 6-person group served as the dependent variable.

Recall from the pilot tests that, in addition to assessing preference and satisfaction at the group level of evaluation, it was also decided to assess these concepts at the individual level of evaluation. Therefore, I predicted that bias would be inversely related to both (a) satisfaction with the performance of and (b) preference to work with outgroup members. These hypotheses were tested through hierarchical regression analyses, with the controls entered in the first step, bias entered in the second step, and
satisfaction with the performance of and preference to work with outgroup members serving as dependent variables, respectively.

In each regression analysis, I also examined the possibility of multicollinearity. This was accomplished through examination of both the variance inflation factor (VIF) and the condition index. Myers (1990) suggests that VIF values greater than 10 are signs of a multicollinearity problem, while Tabachnick and Fidel (1996) have a recommended cutoff value of 30 for the condition index.

Hypotheses 5a and 5b predicted that satisfaction with the process and satisfaction with coworkers would mediate the relationship between bias and preference to work with the group. Again, the pilot study revealed that the satisfaction measures could be collapsed into one concept, which measured overall satisfaction. Therefore, I only examined the extent to which satisfaction mediated the relationship between bias and preference to work with the 6-person group. Baron and Kenny’s (1986) guidelines were used to test for mediation. According to these authors, mediation is supported if (a) the independent variable is significantly related to the dependent variable, (b) the independent variable is significantly related to the mediator, (c) the mediator is significantly related to the dependent variable, and (d) after controlling for the mediator, the independent variable is not significantly related to the dependent variable. These hypotheses were tested through hierarchical regression analyses with the controls entered in the first step in each regression.
CHAPTER 4

RESULTS

The purpose of this chapter is to provide the results of the study. The first section provides the demographic information concerning the sample of the study. The second section provides the means, standard deviations, bivariate correlations, and reliability estimates (Cronbach's alpha) for the study variables. The third section provides the results from the analyses used to test the hypotheses. This section includes the results from the five original hypotheses and the two additional hypotheses generated as a result of the pilot studies.

Sample Characteristics

Data were collected from 330 students taking part in 19 SFHP classes. Five responses had to be discarded due to incomplete data, resulting in a final sample of 325 participants. As seen in Table 4.1, 59.4% of the participants were males, while 40.6% were females. The sample included 8.3% Blacks, 9.8% Asians, 79.1% Whites, 1.2% Hispanics, and 1.5% listed as Other. The sample also included 12.0% freshman, 23.1% sophomores, 29.5% juniors, 31.4% seniors, and 4.0% graduates. The mean age of the participants was 21.25 years ($SD = 3.30$).
Table 4.1: Demographic characteristics of the sample.

Data can also be categorized according to the experimental condition to which the participants were assigned. In the cooperative condition, 65.3% of the participants were males, while 34.7% were females. A total of 7.2% of the participants were Black, 9.6% Asians, 81.4% Whites, 0% Hispanics, and 1.8% listed as Other. This condition had 13.8% freshmen, 25.7% sophomores, 22.2% juniors, 34.1% seniors, and 4.2% graduates. The mean age of these participants was 21.28 years ($SD = 3.60$).

In the no-cooperation condition, 53.2% of the participants were males, while 46.8% were females. This condition had 9.5% Blacks, 10.1% Asians, 76.6% Whites, 2.5% Hispanics, and 1.3% listed as other. A total of 10.1% of the participants were
freshman, 20.3% sophomores, 37.3% juniors, 28.5% seniors, and 3.8% graduate students. The mean age of these participants was 21.21 years ($SD = 2.95$).

General Statistical Information

Reliability estimates (Cronbach’s alpha) for all multi-item variables were above the recommended cutoff of .70 (Nunnally & Bernstein, 1994): ingroup rating 1 ($\alpha = .82$), ingroup rating 2 ($\alpha = .80$), outgroup rating 1 ($\alpha = .81$), outgroup rating 2 ($\alpha = .82$), outgroup rating 3 ($\alpha = .82$), collectivism-individualism ($\alpha = .88$), preference to work with the 6-person group ($\alpha = .96$), satisfaction with the 6-person group ($\alpha = .94$).

Table 4.2 provides the means, standard deviations, and bivariate correlations of the study variables. In this table, Out Sat refers to the satisfaction with the performance of outgroup members, Out Pref refers to the preference to work with outgroup members, Group Pref refers to the preference to work with the 6-person group, and Group Sat refers to the satisfaction with the 6-person group. Condition is coded such that 1 = no-cooperation and 2 = cooperative. Two groups refers to the rating (1 – 7) of the aggregate as two groups while One group refers to the ratings (1 – 7) of the aggregate as one group.

As can be seen in Table 4.2, bias is negatively associated with both satisfaction with the performance of and preference to work with outgroup members. Interestingly, however, bias was positively associated with preference to work with the 6-person group and satisfaction with the 6-person group.

141

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table 4.2: Means, standard deviations, and bivariate correlations of study variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Two groups</td>
<td>-.44***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. One group</td>
<td>.42***</td>
<td>-.88***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Bias</td>
<td>-.15**</td>
<td>.25***</td>
<td>-.28***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Out Sat</td>
<td>.19**</td>
<td>-.22***</td>
<td>.27***</td>
<td>-.33***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Out Pref</td>
<td>.15**</td>
<td>-.22***</td>
<td>.27***</td>
<td>-.33***</td>
<td>.89***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Group Pref</td>
<td>.00</td>
<td>-.16**</td>
<td>.21***</td>
<td>.11*</td>
<td>.47***</td>
<td>.53***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Group Sat</td>
<td>-.07</td>
<td>-.13*</td>
<td>.17**</td>
<td>.12*</td>
<td>.46***</td>
<td>.44***</td>
<td>.72***</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.51</td>
<td>3.74</td>
<td>4.48</td>
<td>.28</td>
<td>5.52</td>
<td>5.43</td>
<td>4.98</td>
<td>5.33</td>
</tr>
<tr>
<td>SD</td>
<td>.51</td>
<td>1.77</td>
<td>1.74</td>
<td>.72</td>
<td>1.06</td>
<td>1.05</td>
<td>1.24</td>
<td>1.34</td>
</tr>
</tbody>
</table>

Hypothesis Testing

Hypothesis 1

Hypothesis 1 predicted that participants in the cooperative condition would be more likely to perceive the aggregate to represent one group than would participants in the no-cooperation condition. This hypothesis was tested two ways. Results of the chi square analysis indicated that a larger proportion of participants in the cooperative condition perceived the aggregate to represent one group (79.6%) than to represent two groups (20.4%). Likewise, more participants in the no-cooperation condition perceived the aggregate to represent two groups (63.9%) than to represent one group (36.1%). These differences were significant ($\chi^2 = 63.45$, df = 1, $p < .001$). Results are presented in Table 4.3.
<table>
<thead>
<tr>
<th>Condition</th>
<th>One Group</th>
<th>Two Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Cooperative</td>
<td>133</td>
<td>79.6</td>
</tr>
<tr>
<td>No-cooperation</td>
<td>57</td>
<td>36.1</td>
</tr>
</tbody>
</table>

Table 4.3: Proportional differences in cognitive representations of the aggregate according to experimental condition.

Additionally, the MANCOVA indicated a significant multivariate effect, Wilks’s $\Lambda = .81, p < .001$. Follow-up ANCOVA procedures indicated that persons in the cooperative condition had higher ratings of the aggregate as one group ($M = 5.20, SD = 1.51$) than did persons in the no-cooperation condition ($M = 3.72, SD = 1.65$), $F (1, 320) = 65.91, p < .001, \eta^2 = .17$. The effect size is considered large (Cohen, 1988). In a similar fashion, persons in the no-cooperation condition were more likely to perceive the aggregate to represent two groups ($M = 4.54, SD = 1.58$) than were persons in the cooperative condition ($M = 2.99, SD = 1.61$), $F (1, 320) = 73.24, p < .001, \eta^2 = .19$. The effect size for the test is considered large (Cohen, 1988). A summary of these findings is presented in Table 4.4.

Overall, these results indicate that persons in the cooperative condition were more likely to perceive the aggregate to represent one group than were persons in the no-cooperation condition. Therefore, hypothesis 1 received full support.
Hypothesis 2

Hypothesis 2 predicted that participants with cognitive representations of the aggregate as one group would have less bias than participants with cognitive representations of the aggregate as two groups. Results are presented in Table 4.5. The ANCOVA demonstrated that participants who perceived the aggregate to represent one group had less bias ($M = .11, SD = .62$) than those who perceived the aggregate to represent two groups ($M = .51, SD = .78$), $F(1, 320) = 26.56, p < .001, \eta^2 = .08$. The effect size is considered medium to large (Cohen, 1988). These results support hypothesis 2.
I also conducted subsequent analyses to determine if the differences in the bias rating between the two groups was due to ratings of ingroup members, ratings of outgroup members, or both. The Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) states that the reduction in bias that results from recategorization is due to more positive interpretations of former outgroup members. Therefore, as a result of recategorization, members have a "pro-ingroup bias" (Gaertner & Dovidio, 2000, p. 42). Empirical evidence from Gaertner and his associates (1989, 1990, 1999) support this proposition.

To test this possibility, I ran two subsequent ANCOVA procedures. In the first, the controls served as the covariates, the cognitive representation of the aggregate (i.e., one group or two groups) served as the independent variable, and ratings of ingroup members served as the dependent variable. In the second ANCOVA, the controls served as the covariates, the cognitive representation of the aggregate (i.e., one group or two groups) served as the independent variable, and ratings of outgroup members served as the independent variable. Results are show in Table 4.5. The first ANCOVA indicated that there were no differences in the ratings of ingroup members between persons who perceived the aggregate to represent one group ($M = 5.61, SD = .98$) than those who perceived the aggregate to represent two groups ($M = 5.56, SD = .86$), $F(1, 320) = .00, p = .99, \eta^2 = .00$. Results from the second ANCOVA indicated that persons who perceived the aggregate to represent one group had higher ratings of outgroup members ($M = 5.49, SD = .88$) than those who perceived the aggregate to represent two groups ($M = 5.05, SD = .89$), $F(1, 320) = 16.52, p < .001, \eta^2 = .05$. The effect size in this test is considered medium (Cohen, 1988). Therefore, the differences in bias between those
who perceive the aggregate to represent one group and those who perceive the aggregate
to represent two groups is due to the differential ratings of outgroup members.

Hypothesis 3

Hypothesis 3 predicted that persons with low levels of bias would have a greater
preference to work with the 6-person group than would persons with high levels of bias.
Results of the hierarchical regression analysis used to test this hypothesis are presented
in Table 4.6. The VIF for all steps was under the recommended cutoff of 10 (Myers,
1990), and the condition index (10.53) was under the recommended cutoff of 30
(Tabachnick & Fidell, 1996). Based on these criteria, it was concluded that
multicollinearity was not a problem.

As seen in Table 4.6, the control variables accounted for 13% of the variance in
preference to work with the 6-person group. After controlling for these effects, bias
contributed an additional 1% ($p < .05$). Though significant, Cohen and Cohen (1983)
consider this to be a small amount of explained variance. Further, the beta weight of bias
($\beta = .11, p < .05$) was positive, and therefore in the opposite direction than was
hypothesized. Therefore, participants with greater intergroup bias preferred to work with
the 6-person group more so than participants with less intergroup bias. Therefore,
hypothesis 3 was not supported.
Table 4.6: Summary of hierarchical regression analysis testing the relationship between bias and preference to work with the group (N = 325).

Hypothesis 4

Recall from Chapter 3 that, because the two facets of satisfaction were combined into one, hypotheses 4a and 4b were merged into a single hypothesis. This hypothesis predicted that persons with low levels of bias would have greater satisfaction with the 6-person group than would persons with high levels of bias. The results from the hierarchical regression analysis used to test this hypothesis are presented in Table 4.7. The VIF values for all steps were below 10 and the condition index (10.51) was below the recommended cutoff of 30. Therefore, there was no concern about the possibility of multicollinearity.

As seen in Table 4.7, the control variables accounted for 7% of the variance in the dependent variable. After controlling for these effects, bias accounted for an additional 1% (p < .05). Cohen and Cohen (1983) consider this to be a small portion of...
explained variance. The beta weight for bias was positive ($\beta = .11, p < .05$) indicating that persons with high levels of bias were more likely than those with low levels of bias to be satisfied with the 6-person group. Therefore, hypothesis 4 was not supported.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.27</td>
<td>.32</td>
<td>.05</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>.14</td>
<td>.24</td>
<td>.03</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.24</td>
<td>.05</td>
<td>.26**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.23</td>
<td>.32</td>
<td>.04</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>.15</td>
<td>.24</td>
<td>.03</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.24</td>
<td>.05</td>
<td>.26**</td>
</tr>
<tr>
<td>Bias</td>
<td>.21</td>
<td>.10</td>
<td>.11*</td>
</tr>
</tbody>
</table>

*Notes. $R^2 = .07 (p < .001)$ for Step 1; $\Delta R^2 = .01 (p < .05)$ for Step 2. *$p < .05$. **$p < .001$. |

Table 4.7: Summary of hierarchical regression analysis testing the relationship between bias and satisfaction with the group (N = 325).

**Hypothesis 5**

Because the two facets of satisfaction were merged into one (as documented in Chapter 3), hypotheses 5a and 5b were combined into a single hypothesis. Specifically, I predicted that satisfaction would mediate the relationship between bias and preference to work with the 6-person group. Although hypothesis 3 (i.e., the hypothesis that predicted an inverse relationship between bias and preference to work with the group) was not
supported, there was a significant relationship between bias and preference to work with the 6-person group. However, according to Cohen and Cohen (1983), the 1% variance explained by bias in both satisfaction with the 6-person group and preference to work with the 6-person group is considered small. That significance was found is likely only a function of the large sample size (N = 325). Because of the small amount of variance explained and the lack of support for both hypotheses, the test for hypothesis 5 became moot. Therefore, tests for mediation were not performed.

Additional Tests

Recall from Chapter 3 that, in addition to examining the effects of bias on satisfaction with and preference to work with the group, I also examined the relationship between bias and satisfaction with the performance of and preference to work with outgroup members. Therefore, there were two levels of evaluation — the group and the individual. Below, I outline the results related to these additional tests (i.e., tests at the individual level of evaluation).

A hierarchical regression analysis was used to test the hypothesized negative association between bias and preference to work with outgroup members. All VIF values were less than 10 and the condition index was less than 30, indicating that multicollinearity was not a problem. As seen in Table 4.8, the control variables accounted for 4% of the variance in the dependent variable. Bias then contributed an additional 12% ($p < .001$) unique variance. Cohen and Cohen (1983) consider this to be a medium to large amount of explained variance. The beta weight for bias was in the hypothesized direction ($\beta = -.34, p < .001$). Therefore, persons with low levels of bias
had greater preference to work with outgroup members than did persons with high levels of bias. This is in support of the hypothesis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.48</td>
<td>.25</td>
<td>.11</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.07</td>
<td>.49</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.13</td>
<td>.04</td>
<td>.17**</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.57</td>
<td>.24</td>
<td>.13*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.09</td>
<td>.18</td>
<td>-.03</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.13</td>
<td>.04</td>
<td>.17**</td>
</tr>
<tr>
<td>Bias</td>
<td>-.50</td>
<td>.08</td>
<td>-.34***</td>
</tr>
</tbody>
</table>

Notes. $R^2 = .04$ ($p < .01$) for Step 1; $\Delta R^2 = .12$ ($p < .001$) for Step 2. *$p < .05$. ***$p < .01$. ***$p < .001$.

Table 4.8: Summary of hierarchical regression analysis testing the relationship between bias and preference to work with outgroup members (N = 325).

In addition to testing the effects of bias toward preference to work with outgroup members, I also investigated the hypothesized negative relationship between bias and satisfaction with the performance of outgroup members. A hierarchical regression analysis was used to test this relationship. The VIF values were all below 10, and the condition index (10.51) was below the recommended cutoff. Therefore, multicollinearity was not a problem.

Results of the hierarchical regression analysis are shown in Table 4.9. The control variables accounted for 3% of the variance. After controlling for these effects,
bias accounted for an additional 12% variance—a medium to large amount (Cohen &
Cohen, 1983). The beta weight ($\beta = -0.34, p < .001$) was in the hypothesized direction.

Thus, participants with low levels of intergroup bias had greater satisfaction with the
performance of outgroup members than did participants with high levels of bias.

Therefore, the hypothesis was supported.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>0.44</td>
<td>0.26</td>
<td>0.10</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-0.22</td>
<td>0.20</td>
<td>-0.06</td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.11</td>
<td>0.04</td>
<td>0.15**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>0.53</td>
<td>0.24</td>
<td>0.12*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-0.24</td>
<td>0.18</td>
<td>-0.07</td>
</tr>
<tr>
<td>Collectivism</td>
<td>0.11</td>
<td>0.04</td>
<td>0.15**</td>
</tr>
<tr>
<td>Bias</td>
<td>-0.50</td>
<td>0.08</td>
<td>-0.34***</td>
</tr>
</tbody>
</table>

Notes. $R^2 = 0.03 (p < .01)$ for Step 1; $\Delta R^2 = 0.12 (p < .001)$ for Step 2. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 4.9: Summary of hierarchical regression analysis testing the relationship between bias and satisfaction with the performance of outgroup members (N = 325).

Finally, I assessed the extent to which bias statistically mediated the relationship
between perceptions of the aggregate as one group and the two work outcomes
measured—satisfaction with the performance of and preference to work with outgroup
members. Conceptually, there is a one group $\rightarrow$ bias $\rightarrow$ satisfaction/preference linkage
as Gaertner and Dovidio (2000) argued that behavioral, cognitive, and affective
responses were likely to result from recategorization. There is also some empirical support for these tests via Gaertner et al.'s (1994) study. Specifically, in building from Allport's (1954) contact hypothesis, these authors found that bias mediated the negative association between conditions of contact (i.e., equal status, interaction, interdependence, and supportive norms) and attitudinal favorability toward outgroup members.

In the current study, I used Baron and Kenny’s (1986) guidelines for testing mediation. As noted in Chapter 3, mediation is supported if (a) the independent variable is related to both the mediator and the dependent variable, (b) the mediator is related to the dependent variable, and (c) after controlling for the effects of the mediator, the independent variable is not related to the dependent variable. These conditions were tested through hierarchical regression analyses, with the three control variables entered in the first step in all analyses. Because of the high correlation between perceptions of the aggregate as one group and perceptions of the aggregate as two groups ($r = -.88$; Table 4.2), thereby indicating that the variables were essentially measuring the same thing, I decided to only use perceptions of aggregate as one group in the analyses.

In the first hierarchical regression analysis, perceptions of the aggregate as one group was entered in the second step and satisfaction with the performance of outgroup members served as the dependent variable. The VIF values were all below 10, and the condition index (12.09) was less than 30, indicating that multicollinearity was not a problem. As is seen in Table 4.10, the controls accounted for 3% of the variance in satisfaction with the performance of outgroup members. After controlling for these effects, perceptions of the aggregate as one group contributed 7% unique variance — a
moderate amount of variance explained (Cohen & Cohen, 1983). Further, the beta weight was in the hypothesized direction ($\beta = .26, p < .001$); hence, persons who perceived the aggregate to represent one group were more satisfied with outgroup members than were persons who perceived the aggregate to represent two groups.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.44</td>
<td>.26</td>
<td>.10</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.22</td>
<td>.20</td>
<td>-.06</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.11</td>
<td>.04</td>
<td>.15*</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.48</td>
<td>.25</td>
<td>.11</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.21</td>
<td>.19</td>
<td>-.06</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.08</td>
<td>.04</td>
<td>.11</td>
</tr>
<tr>
<td>One group</td>
<td>.16</td>
<td>.03</td>
<td>.26**</td>
</tr>
</tbody>
</table>

Notes. $R^2 = .03 (p < .05)$ for Step 1; $\Delta R^2 = .07 (p < .001)$ for Step 2. *$p < .01$. **$p < .001$.

Table 4.10: Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and satisfaction with the performance of outgroup members ($N = 325$)

In the second hierarchical regression analysis, perceptions of the aggregate as one group was entered in the second step and preference to work with outgroup members served as the dependent variable. The condition index (12.09) and VIF values were all under the recommended cutoff values, indicating that multicollinearity was not a problem. Results are presented in Table 4.11. The controls accounted for 4% of the
variance. After controlling for these effects, perceptions of the aggregate as one group contributed 6% unique variance to preference to work with outgroup members ($\beta = .26$, $p < .001$) - a small to medium amount of variance explained. Therefore, persons with cognitive perceptions of the aggregate as one group had a greater preference to work with outgroup members than did persons who perceived the aggregate to represent two groups.

Recall that the first condition of mediation called for a significant relationship between the independent and dependent variable (Baron & Kenny, 1986). These results, coupled with those presented in Table 4.10, indicate that this condition of mediation is satisfied.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.48</td>
<td>.25</td>
<td>.11</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.06</td>
<td>.19</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.13</td>
<td>.04</td>
<td>.17**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.52</td>
<td>.25</td>
<td>.12*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.05</td>
<td>.19</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.09</td>
<td>.04</td>
<td>.13*</td>
</tr>
<tr>
<td>One group</td>
<td>.16</td>
<td>.03</td>
<td>.26***</td>
</tr>
</tbody>
</table>

Notes. $R^2 = .04$ ($p < .01$) for Step 1; $\Delta R^2 = .07$ ($p < .001$) for Step 2. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 4.11: Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and preference to work with outgroup members ($N = 325$)
According to Baron and Kenny (1986), there must also be a significant relationship between the independent variable and the mediator for mediation to take place. This was tested through hierarchical regression analysis, where perceptions of the aggregate was entered in the second step and bias served as the dependent variable. The VIF values and condition index were all under the recommended cutoff values, indicating that multicollinearity was not a problem. As seen in Table 4.12, the controls did not contribute any variance to the bias rating; however, perceptions of the aggregate as one group explained 8% of the variance in bias— a moderate amount of variance explained (Cohen & Cohen, 1983). The negative beta weight ($\beta = -.28, p < .001$) indicates that persons with cognitive representations of the aggregate as one group had less intergroup bias than did those with cognitive representations of the aggregate as two groups. Therefore, the second condition of mediation was satisfied.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.19</td>
<td>.18</td>
<td>.06</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.04</td>
<td>.13</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.00</td>
<td>.03</td>
<td>.00</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.15</td>
<td>.17</td>
<td>.05</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.05</td>
<td>.13</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.02</td>
<td>.03</td>
<td>.05</td>
</tr>
<tr>
<td>One group</td>
<td>-.12</td>
<td>.02</td>
<td>-.28*</td>
</tr>
</tbody>
</table>

*Notes. $R^2 = .00 (p = .77)$ for Step 1; $\Delta R^2 = .08 (p < .001)$ for Step 2. *$p < .001$. 

Table 4.12: Summary of hierarchical regression analysis testing the relationship between perceptions of the aggregate as one group and intergroup bias (N = 325)
The third condition for mediation calls for a significant relationship between the mediator and the dependent variable. These conditions were previously tested. As shown in Table 4.8 and Table 4.9, bias was significantly related to both preference to work with outgroup members and satisfaction with the performance of outgroup members, respectively. In each regression analysis, bias contributed 12% unique variance beyond the effects of the control variables. Therefore, the third condition was satisfied.

The final condition for mediation necessitates that, once controlling for the effects of the mediator, the variance explained by the independent variable in the dependent variable becomes negated (Baron & Kenny, 1986). Two hierarchical regression analyses were used to test this final condition. In the first, bias was entered in the second step and perceptions of the aggregate as one group was entered in the third step, while satisfaction with the performance of outgroup members served as the control variable. VIF values and the condition index indicated that there was no concern for multicollinearity. As is shown in Table 4.13, the controls contributed 3% of the variance in the dependent variable. After controlling for these effects, bias contributed an additional 12% ($\beta = -.34, p < .001$). After controlling for both the controls and the effects of bias, perceptions of the aggregate as one group still contributed a significant portion of the variance ($\Delta R^2 = .03, \beta = .18, p < .001$).

Therefore, because the variance explained in satisfaction with the performance of outgroup members by perceptions of the aggregate as one group was not negated after controlling for the mediator, full mediation was not supported (Baron & Kenny, 1986). However, the 3% explained variance is considered relatively small (Cohen &
Cohen, 1983) and represents a reduction of more than half from the original variance explained in the dependent variable. Subsequently, bias is considered to partially mediate the relationship between perceptions of the aggregate as one group and satisfaction with the performance of outgroup members.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.44</td>
<td>.26</td>
<td>.10</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.22</td>
<td>.20</td>
<td>-.06</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.11</td>
<td>.04</td>
<td>.15**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.53</td>
<td>.24</td>
<td>.12*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.24</td>
<td>.18</td>
<td>-.07</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.11</td>
<td>.04</td>
<td>.15**</td>
</tr>
<tr>
<td>Bias</td>
<td>-.50</td>
<td>.08</td>
<td>-.34***</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.54</td>
<td>.24</td>
<td>.12*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.23</td>
<td>.18</td>
<td>-.07</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.09</td>
<td>.04</td>
<td>.13*</td>
</tr>
<tr>
<td>Bias</td>
<td>-.43</td>
<td>.08</td>
<td>-.29***</td>
</tr>
<tr>
<td>One Group</td>
<td>.11</td>
<td>.03</td>
<td>.18***</td>
</tr>
</tbody>
</table>

Notes. $R^2 = .03$ ($p < .05$) for Step 1; $\Delta R^2 = .12$ ($p < .001$) for Step 2; $\Delta R^2 = .03$ ($p < .001$) for Step 3. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 4.13: Summary of hierarchical regression analysis testing the mediating effects of bias on the relationship between perceptions of the aggregate as one group and satisfaction with the performance of outgroup members (N = 325)

In the second regression analysis, where preference to work with outgroup members served as the dependent variable, the mediator was once again entered in the
second step, while perceptions of the aggregate as one group was entered in the third step. Preliminary checks of the VIF values and condition index indicated that multicollinearity was not a problem. As is shown in Table 4.14, the controls accounted for 4% of the variance, while bias accounted for 12% of the variance. After controlling for these effects, perceptions of the aggregate as one group still contributed 3% unique variance (\(\Delta R^2 = .03, \beta = .18, p < .001\)). Again, the 3% explained variance is considered small (Cohen & Cohen, 1983) and is a reduction of over half in the variance explained. Therefore, bias partially mediated the relationship between perceptions of the aggregate as one group and preference to work with the group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>(\beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.48</td>
<td>.25</td>
<td>.11</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.06</td>
<td>.19</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.13</td>
<td>.04</td>
<td>.17**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.57</td>
<td>.24</td>
<td>.13*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.09</td>
<td>.18</td>
<td>-.03</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.13</td>
<td>.04</td>
<td>.17***</td>
</tr>
<tr>
<td>Bias</td>
<td>-.50</td>
<td>.08</td>
<td>-.34***</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender dissimilarity</td>
<td>.59</td>
<td>.23</td>
<td>.13*</td>
</tr>
<tr>
<td>Racial dissimilarity</td>
<td>-.08</td>
<td>.18</td>
<td>-.02</td>
</tr>
<tr>
<td>Collectivism</td>
<td>.11</td>
<td>.04</td>
<td>.15**</td>
</tr>
<tr>
<td>Bias</td>
<td>-.43</td>
<td>.08</td>
<td>-.29***</td>
</tr>
<tr>
<td>One Group</td>
<td>.11</td>
<td>.03</td>
<td>.18***</td>
</tr>
</tbody>
</table>

**Notes.** \(R^2 = .04 (p < .01)\) for Step 1; \(\Delta R^2 = .12 (p < .001)\) for Step 2; \(\Delta R^2 = .03 (p < .001)\) for Step 3. *\(p < .05\). **\(p < .01\). ***\(p < .001\).

Table 4.14: Summary of hierarchical regression analysis testing the mediating effects of bias on the relationship between perceptions of the aggregate as one group and preference to work with outgroup members (N = 325)
Finally, it is also possible to illustrate the relationship among perceptions of the aggregate as one group, bias, and satisfaction with the performance of and preference to work with outgroup members through an illustration (see Figure 4.1). Note that the arrows in bold indicate standardized betas that are significantly different. A change in the boldness of the arrow indicates a change in the level of significance.

Figure 4.1: Illustrative summary of mediation analysis
Summary

By way of summary, the results presented here largely supported the propositions of the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) and the hypotheses put forth for the study. Specifically, in support of hypothesis 1, I found that participants in the cooperative condition were more likely to perceive the aggregate to represent one group than were person in the no-cooperation condition. Next, results indicated that persons with cognitive representations of the aggregate as one group had less bias than did those with cognitive representations of the aggregate as two groups, thereby supporting hypothesis 2. Hypotheses 3 and 4 were not supported, as bias was not negatively related to work attitudes toward the group (i.e., preference to work with the 6-person group and satisfaction with the 6-person group). However, in slightly re-conceptualizing these hypotheses, I found that bias had an inverse association with both satisfaction with the performance of and preference to work with outgroup members. These findings supported the new hypotheses. Finally, I found that bias partially mediated the relationship between perceptions of the aggregate as one group and work attitudes toward outgroup members (i.e., satisfaction and preference). Again, this finding was consistent with predictions.
As Williams and O’Reilly (1998) and Milliken and Martins (1996) both aptly demonstrated, there is a vast and disparate literature concerning diversity in organizations. This research has indicated that diversity can have both positive and negative effects. In line with the “value in diversity hypothesis” (Cox et al., 1991), some researchers have found that, when compared to their homogenous counterparts, diverse groups are more creative (Williams et al., 1998), have a broader scope in their decision making (Hambrick et al., 1996), and greater decision comprehensiveness (Simons et al., 1999). Further, when coupled with either top management team debate (Simons, 1995; Simons et al., 1999) or the appropriate growth strategy (Richard, 2000), diversity is related to different facets of organizational effectiveness.

However, despite the hypothesized (Cox et al., 1991) and actual positive effects of diversity, there is a greater amount of research that has shown the negative effects of diversity on the organization, team, and individual. For example, Hambrick et al. (1996) found that diverse top management teams were slower to respond to environmental stimuli than were homogenous teams. Similarly, Jackson and her associates (1991) found that diverse teams, as a whole, had greater turnover than teams without diversity.
Timmerman (2000) also noted the negative effects of diversity in the group setting, as he found that, in the case of interdependent sports teams, teams that were more diverse with respect to age and race performed less well than their counterparts. The negative effects of diversity are also seen at the individual level, as persons that are different than others in a group have less psychological attachment to the organization, less job satisfaction, and greater turnover intentions than do those persons similar to their cohorts (Mueller et al., 1999; Tsui et al., 1992; Wesolowski & Mossholder, 1997).

Therefore, the question remains, Why does diversity negatively impact some groups more so than others? Williams and O'Reilly (1998), after their 40 year review of the diversity research, posed a similar question, as these authors suggested that an "important gap in our understanding of diversity concerns how successful groups are able to leverage diversity" (p. 118). The purpose of this study was to examine this question in greater depth. In doing so, I drew from social psychology theoretical frameworks (i.e., social identity theory, Tajfel & Turner, 1979, Turner, 1982; self-categorization theory, Turner, 1985, Turner et al., 1987) and specifically, the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993).

Past researchers have proposed that any negative effects of diversity arise from the categorization process. Tsui and her colleagues (1992) suggested that "This process of self-categorization is fundamental to the formation of in-groups and the widely documented tendency of individuals to prefer homogenous groups of similar others" (p. 552). Williams and O'Reilly (1998) voiced a similar sentiment in stating that "it is clear that there are potentially negative consequences from social categorization processes operating in groups" (p. 118). Therefore, if categorization results in intergroup bias
where ingroup members are favored over outgroup members, thereby creating negative effects in diverse groups, the key is to then reduce intergroup bias by targeting categorization processes.

One such effort has come from the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) and its relation to recategorization, or the process that “encourages the members of both groups to regard themselves as belonging to a common, superordinate group – one group that is inclusive of both memberships” (Gaertner & Dovidio, 2000, p. 33, italics original). According to these authors, if cognitive representations of the aggregate can be transformed such that members conceive of themselves as belonging to a common group, then certain behavioral, cognitive, and affective responses should result. The current study largely supported the theoretical predictions of the Common Ingroup Identity Model. In the discussion below, I review the findings related to each hypothesis, present limitations of the study, and consider the theoretical and pragmatic implications of this research.

Cooperation and Recategorization

The first hypothesis predicted that persons in cooperative conditions would be more likely to perceive the aggregate to represent one group than would persons in no-cooperation conditions. This hypothesis was fully supported, as a greater proportion (79.6%) of persons in cooperative conditions perceived the aggregate to represent one group than did persons in no-cooperation conditions (36.1%). Differences were also seen in the mean ratings of the aggregate as one group ($M = 5.20$ for persons in cooperative conditions, $M = 3.72$ for persons in no-cooperation conditions). These results do much in the way of supporting the previous research of Gaertner and his
associates (Gaertner et al., 1989, 1990), as, in both studies, cooperation served to transform group members’ cognitive representations of the aggregate from two groups to one.

These findings are also similar to those presented by Sherif and his colleagues (Sherif, Harvey, White, Hood, & Sherif, 1961) in their Robbers Cave experiment. Specifically, these authors found that conflict and intergroup bias among groups of summer campers was reduced through cooperation between the groups – such as both groups helping to jumpstart a truck. However, where Sherif and Sherif (1969) conceived the impact of cooperation on the reduction of intergroup bias to be the result of the gradual development of a superordinate group, the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) suggests that this transformation can be much quicker. The speed of such transformation was seen in this study, as only after 5 minutes of cooperation, group members conceived the aggregate to represent one group.

In this study, there were three elements of cooperation – interaction, a common problem requiring a consensus solution, and common fate. Several researchers argue that interaction is the element of cooperation that is chiefly responsible for any decrease in intergroup bias (e.g., Allprt, 1954; Brewer & Miller, 1984). However, there are other authors, those who argue for a mutual differentiation approach to reducing intergroup bias, who suggest that common fate and shared labor (i.e., a common problem requiring a consensus solution) is sufficient to reduce bias, even in the absence of interaction (Brown & Wade, 1987; Deschamps & Brown, 1983). In an attempt to address this problem more directly, Gaertner et al. (1999) examined whether interaction or common
fate was more salient in reducing intergroup bias. These authors found that interaction served to reduce bias in evaluative ratings of outgroup members, whereas common fate, when the groups were interacting, was associated with a reduction in bias in nonverbal facial reactions. Therefore, it appears that, at the very least, interaction is needed to reduce bias.

A Common Group and the Reduction of Bias

The second hypothesis predicted that persons who perceived the aggregate to represent one group would have less bias in evaluative ratings than would persons who perceived the aggregate to represent two groups. This hypothesis received full support. Again, this finding supports the theoretical predictions from the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993) as well as empirical research from Gaertner, Dovidio, and their associates. Specifically, the Common Ingroup Identity Model predicts that the formation of a common group will result in affective, behavioral, and cognitive outcomes. In this study, I found that cognitive representations of the aggregate as one group resulted in a reduction in bias with respect to ratings of how much the group member was liked, and how cooperative and similar to the self the member was perceived to be. These results mirror those of previous empirical research, where the formation of a common group has resulted in decreased bias with respect to evaluative ratings (Dovidio et al., 1997; Gaertner et al., 1989, 1990), self-disclosure (Dovidio et al., 1997), and helping behavior (Dovidio et al., 1997; Nier et al., in press).

In addition to this finding, I also sought to understand the nature of the differences. That is, was the reduction in bias a result of differences in the ratings of
ingroup members, outgroup members, or both. Results from the ANCOVA procedures indicated that bias was reduced through higher evaluations of former outgroup members. That is, persons with cognitive representations of the aggregate as one group had higher ratings of former outgroup members than did persons with cognitive representations of the aggregate as two groups. Further there were no differences between the two groups in the ratings of ingroup members. These findings are consistent with previous research that has demonstrated that “recategorization reduces bias primarily by improving attitudes toward out-group members” (Gaertner et al., 1999, p. 399). This is also consistent with theoretical predictions from the Common Ingroup Identity Model, where it is hypothesized that “if members of different groups are induced to conceive of themselves within a single groups rather than as completely separate groups, attitudes toward former outgroup members will become more positive through cognitive and motivational processes” (Gaertner & Dovidio, 2000, p. 46). Therefore, members that were formerly members of an opposing group are now viewed as members of the ingroup. As individuals have higher perceptions of ingroup members than they do of outgroup members (Tajfel & Turner, 1979, Turner et al., 1987), it is possible to see how persons conceived of as ingroup members would have high evaluative ratings.

It is also interesting to note how this process, recategorization, differs from decategorization in the reduction of bias. Whereas a reduction in bias through recategorization results from a pro-ingroup bias, a reduction in bias through decategorization results from a devaluation of ingroup members. The decategorization process is usually achieved through personalized interaction with outgroup members.
(Marcus-Newhall et al., 1993). This personalized interaction serves to weaken stereotyped impressions of outgroup members, thereby allowing for the recognition that there are different types of outgroup members (Brewer & Miller, 1984). Thus, as they engage in personalized interactions, members “attend to information that replaces category identity as the most useful tool for classifying each other” (Brewer & Miller, 1984, p. 288).

It should be noted, however, that decategorization and recategorization are not mutually exclusive. For example, Pettigrew (1998), in his reformulation of the contact hypothesis, suggested a decategorization → salient categorization → recategorization process, whereby the reduction of bias begins with decategorization and ends with recategorization. Therefore, over time, this combination can maximally reduce bias toward outgroup members and serve to generalize across situations, to various outgroup members, and even to different outgroups in general (Pettigrew, 1997). However, Gaertner et al. (2000) suggest that the origin of the process likely depends on the nature of the contact between persons. That is, if there is personalized interaction between group members, then the process will begin with decategorization. On the other hand, if there is group on group interaction, such as the case in this study and in the Sherif et al.’s (1961) Robbers Cave experiment, then the process will likely begin with recategorization.

It should also be noted here that recategorization does not require participants to necessarily forsake other identities. As Gaertner et al. (1999) note, “the development of a common in-group identity does not necessarily require each group to forsake its subgroup identities completely” (p. 389). Rather, if members of different groups
maintained their original identities but still conceived of themselves as all “playing for the same team,” then intergroup relations would be more favorable than if the members regarded themselves as belonging to completely separate groups (see also Gaertner et al., 1999). That persons are not required to forsake their original identity is especially important in the case of cultural or racial group diversity. In these instances, “it would be undesirable or impossible for people to relinquish these group identities or, as perceivers, to be colorblind” (Gaertner & Dovidio, 2000, p. 49). According to Schofield (1986), requiring persons to forsake their original identity in instances of racial and cultural diversity actually leads to poorer intergroup relations. With respect to diversity management, authors have described organizations that require persons to forsake their original identities as cultures of similarity (Doherty & Chelladurai, 1999), monolithic organizations (Cox, 1991), monocultural organizations (Chesler & Crawfoot, 1992), or parochial organizations (Adler, 1991). Clearly, such diversity management strategies are not successful.

The Relationship between Bias and Group-related Work Outcomes

The third hypothesis predicted that, when compared to those with high intergroup bias, persons with low intergroup bias would have greater preference to work with the 6-person group. The analyses did not support this proposition. In fact, the results of the regression indicated the opposite, as there was a positive association between bias and preference to work with the group. It should be noted, however, that the actual amount of variance explained (1%) is actually quite small (Cohen & Cohen, 1983). Even without the control variables, the relationship between preference to work with the 6-person group and bias was low ($r = .11$). Therefore, it is likely that
significance was achieved because of the relatively large sample size (N = 325). Further support of this is seen in the second pilot test, where there was a smaller sample size (N = 89). In this analysis, bias did not contribute any significant variance to the preference to work with the 6-person group beyond the effects of the controls (ΔR² = .00, β = .01, p = .92). Therefore, practically, the relationship between bias and preference to work with the group is zero.

There are several reasons for this occurrence. Recall from Chapter 2 that I conceptualized preference to work with the 6-person group to be similar to an affective commitment to the group. Therefore, it is possible to examine other research related to affective commitment to the group to determine other factors that might explain more variance. For example, Bishop and Scott (2000) found that intersender conflict, perceived task interdependence, and satisfaction with coworkers all contributed to the formation of team commitment. Meyer and Allen (1997) suggested that work experiences, such as role stress and participation contribute to the formation of an affective commitment to the team as well. In the study conducted here, participants’ collectivist-individualist orientation was strongly related (β = .35, p < .001) to the preference to work with the group. Thus, if an individual preferred to work alone, as opposed to with others, then he or she might not want to work with the group members in the future, regardless of the level of intergroup bias. All of these factors could explain the findings in the study.

Another possible explanation for these findings has to do with the nature of the experiment. Campbell and Stanley (1963) suggest that reactive arrangements represent one possible threat to the external validity of the posttest only control group design. That
is, the "play-acting, outguessing, up-for-inspection, I'm-a-guinea-pig, or whatever attitudes so generated are unrepresentative" (Campbell & Stanley, 1963, p. 20) of actual settings, thereby possibly hampering the generalizability. In a similar vein, it is possible that the students knew that there was very little chance of ever working with the other members in the aggregate again. Thus, their preferences for working with the aggregate again were really inconsequential. However, this possible explanation remains speculative.

The next two hypotheses (4a and 4b) predicted an inverse association among bias and satisfaction with the process and satisfaction with coworkers, respectively. Interestingly, however, the pilot tests revealed that the two satisfaction measures could actually be merged into one. As shown in Table 3.2, six of the seven total items used to measure the two components of satisfaction loaded on one factor. I then decided to keep the three items with the highest factor loadings. I termed the new factor as satisfaction with the 6-person group. Incidentally, these three items were all items that were used to measure satisfaction with the process. Therefore, it is possible that satisfaction with coworkers is actually subsumed within satisfaction with the process. However, additional research is needed to verify this contention.

Similar to the findings related to preference to work with the group, I found that bias and satisfaction with the group were only marginally related. After controlling for the control variables, bias only explained 1% of the variance in the concept, a small portion of explained variance (Cohen & Cohen, 1983). Further, the direction of the beta weight ($\beta = .11, p < .05$) indicates a positive association between bias and satisfaction with the 6-person group. However, as was the case with preference to work with the large
group, it is likely that significance was reached only because of the large sample size (N = 325). Therefore, even though the results were significant, the positive association between bias and satisfaction with the 6-person group is not practically significant (Kerlinger & Lee, 2000).

Of course, as was discussed above, it is possible that this finding is the result of reactive effects, or the feeling of being a guinea pig (Campbell & Stanley, 1963). It is also possible that other factors are just more important in considering the satisfaction with the process – such as an individual’s collectivist – individualist orientation or an individual’s perceptions of his/her group members’ performance. Additionally, it is possible that the task was not long enough for participants to adequately assess the group processes. For example, in Thomas et al.’s (1996) study, a study in which cultural diversity impacted satisfaction with the process, groups worked together on 5 projects over a 10-week period. Therefore, it is very likely that participants in these groups had a better understanding of process-oriented outcomes than did participants in the current study. Consequently, researchers should investigate whether a reduction in bias is related to satisfaction with the 6-person group in activities with duration over 15 minutes.

The Relationship between Bias and Attitudes toward Outgroup Members

Because bias was not related to group-oriented work outcomes, I also examined the extent to which bias was related to individual-oriented work attitudes. The difference in the focus of evaluation was thought to bring about a stronger relationship. Recall that evaluative ratings, which were used to form the \( \text{Index}_{\text{IN}} \), \( \text{Index}_{\text{OUT}} \), and overall bias scores, had an individual-level focus of evaluation. That is, participants rated each
member of their aggregate. Then, the average ratings of ingroup members formed the Index\textsubscript{IN} while the average ratings of outgroup members formed the Index\textsubscript{OUT}. Thus, the focus of evaluation for the bias ratings was at the individual level. However, the focus of evaluation in the two original work outcomes – preference to work with the group and satisfaction with the group – was at the group level. Therefore, it is possible that, by making the focus of evaluation consistent across all levels of analysis, stronger associations would be found.

There are also theoretical contributions and empirical research to support these changes. For example, Gaertner and Dovidio (2000), in their presentation of the Common Ingroup Identity Model, argued that, as a result of recategorization, former outgroup members will “be accorded the benefits of ingroup status heuristically and in a stereotyped fashion” (p. 48). This is consistent with their subsequent prediction that a reduction in bias would lead to more positive personal evaluations. Empirically, the research related to the Common Ingroup Identity Model thus far has been consistent across levels of evaluation. For example, in their study of students in a multi-ethnic high school, Gaertner et al. (1994) found that a reduction in bias was associated with attitudinal favorability toward outgroup members – analyses at the individual level of evaluation. Conversely, Mottola and her associates (1997) found that more inclusive merger patterns in banks were associated with affective reactions toward the newly formed organization. Based on the literature cited above, there is support for the change in focus of evaluations.

In the pilot work, I examined the extent to which bias was inversely related to performance ratings of outgroup members. Building from similarity-attraction theory
(Bryne, 1971), Antonioni and Park (2001) found that rater-ratee similarity in
Conscientiousness was positively associated with peer ratings, even after controlling for
the effects of personal affect. Therefore, there is some evidence that persons different
from the self (i.e., outgroup members) receive lower performance ratings than do
persons similar to the self. I examined the extent to which evaluative ratings (i.e., the
extent to which members of the aggregate were liked, considered similar to the self, and
perceived to be cooperative) were related to performance appraisals (i.e., responses to
the item, “this persons performed well on the task”). Results indicated a negative
association that approached significance \( r = .21, p = .11 \) for the small sample size \( N = 60 \). Therefore, based on these results, bias against outgroup members was associated
with lower performance ratings.

In building from these findings, I developed questionnaire items in line with
hypotheses 3 and 4, such that participants rated their preference to work with the
individual and the satisfaction with the performance of the person. In this way, I was
able to calculate the mean ratings of ingroup and outgroup members for both satisfaction
with the performance of and preference to work with outgroup members. The
hierarchical regression analyses used to test the relationships revealed that bias was
negatively associated with both concepts (i.e., satisfaction and preference). Further, the
amount of unique variance explained \( \Delta R^2 = .12 \) in both analyses) is considered medium
to large (Cohen & Cohen, 1983). These findings, therefore, support my predictions that
intergroup bias was negatively associated work attitudes toward outgroup members.

As previously noted, there is theoretical support for this finding. For example,
Gaertner and Dovidio (2000) suggested that a reduction in bias would lead to “more
positive thoughts, feelings, and behaviors” (p. 48) toward former outgroup members. However, while consistent with theory, these findings provide empirical contributions to the social psychology literature related to recategorization. For example, Gaertner and Dovidio, in their re-analysis of Niemann and Dovidio’s (1998) study, found that psychologists had greater job satisfaction when they felt like “part of the department” compared to when they did not. Others (Mottola et al., 1997) found that inclusive merger patterns were related to organizational commitment. However, what is missing in these studies, and is made explicit in the research reported here, is the direct link from bias to work-related attitudes. Thus, participants with low levels of bias had a greater satisfaction with the performance of and preference to work with former outgroup members.

The tests for mediation (Baron & Kenny, 1986) further support this sentiment. That is, I found that bias partially mediated the relationship between cognitive representations of the aggregate as one group and preference to work with and satisfaction with the performance of outgroup members. That bias only partially mediated this relationship is not particularly surprising. According to Baron and Kenny (1986), “Because most areas of psychology, including social, treat phenomena that have multiple causes, a more realistic goal may be to seek mediators that significantly decrease” (p. 1176) the path from the independent variable to the dependent variable. As noted in Chapter 4, the variance explained by perceptions of the aggregate as one group in both outcome measures (i.e., satisfaction and preference) was decreased by more than half when partitioning out the effects of bias. These findings appear to be consistent with Baron and Kenny’s suggestion that researchers seek mediators that decrease the
relationship between the dependent and independent variables. These findings also do much in the way of supporting the hypothesized one group → bias → work-related attitudes linkage.

Let us consider the implications for diverse groups. Past research has shown that persons different from others in their school or workgroup have less psychological attachment to the particular foci than do persons similar to their cohorts (see Mueller et al., 1999; Riordan & Shore, 1997; Tsui et al., 1992). If, as Williams and O’Reilly (1998) and Tsui et al. (1992) suggest, categorization is the catalyst behind these effects, then altering the categorization process could reduce the impact of diversity on these outcomes. The research reported here indicates that recategorization is a tool that can accomplish this end. That is, when individuals’ perceptions of the aggregate are transformed such that they perceive the aggregate to represent one group, then they also have reduced intergroup bias. This reduction in intergroup bias then leads to a greater preference to work with and satisfaction with the performance of outgroup members. Therefore, it is possible that the negative effect diversity has on psychological commitment and satisfaction can be mitigated or perhaps reversed through the recategorization process.

Limitations and Directions for Future Research

As noted in Chapter 1, there are several limitations to this research. In order to aid the reader in interpreting these results, these limitations are discussed in greater length here. Perhaps the biggest limitation to the study is the nature of the research, as Kerlinger and Lee (2000) argue that laboratory research often has less external validity than does field research. I have already noted that it is possible that the laboratory nature
of the research impacted participants’ preference to work with the group – a notion similar to the reactive arrangements noted by Campbell and Stanley (1963). Of course, the laboratory experiment often has tighter control over internal factors that could threaten the validity of the findings. (These threats to internal validity were outlined in Chapter 3). Therefore, there is a give-and-take relationship, such that I chose to control for the threats to internal validity while possibly opening the door to threats of external validity.

In light of this limitation, future researchers are encouraged to replicate this study in the field setting. There is some research in the field setting to support the basic tenants of the Common Ingroup Identity Model (see, for example, Gaertner et al., 1994; Murrell & Gaertner, 1992; Nier et al., in press, Study 2). For example, in their study of interscholastic football players, Murrell and Gaertner found a positive relationship between team unity and athletic success. Nier and his associates found that a common affiliation with a university team was associated with helping behavior toward racially different others. In extending the findings of the current study to the field setting, researchers could examine the extent to which perceptions of the aggregate as one group were related to work-related attitudes. For example, intercollegiate athletic coaching staffs often have elements of cooperation in that the coaches interact with one another and share a common fate. Therefore, according to the findings presented here, it is likely that members of these coaching staffs, as a collective, have less intergroup bias and more positive work outcomes than do persons in groups without the elements of cooperation. Research along these lines could only serve to improve our understanding of recategorization and its relationship with intergroup bias.
Another limitation has to do with the sample in the study. Campbell and Stanley (1963) suggest that one possible threat to the external validity of the posttest only control group design is the interaction of selection and X. To be more specific, if there were characteristics of the present sample that caused the experimental manipulation to be more effective than it would have been in another sample, then there is an interaction of selection and X. In a similar vein, there are some scholars, such as Gordon, Slade, and Schmitt (1986), who question the validity of using college students as participants in research endeavors. However, Campbell (1986) refutes such claims and suggests that the data do not support the claim that lab studies produce different results than field studies. In response to this finding, Campbell proposes that “perhaps college students are real people” (p. 276).

Third, data were collected via questionnaire. Therefore, it is possible that the participants responded in a socially desirable manner. That is, participants may have provided answer they anticipated I wanted to receive. To the extent that this may have occurred, the results presented here are limited.

Fourth, the postexperimental questionnaire contained single-item outcomes measures. That is, both preference to work with and satisfaction with the performance of outgroup members were measured with single-item measures. There is some concern among researchers as to the validity of using single-item measures. However, Wanous, Reichers, and Hudy (1997) found that, with respect to satisfaction, single-item measures were as valid as multi-item measures. No such work has been completed on preference to work with group members, however. Therefore, the extent to which the use of single-
item measures compromises the validity of the findings, then the results are limited. Accordingly, subsequent researchers should consider using scales with multiple items in future research endeavors.

Finally, as noted in Chapter 3, I randomized whenever possible in order to satisfy the assumption of equivalence between experimental groups (Kerlinger & Lee, 2000). However, as seen in Table 4.1, there are large differences with respect to the gender composition, the number of Hispanics, and the proportion of juniors and seniors participating in the two conditions. While randomization allows us to assume that the groups are equivalent, there is evidence that this might not actually be the case in this research. Therefore, it is possible that results would be different if stratified random sampling had been used. In this way, the gender and racial compositions and dispersion of juniors and seniors in the two conditions would be equal. Of course, what we can assume is that the differences between participants in the two conditions are due merely to chance (see Kerlinger & Lee, 2000).

Notwithstanding these possible limitations, there are several avenues for future research, in addition to those presented above. One avenue for such research entails examining the lasting effects of recategorization. In the research presented here, as well as other laboratory research completed by Dovidio and Gaertner (Dovidio et al., 1997, 1998; Gaertner et al., 1989, 1990, 1999), the duration of the experiment was short term (i.e., a number of minutes). Thus, there is little understanding if the effects of recategorization on intergroup bias are lasting. There is some evidence from Moreland and McMinn (1999) that the effects are lasting. In their study, participants performed engaging tasks and then disbanded, where they formed new, smaller groups.
working in the newly formed groups, participants had higher ratings of former ingroup members than they did of former outgroup members. Therefore, based on these results, the effects of recategorization may be lasting; however, additional, longitudinal research is needed to fill this gap in our understanding.

Additionally, the problem on which the groups worked in this experiment, the Winter Survival Problem (Johnson & Johnson, 1975), is a relatively neutral exercise. However, within actual organizations and workgroups, problems are complex and people have disagreements. Therefore, it is possible that in more ambiguous or tenuous situations, recategorization might not be possible. For example, the issue of Title IX compliance is a sometimes controversial issue in the realm of intercollegiate athletics. People often disagree as to whether male or female athletes, men’s or women’s teams, should receive monies, opportunities, etc. The question then remains, are recategorization efforts powerful enough to reduce intergroup bias between males and females arguing for either side of the Title IX issue? This is just one potentially controversial issue facing employees in sport and physical activity organizations today. However, research is needed in this area to understand the relative strength of recategorization efforts.

Another potentially fruitful area for future research rests in understanding what techniques can be used to recategorize group members. Early research by Gaertner and Dovidio (1986) indicated that physical arrangement of group members in a room could serve as a recategorization tool. In this study, as well as in previous research (e.g., Dovidio et al., 1997, 1998; Gaertner et al., 1989, 1990), cooperation has been used as a recategorization technique. There were three elements of cooperation in these studies –
interaction, common fate, and a common problem requiring a consensus solution. Later work by Gaertner et al. (1999) indicated that interaction was a stronger recategorization technique than was the introduction of common fate. (It should be noted, however, that some researchers posit that common fate is sufficient to transform members’ categorizations – see, for example, Brown & Wade, 1987). There is other research, however, that indicates that a common identity can reduce bias toward persons that would otherwise be considered outgroup members (see Nier et al., in press, Study 2). Additionally, Dovidio et al. (1995) demonstrated that similarity in dress influenced the extent to which members anticipated the aggregate feeling like one or two groups. Finally, Rothgerber (1997) showed that the presence of a common threat could serve to increase perceptions of homogeneity members of an aggregate. All of these techniques could be used to recategorize group members. What needs to be understood, however, is which of these techniques is most influential in doing so. Clearly, there is ample room for research in this area.

Finally, this research examined the extent to which recategorization was related to a reduction in intergroup bias and, ultimately, more positive work attitudes toward outgroup members. However, if the reduction in bias and formation of more positive work attitudes does not lead to a more productive work unit, then some managers may question the worth of such exercises. Therefore, future researchers should examine if recategorization is related to improved performance. Murrell and Gaertner (1992) indicated that this may be the case, as they found a positive relationship between athletic success and the presence of team unity; however, additional research is needed in different contexts to confirm these findings.

180

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Practical Considerations

In 1993, Knoppers et al. found that an increase in the number of females in an athletic department altered communication patterns between males and females such that there was a "more rigid demarcation of gender boundaries" (p. 266). Additionally, Mueller et al. (1999) found that being racially different than others in a school was related to lower job satisfaction and school commitment among teachers. The question then remains, How might the findings presented here help remedy these problems? Though my research was based in a laboratory setting, there are clear implications for this question. For example, my research indicated that cooperation served to transform members' cognitive representations of the aggregate from two groups to one. As noted above, others have found that the presence of a common enemy (Rothgerber, 1997) or common identity (Nier et al., in press) also serve to recategorize group members. Therefore, managers of athletic departments, schools, or athletic teams should seek to (a) instill elements of cooperation (i.e., interaction, a common problem requiring a consensus solution, and common fate), (b) affirm a common group identity, such as team, school, or organizational membership, and/or (c) make group members aware of a common enemy or external threat. Based on the results presented in here, such efforts should recategorize group members, such as that there is a reduction in bias, and, ultimately, greater satisfaction with and preference to work with outgroup members.

Conclusions

Recall from Chapter 2 that I used the ideas of centripetal and centrifugal forces to describe the factors that contribute to the some groups leveraging the effects of diversity better than others. Centrifugal forces are those that "pull an organization
outward, away from its conceptual center. In contrast, centripetal forces are structural elements and processes that integrate dispersed ideas, knowledge, and information into collective action. They pull an organization inward, toward its conceptual center” (Sheremata, 2000, p. 390). Chelladurai (2001b) proposed that differences in values and beliefs between groups would serve as centrifugal forces, thereby pulling away from one another. On the other hand, centripetal forces are those organizational initiatives designed to integrate the diverse elements together, thereby maximizing the possible negative influence of diversity upon group and organizational outcomes. Chelladurai continues to suggest that centripetal forces serve to pull diverse elements toward the core of the organization, its purpose and mission. Finally, Chelladurai argued that effective diversity management was comprised of a dynamic equilibrium that balances centripetal and centrifugal forces.

In the current study, I proposed that recategorization would serve as a centripetal force that would pull the diverse forces (i.e., members of the two 3-person groups) toward the conceptual center. Results supported this prediction in that, as a result of recategorization, intergroup bias was reduced and work attitudes toward outgroup members became more favorable. Further evidence of the “pulling toward the conceptual center” process is seen in the finding that recategorization resulted in a pro-ingroup bias, whereby members of the aggregate were all conceived of as ingroup members. Therefore, in the context of diverse workgroups, it is likely that the categorization processes that result in intergroup bias (Tsui et al., 1992; Williams &
O'Reilly, 1998) and differences in values and attitudes – all sources of the negative effects of diversity – could be mitigated or reversed through recategorization, a centripetal force.

Let us also consider this strategy for managing diversity compared to another – affirmative action. In many ways, affirmative action can be seen as a strategy that takes place prior to the employee entering the organization. As Chelladurai (2001a) notes, “Affirmative action is related largely to the hiring of employees (entry into the organization), whereas valuing and managing diversity deal with how diverse people are treated once inside the organization” (p. 398). Thus, while affirmative action might aid in increasing the entry of diverse peoples into the workforce (although the legality of the initiative has come under question), it is an insufficient strategy for managing diversity in the workplace. Coakley (2000, p. 268) makes the following observation concerning the presence of racial and ethnic minorities in organizations:

Too many people think in fairy tale terms when it comes to racial and ethnic relations: they believe that, once everyone comes together on the same team, in the same classroom, or the same organization, they will live happily ever after. However, coming together is just the first step in a never-ending process of relationship management. Racial and ethnic diversity brings potential vitality and creativity to a team or group, but this potential does not automatically become a reality. It takes awareness, commitment, and work to bring it about.

Clearly, according to Coakley (2000), initiatives such as affirmative action are insufficient. It is also possible to examine the contention from an historical perspective. For instance, Branch Rickey’s signing of Jackie Robinson in 1946 let Robinson in the door of professional baseball; thus, it is similar to affirmative action in that it allowed entry into the Dodgers organization. If this were the only initiative taken by Rickey, then the success enjoyed by Robinson would have, in all likelihood, never materialized.
As Coakley (2000) notes, Robinson needed support from Rickey, his manager, and his teammates as he “struggled with his anger and depression” (p. 270) that resulted from the unspeakable racism by opposing players and spectators. The Dodger organization also had to change policies about Black spectators, Dodger players had to decide how and if to socialize with their new teammate, and fans had to decide (a) how to react to Robinson and (b) how to face the prospects of sitting with persons from a different race.

This, of course, only represents a partial list of adjustments that had to be made after Robinson was admitted into the league. However, it does illustrate the need for management strategies after persons enter the organization. The current study has illustrated one potential strategy – recategorization. Different authors have suggested other strategies as well (e.g., Chelladurai, 2001a, Doherty & Chelladurai, 1999; Fink & Pastore, 1999). The key point in this discourse is that managers should identify the equilibrium between centripetal and centrifugal forces that allows for the effective management of diversity in the workplace.

**Summary**

In summary, the purpose of this study was to more fully explore the question of how some groups are able to leverage diversity better than others are. In drawing from the Common Ingroup Identity Model (Gaertner & Dovidio, 2000; Gaertner et al., 1993), and, more generally, social identity (Tajfel & Turner, 1979; Turner, 1982) and self-categorization (Turner, 1985; Turner et al., 1987), I examined the extent to which recategorization could reduce intergroup bias and change work attitudes toward outgroup members. I found that participants in cooperative conditions (i.e., interaction, a common problem requiring a consensus solution, and common fate) were more likely to
perceive the aggregate to represent one group than were persons in no-cooperation conditions. Bias was not related to satisfaction with the overall group or preference to work with the group. However, I did find a one group representation of the aggregate → reduction in intergroup bias → satisfaction with the performance of and preference to work with outgroup members linkage between the study concepts. These findings, while consistent with theory, make empirical contributions, as this is the first study to explicitly demonstrate an inverse association among bias and work-related attitudes toward outgroup members. Clearly, these findings have implications for the manager facing the challenge of diversity as, if applied in the organizational context, it is possible that the negative effects of diversity on work-related attitudes and outcomes can be mitigated or reversed.
LIST OF REFERENCES


191


192


197


Appendix A

Final Questionnaire
Thank you for choosing to participate in this activity. Your participation is voluntary. You may terminate your participation at any time if you feel it is necessary. To indicate that you consent to participate in this activity, please sign your name and provide the date in the space below. Again, thank you very much for your participation.

Name _________________________ Date ______________

Please indicate the letter that is on the sticker you are wearing ____

Directions: Please mark only one response for the following question.

1. What description best characterizes your impression of the 6 of you currently participating in this experiment? (only mark one)
   
   It felt like one group ____
   It felt like two groups ____

Directions: Please indicate the extent to which you agree or disagree with each of the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

2. When working on this task, it felt like we were two groups.
   
   Strongly Disagree: 1 2 3 4 5 6 7

3. When working on this task, it felt like we were one group.
   
   Strongly Disagree: 1 2 3 4 5 6 7
Directions: The following items refer to your attitudes about other participants with whom you worked. Please refer to the letter on the sticker they are wearing when rating the individuals. PLEASE DO NOT RATE YOURSELF. Thus, do not provide an answer for the letter you are wearing. Please indicate the extent to which you agree or disagree with the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

Participant A

1. I like this person. 1 2 3 4 5 6 7
2. This person is cooperative. 1 2 3 4 5 6 7
3. This person is similar to me. 1 2 3 4 5 6 7
4. I am satisfied with this person’s performance. 1 2 3 4 5 6 7
5. I would like to work with this person in the future. 1 2 3 4 5 6 7

Participant B

1. I like this person. 1 2 3 4 5 6 7
2. This person is cooperative. 1 2 3 4 5 6 7
3. This person is similar to me. 1 2 3 4 5 6 7
4. I am satisfied with this person’s performance. 1 2 3 4 5 6 7
5. I would like to work with this person in the future. 1 2 3 4 5 6 7

Participant C

1. I like this person. 1 2 3 4 5 6 7
2. This person is cooperative. 1 2 3 4 5 6 7
3. This person is similar to me. 1 2 3 4 5 6 7
4. I am satisfied with this person’s performance. 1 2 3 4 5 6 7
5. I would like to work with this person in the future. 1 2 3 4 5 6 7
### Participant D

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I am satisfied with this person’s performance.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I would like to work with this person in the future.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

### Participant E

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I am satisfied with this person’s performance.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I would like to work with this person in the future.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

### Participant F

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I am satisfied with this person’s performance.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I would like to work with this person in the future.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

207

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
**Directions:** Please respond to the following items concerning your attitudes about this experience using the scale from 1 *(strongly disagree)* to 7 *(strongly agree)*.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I prefer to work with others in a group rather than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. Given the choice, I would rather do a job where I work alone rather than doing a job where I have to work with others in a group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. Working with a group is better than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I would like to complete another task with this group in the future.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. I would be proud to tell people I work in this group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. Given the chance, I would want to work with this group again.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>7. I am satisfied with the way our group made decisions.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8. I am satisfied with the decision making process our group went through.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. I am satisfied with the manner in which our group reached the solution to the problem.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
Please tell us a little bit about yourself:

1. What is your age? _____

2. Gender: Male _____ Female _____

3. Race/Ethnicity: African-American (Black) _____ Asian _____
   Caucasian (White) _____ Hispanic _____ Other (specify) __________________________

4. College Classification: Freshman _____ Sophomore _____ Junior _____
   Senior _____ Graduate _____

5. College Major: _______________________________________

Thank you very much for completing this questionnaire and helping with the study. I truly appreciate your assistance.
Appendix B

Questionnaire #1
Thank you for choosing to participate in this activity. Your participation is voluntary. You may terminate your participation at any time if you feel it is necessary. To indicate that you consent to participate in this activity, please sign your name and provide the date in the space below. Again, thank you very much for your participation.

Name _____________________ Date __________________

Please indicate the letter that is on the sticker you are wearing _____

Directions: Please mark only one response for the following question.

2. What description best characterizes your impression of the 6 of you currently participating in this experiment? (only mark one)
   
   It felt like one group _____   It felt like two groups _____

Directions: Please indicate the extent to which you agree or disagree with each of the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. When working on this task, it felt like we were two groups.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. When working on this task, it felt like we were one group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I prefer to work with others in a group rather than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. Given the choice, I would rather do a job where I work alone rather than doing a job where I have to work with others in a group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. Working with a group is better than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
Directions: The following items refer to your attitudes about other participants with whom you worked. Please refer to the letter on the sticker they are wearing when rating the individuals. PLEASE DO NOT RATE YOURSELF. Thus, do not provide an answer for the letter you are wearing. Please indicate the extent to which you agree or disagree with the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

Participant A

1. I like this person.
   Strongly Disagree: 1 2 3 4 5 6 7

2. This person is honest.
   1 2 3 4 5 6 7

3. This person is cooperative.
   1 2 3 4 5 6 7

4. This person is similar to me.
   1 2 3 4 5 6 7

5. This person performed well on the task.
   1 2 3 4 5 6 7

Participant B

1. I like this person.
   1 2 3 4 5 6 7

2. This person is honest.
   1 2 3 4 5 6 7

3. This person is cooperative.
   1 2 3 4 5 6 7

4. This person is similar to me.
   1 2 3 4 5 6 7

5. This person performed well on the task.
   1 2 3 4 5 6 7

Participant C

1. I like this person.
   1 2 3 4 5 6 7

2. This person is honest.
   1 2 3 4 5 6 7

3. This person is cooperative.
   1 2 3 4 5 6 7

4. This person is similar to me.
   1 2 3 4 5 6 7

5. This person performed well on the task.
   1 2 3 4 5 6 7
<table>
<thead>
<tr>
<th>Participant D</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant E</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant F</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
**Directions:** Please respond to the following items concerning your attitudes about this experience using the scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would like to work with this group in the future.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. Working with this group on later tasks would be something I would want to do.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. I would prefer to work with this group again.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Given the chance, I would want to work with this group again.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. I am satisfied with the way our group made decisions.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Directions:** Please respond to the following concerning your perceptions about the work you completed using the scale from 1 (*extremely satisfied*) to 7 (*extremely dissatisfied*).

**How Satisfied are you with...**

<table>
<thead>
<tr>
<th></th>
<th>Extremely Dissatisfied</th>
<th>Extremely Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How well you got along with other with whom you worked.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. How well you and the other with whom you worked work together.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. The opportunity to make new friends with the persons with whom you worked.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. The decisions made by you and the others with whom you worked.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Please tell us a little bit about yourself:

6. What is your age? ____

7. Gender: Male ____ Female ____

8. Race/Ethnicity: African-American (Black) ____ Asian ____
   Caucasian (White) ____ Hispanic ____ Other (specify) __________________

9. College Classification: Freshman ____ Sophomore ____ Junior ____
   Senior ____ Graduate ____

10. College Major: ______________________________________

Thank you very much for completing this questionnaire and helping with the study. I truly appreciate your assistance.
Thank you for choosing to participate in this activity. Your participation is voluntary. You may terminate your participation at any time if you feel it is necessary. To indicate that you consent to participate in this activity, please sign your name and provide the date in the space below. Again, thank you very much for your participation.

Name ____________________ Date __________________

Please indicate the letter that is on the sticker you are wearing ____

Directions: Please mark only one response for the following question.

3. What description best characterizes your impression of the 6 of you currently participating in this experiment? (only mark one)

   It felt like one group _____  It felt like two groups _____

Directions: Please indicate the extent to which you agree or disagree with each of the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. When working on this task, it felt like we were two groups.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. When working on this task, it felt like we were one group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. I prefer to work with others in a group rather than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. Given the choice, I would rather do a job where I work alone rather than doing a job where I have to work with others in a group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. Working with a group is better than working alone.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
**Directions:** Please respond to the following items concerning your attitudes about this experience using the scale from 1 (strongly disagree) to 7 (strongly agree).

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. I enjoyed working with this group</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8. I would have rather worked in another group than this one.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. I would like to complete another task with this group in the future.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10. I would be proud to tell people I work in this group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>11. Given the chance, I would want to work with this group again.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>12. I DO NOT feel like “part of the family” in this group.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13. I am satisfied with the way our group made decisions.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>14. I am satisfied with the decision making process our group went through.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>15. I am satisfied with the manner in which our group reached the solution for the problem.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
Directions: Please respond to the following items concerning your attitudes about the work you completed using the scale from 1 (extremely dissatisfied) to 7 (extremely satisfied).

How Satisfied are you with...

<table>
<thead>
<tr>
<th></th>
<th>Extremely Dissatisfied</th>
<th>Extremely Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How well you got along with other with whom you worked.</td>
<td>1 2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>2. How well you and the other with whom you worked work together.</td>
<td>1 2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>3. The opportunity to make new friends with the persons with whom you worked.</td>
<td>1 2 3 4 5</td>
<td>6 7</td>
</tr>
<tr>
<td>4. The decisions made by you and the others with whom you worked.</td>
<td>1 2 3 4 5</td>
<td>6 7</td>
</tr>
</tbody>
</table>

Directions: The following items refer to your attitudes about other participants with whom you worked. Please refer to the letter on the sticker they are wearing when rating the individuals. PLEASE DO NOT RATE YOURSELF. Thus, do not provide an answer for the letter you are wearing. Please indicate the extent to which you agree or disagree with the items listed below using the scale from 1 (strongly disagree) to 7 (strongly agree).

Participant A

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4</td>
<td>5 6 7</td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4</td>
<td>5 6 7</td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4</td>
<td>5 6 7</td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4</td>
<td>5 6 7</td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4</td>
<td>5 6 7</td>
</tr>
<tr>
<td>Participant B</td>
<td>Strongly Disagree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant C</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant D</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
Participant E

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

Participant F

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I like this person.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. This person is honest.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. This person is cooperative.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. This person is similar to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. This person performed well on the task.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

Please tell us a little bit about yourself:

11. What is your age? _____

12. Gender: Male _____ Female _____

13. Race/Ethnicity: African-American (Black) _____ Asian _____
    Caucasian (White) _____ Hispanic _____ Other (specify) ________________

14. College Classification: Freshman _____ Sophomore _____ Junior _____
    Senior _____ Graduate _____

15. College Major: _______________________________________________________

Thank you very much for completing this questionnaire and helping with the study. I truly appreciate your assistance.
Appendix D

Panel of Experts
Advisory Committee

Dr. Packianathan Chelladurai
Full Professor – Sport and Exercise Management
School of PAES
The Ohio State University
337 West 17th Ave.
Columbus, OH 43210-1248

Dr. Donna Pastore
Associate Professor – Sport and Exercise Management
School of PAES
The Ohio State University
337 West 17th Ave.
Columbus, OH 43210-1248

Dr. Janet Fink
Assistant Professor – Sport and Exercise Management
School of PAES
The Ohio State University
337 West 17th Ave.
Columbus, OH 43210-1248

Panel of Experts

Dr. Michael Sagas  Ms. Kim Mahoney
Clinical Assistant Professor  Doctoral Student
Texas A&M University  The Ohio State University
College Station, TX  Columbus, OH

Ms. Marlene Dixon  Mr. Harry Kwon
Lecturer  Doctoral Candidate
Rice University  The Ohio State University
Houston, TX  Columbus, OH