The Evolution of Trust and Cooperation in Diverse Groups:  
A Game Experimental Approach

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The president:
Prof. Ernst Mohr, PhD
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ABSTRACT

Diversity has often been portrayed as a 'double-edged sword' with potentially positive effects on group performance but negative effects on interpersonal relations. The inconsistent findings accumulated by contemporary diversity research raise the question of whether the evidence for the positive and negative effects of diversity can be reconciled and integrated. Recent work has conclusively argued that past research has focused too much on studying the 'main effects' of diversity and neglected to consider the influence of potential moderators that may explain some of the inconsistent findings on the relationship between team diversity and team outcomes. Diversity researchers have therefore called for more attention to moderating variables when developing process models of team diversity. The present dissertation responds to these calls by investigating the effects of group diversity on important predictors of group performance, i.e. the level of behavioral trust and cooperation. Findings from a longitudinal study that used MBA students as participants in economic game experiments suggest that in deliberately diverse groups the decision to trust and cooperate depends on the level of perceived deep-level diversity and the salience of national and group identities. Furthermore, results from a second study indicate that in heterogeneous groups a salient collective group identity and trust-based social capital can lead to group norms emphasizing cooperation, while salient national identities are detrimental to a group's emphasis on interdependence and cooperation. Implications of these results for group leaders, managers, and organizations wishing to manage diversity in groups effectively are discussed. The dissertation concludes by giving advice on how to overcome the negative effects of intergroup biases such as stereotypes and prejudice by introducing a framework that describes how experiential games adopted from economic game theory can help to diagnose different types of diversity issues and to determine optimal diversity training methods accordingly.
Overview of Contents

1 Introduction ......................................................................................................................... 1

2 Setting the Stage: A Review of Diversity and Trust Research ........................................ 6
   2.1 Introduction .................................................................................................................. 7
   2.2 The Effects of Group Diversity on Group Outcomes ................................................. 7
   2.3 Theoretical Approaches to Interpersonal Trust ......................................................... 17

3 Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups:
   A Longitudinal Study ........................................................................................................ 22
   3.1 Introduction .................................................................................................................. 24
   3.2 Theoretical Perspectives on Diversity and Trust ....................................................... 25
   3.3 Antecedents of Trust and Cooperation in Diverse Groups ......................................... 28
   3.4 Methods ...................................................................................................................... 34
   3.5 Results ......................................................................................................................... 45
   3.6 Discussion ................................................................................................................... 55
   3.7 Managerial Implications .............................................................................................. 60
   3.8 Conclusions ................................................................................................................ 61

4 The Evolution of Cooperative Norms in Diverse Groups: The Impact of Social
   Identities and Social Capital ............................................................................................. 63
   4.1 Introduction .................................................................................................................. 65
   4.2 The Evolution of Cooperative Norms in Diverse Groups ........................................... 66
   4.3 Methods ...................................................................................................................... 76
   4.4 Results ......................................................................................................................... 87
   4.5 Discussion ................................................................................................................... 99
   4.6 Managerial Implications .............................................................................................. 102
   4.7 Conclusions ................................................................................................................ 103

5 Diagnosing Diversity Issues and Determining Optimal Training: The Advantages of
   Experiential Games .......................................................................................................... 105
   5.1 Introduction .................................................................................................................. 107
   5.2 A Structured Approach to Diversity Training ............................................................. 108
   5.3 For Whom and When ................................................................................................. 112
   5.4 With Which Methods and to What Ends ..................................................................... 115
   5.5 Concluding Remarks ................................................................................................. 119

6 Conclusions ...................................................................................................................... 121
   6.1 Summary of Conclusions ........................................................................................... 121
   6.2 Summary of Managerial Implications ......................................................................... 122
   6.3 Limitations .................................................................................................................. 124
# Table of Contents

Overview of Contents .............................................................................................................. iii  
Table of Contents .................................................................................................................... iv  
List of Tables ............................................................................................................................ vii  
List of Figures .......................................................................................................................... viii  

1 Introduction ........................................................................................................................... 1  

2 Setting the Stage: A Review of Diversity and Trust Research .......................................... 6  
2.1 Introduction ...................................................................................................................... 7  

2.2 The Effects of Group Diversity on Group Outcomes.................................................. 7  
2.2.1 How is Group Diversity Defined? ............................................................................... 8  
2.2.2 What are the Processes Underlying the Effects of Diversity? .................................. 9  
2.2.3 What are the Consequences of Group Diversity on Group Performance? ............ 12  
2.2.4 What are Potential Moderators in the Diversity–Performance Relationship? ........ 15  

2.3 Theoretical Approaches to Interpersonal Trust ......................................................... 17  
2.3.1 How is Trust Defined? ............................................................................................... 17  
2.3.2 Which Research Traditions Exist in Trust Research? .............................................. 19  
2.3.3 What are the Consequences of Trust? ...................................................................... 20  

3 Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups: A Longitudinal Study ............................................................. 22  
3.1 Introduction ..................................................................................................................... 24  

3.2 Theoretical Perspectives on Diversity and Trust ......................................................... 25  
3.2.1 Similarity-Attraction Paradigm ................................................................................. 26  
3.2.2 Contact Hypothesis ................................................................................................. 26  
3.2.3 Conflict Theory And Social Identity Theory ......................................................... 27  

3.3 Antecedents of Trust and Cooperation in Diverse Groups ....................................... 28  
3.3.1 Perceived Trustworthiness ....................................................................................... 29  
3.3.2 Affective Antecedents – Collective Group Identification ...................................... 30  
3.3.3 Affective Antecedents – Perceived Diversity ......................................................... 33  
3.3.4 Cognitive Antecedents ............................................................................................ 34  

3.4 Methods ......................................................................................................................... 34  
3.4.1 Setting, Design, and Procedures ............................................................................. 35  
3.4.2 The Public Goods Game .......................................................................................... 36  
3.4.3 The Survey Instruments ......................................................................................... 42
Table of Contents

3.5 Results ................................................................................................................. 45
  3.5.1 Perceived Trustworthiness ........................................................................... 46
  3.5.2 Affective Antecedents – Collective Group Identification ......................... 47
  3.5.3 Affective Antecedents – Perceived Diversity ............................................. 54
  3.5.4 Cognitive Antecedents .............................................................................. 55
3.6 Discussion ........................................................................................................... 55
3.7 Managerial Implications ................................................................................... 60
3.8 Conclusions ......................................................................................................... 61

4 The Evolution of Cooperative Norms in Diverse Groups: The Impact of Social Identities and Social Capital ............................................................. 63
4.1 Introduction ..................................................................................................... 65
4.2 The Evolution of Cooperative Norms in Diverse Groups ......................... 66
  4.2.1 Formation of Cooperative Group Norms .................................................. 68
  4.2.2 Sanctioning of Norm Violations .............................................................. 69
  4.2.3 Social Identities and Cooperative Group Norms ..................................... 72
  4.2.4 Social Capital and Cooperative Group Norms ......................................... 75
4.3 Methods ............................................................................................................. 76
  4.3.1 Setting, Procedures, and Design ............................................................... 76
  4.3.2 The Public Goods Game with Third-Party Punishment Opportunity .......... 78
  4.3.3 The Survey Instruments .......................................................................... 84
4.4 Results ................................................................................................................. 87
  4.4.1 Formation of Cooperative Group Norms .................................................. 87
  4.4.2 Sanctioning of Norm Violations .............................................................. 88
  4.4.3 Social Identities and Cooperative Group Norms ..................................... 91
  4.4.4 Social Capital and Cooperative Group Norms ......................................... 97
  4.4.5 Perceived and Actual Value Diversity ..................................................... 98
4.5 Discussion ........................................................................................................... 99
4.6 Managerial Implications ................................................................................... 102
4.7 Conclusions ......................................................................................................... 103

5 Diagnosing Diversity Issues and Determining Optimal Training: The Advantages of Experiential Games ................................................................. 105
5.1 Introduction ..................................................................................................... 107
5.2 A Structured Approach to Diversity Training ............................................. 108
5.3 For Whom and When ................................................................. 112
  5.3.1 Interpersonal Trust: An Early Indicator of Diversity Related Problems 112
  5.3.2 The Trust Game: Measuring Discrimination and Mistrust .................. 113
5.4 With Which Methods and to What Ends ........................................ 115
  5.4.1 The Dictator Game: Distinguishing Between Stereotypes and Prejudice 116
  5.4.2 Determining Optimal Diversity Training Methods ......................... 118
  5.4.3 Who Discriminates Against Whom: True vs. Untrue Stereotypes ....... 119
5.5 Concluding Remarks ................................................................... 119
6 Conclusions ..................................................................................... 121
  6.1 Summary of Conclusions ......................................................... 121
  6.2 Summary of Managerial Implications ........................................ 122
  6.3 Limitations ............................................................................. 124
References ....................................................................................... 127
Appendices ...................................................................................... 164
  Appendix A: Instructions for the game experiments ......................... 165
  Appendix B: The Questionnaire .................................................... 184
  Appendix C: Standard Trust Questions Used in the Survey ............... 194
  Appendix D: Questions Used in the Survey to Elicit Perceived Surface- and Deep-Level Diversity ......................................................... 195
  Appendix E: Questions used in the survey to assess the subjects' managerial career orientation: ............................................................. 196
List of Tables

Table 3.1: Means, Standard Deviations, and Alpha Coefficients for Time 1-3 a................................. 49
Table 3.2: Means, Standard Deviations, and Correlations Between Variables for Period 1 a........ 50
Table 3.3: Means, Standard Deviations, and Correlations Between Variables for Period 2 a..... 51
Table 3.4: Results of Hierarchical Multiple Regression Analysis for Period 1 a......................... 52
Table 3.5: Results of Hierarchical Multiple Regression Analysis for Period 2 a......................... 53
Table 4.1: Means, Standard Deviations, and Alpha Coefficients for Time 1-3 a......................... 92
Table 4.2: Means, Standard Deviations, and Correlations Between Variables for Period 1 a . 93
Table 4.3: Means, Standard Deviations, and Correlations Between Variables for Period 2 a . 94
Table 4.4: Results of Hierarchical Multiple Regression Analysis for! Period 1 a......................... 95
Table 4.5: Results of Hierarchical Multiple Regression Analysis for Period 2 a......................... 96
Table 5.1: Instructional and Experiential Diversity Training Methods ......................................... 109
List of Figures

Figure 1.1: Structure of the Dissertation ................................................................. 1
Figure 3.1: Antecedents of Trust and Cooperation in Diverse Groups ...................... 29
Figure 3.2: The Contribution Table ....................................................................... 40
Figure 4.1: The Evolution of Cooperative Norms in Diverse Groups ....................... 68
Figure 4.2: The Third-Party Punishment Opportunity ............................................ 80
Figure 4.3: The Punishment Table ......................................................................... 82
Figure 4.4: The Evolution of Third-Party Punishment ........................................... 87
Figure 4.5: Contributions in the Public Goods Game ............................................ 89
Figure 4.6: Cooperative Group Norms and Peer-Based Control .............................. 100
Figure 5.1: A Structured Approach to Diversity Training ...................................... 111
1 Introduction

The starting point for the present dissertation is the review by Daan van Knippenberg and Michaela Schippers (2007), who reviewed the literature on group diversity to identify unanswered questions and formulate directions for future research. In their review they call for more empirical attention to the processes mediating the effects of group diversity and argue that "(t)he key question in diversity research is how differences between work group members affect group process and performance" (2007: 517). The present dissertation responds to this call by investigating the effects of diversity on the evolution of trust and cooperation in heterogeneous groups.

The doctoral thesis consists of an introduction, conclusions, and four essays, the content of which is briefly outlined in Figure 1.1.

Figure 1.1: Structure of the Dissertation

Chapter 1: Introduction

Chapter 2: Setting the stage: A review of diversity and trust research

Chapter 3: Cognitive and affective antecedents of trust and cooperation in diverse groups:
A longitudinal study

Chapter 4: The evolution of cooperative norms in diverse groups:
The impact of social identities and social capital

Chapter 5: Diagnosing diversity issues and determining optimal training:
The advantages of experiential games

Chapter 6: Conclusions

The first essay entitled "Setting the stage: A review of diversity and trust research" will set the stage for the following chapters of this dissertation by providing a general literature review, discussing first the effects of group diversity on group outcomes and second theoretical approaches to interpersonal trust development. The review identified a number of research gaps and methodological issues that guided my selection of topics to be covered in the present dissertation. First, more empirical
research is needed to determine the different factors influencing trust development in diverse settings (e.g., Williams, 2001). Second, researchers have pointed to the need to focus more on the specific factors that cause cooperative group norms to emerge in heterogeneous groups (e.g., Chatman & Flynn, 2001; Van Knippenberg & Schippers, 2007). Third, diversity training can help to overcome the negative effects of diversity on trust and cooperation; however, there is a lack of rigorous evaluations that determine the most appropriate diversity training method for a given context. More research is therefore needed to determine the adequacy and the impact of different types of diversity trainings (e.g., Jackson, Joshi, & Erhardt, 2003). Fourth, investigators should utilize more longitudinal studies to analyze the development of trust and cooperation and the relative influence of diversity variables on group functioning over time (e.g., Harrison, Price, & Bell, 1998; Lewicki, Tomlinson, & Gillespie, 2006; Williams, 2001). Finally, organizational researchers have suggested investigating group processes by using behavioral measures instead of self-reports and therefore recommended complementing survey research by controlled experiments (e.g., Van Knippenberg & Schippers, 2007; Weingart, 1997).

The second essay entitled "Cognitive and affective antecedents of trust and cooperation in diverse groups: A longitudinal study" responds to calls for more empirical research on the different factors influencing trust development in diverse settings (e.g., Williams, 2001). Interpersonal trust is the basis for cooperation and coordinated social interactions (Blau, 1964; Coleman, 1988) and contributes to more effective work teams within organizations (Lawler, 1992). However, in his influential book on social capital, Putnam (2000) argues that heterogeneity within groups reduces trust. Other social scientists have posited that especially in diverse groups, stereotyping, distrust, and competition occur and interfere with group functioning (e.g., Adler, 1986; Cox, 1993). As diversity's importance has increased dramatically in today's major corporations, the need to understand the impact of diversity on the evolution of trust and cooperation within heterogeneous groups has grown as well. In essay number two I contribute to trust research as well as diversity research in several ways. First, by studying the evolution of trust and cooperation in diverse groups, I respond to calls by organizational researchers for more empirical research on the different factors influencing trust development in diverse settings (e.g., Williams, 2001). Second, after earlier research was criticized for only considering trust as a
result of rational, cognitive processes (e.g., Lewis & Weigert, 1985), I approach trust as a multifactorial concept that includes affective, cognitive, and behavioral subfactors. Third, by choosing the individual level of analysis, I seek to understand how an individual’s decision to trust and cooperate is affected by his or her perceptions of peer group members’ characteristics. This approach might add to our understanding of compositional and contextual effects of diversity in heterogeneous environments: "is it who is living in a community that matters (a compositional effect), or who they are living around (a contextual effect)?" (Putnam, 2007: 151).

The third essay entitled "The evolution of cooperative norms in diverse groups: The impact of social identities and social capital" responds to calls for more research on the specific factors that cause cooperative group norms to emerge in heterogeneous groups (e.g., Chatman & Flynn, 2001; Van Knippenberg & Schippers, 2007). Recent work has conclusively argued that cooperative group norms mediate the relationship between group composition and work outcomes. But what factors cause cooperative norms to emerge in diverse groups? Responding to this research question I conducted a study that examined the impact of social identities and social capital on the evolution and enforcement of cooperative norms in diverse groups over time. Drawing on theories of strong reciprocity (e.g., Fehr & Fischbacher, 2003; Fehr, Fischbacher, & Gächter, 2002; Gintis, Bowles, Boyd, & Fehr, 2003), I begin by arguing that the interaction between strongly reciprocal and selfish individuals is essential for the understanding of cooperation and the development of cooperative norms in diverse groups. Strong reciprocators sanction norm violations and thus enforce cooperation in groups, even if punishment is costly for them and yields no individual benefits (e.g., Fehr & Gächter, 2002). I then develop hypotheses that relate cooperative group norms and the sanctioning of norm violations to two constructs that have received increasing attention during the past years, i.e. collective group identification and social capital. By drawing on self-categorization theory (e.g., Turner, 1987) and its intellectual parent social identity theory, I propose that while social identities that divide members of diverse groups, such as national or ethnic identities, have negative effects on the evolution of cooperative group norms, a salient superordinate group identity can foster collective group norms. Furthermore, based on social capital research (e.g., Coleman, 1988; Putnam, 1995), I suggest that trust within diverse groups can foster the development of generalized norms of cooperation.
The fourth essay entitled "Diagnosing diversity issues and determining optimal training: The advantages of experiential games" responds to calls for more research to determine the impact of different types of diversity trainings. Jackson et al. (2003: 822) argue in favor of more research in order to understand "how the design and context of diversity training influences program effectiveness". Many diversity training programs are not designed on established theory or empirical evidence (Paluck, 2006) and there is a serious lack of rigorous evaluations that determine the adequacy of different types of diversity trainings (Roberson, Kulik, & Pepper, 2001; Stephan & Stephan, 2001). When evaluations are conducted, successful programs are typically defined as those that trainees simply evaluate as useful (Bhawuk & Triandis, 1996; Roberson et al., 2001). Training evaluations focused solely on trainees’ qualitative feedback ignore, however, other outcomes such as affective or behavioral changes. In order to improve the theory and practice of diversity training, Paluck (2006: 579) therefore suggests that "(a) clear theoretical rationale for predictions about the implementation and outcomes of diversity training: for whom, when, for how long, with which methods, and to what ends" is needed. In essay number four I contribute to this line of research by introducing a framework that describes how experiential games adopted from economic game theory can help to establish such a theoretical rationale. First, by diagnosing diversity issues, the framework helps to determine for whom and when diversity training is necessary. Second, by precisely distinguishing between stereotypes and prejudice, the framework provides guidance in defining the ends of the training and in determining the most appropriate diversity training methods. The overall aim of this essay is to help put diversity training on more solid theoretical and empirical grounds.

While essays number one and four are conceptual contributions, essays number two and three are based on two longitudinal studies that were conducted to track the evolution of trust and cooperation in two highly diverse MBA classes of the St. Gallen MBA program. By conducting longitudinal studies, I respond to calls by trust researchers as well as diversity researchers to investigate the development of trust and cooperation and the relative influence of diversity variables on group functioning over time (e.g., Harrison et al., 1998; Lewicki et al., 2006; Williams, 2001). I conducted my studies in the computer lab of the University of St. Gallen, using the software z-Tree
(Fischbacher, 2007). Both studies consisted of behavioral and attitudinal measures, that is, all the subjects took part in game experiments and completed a number of survey instruments at the end of the experiments. By using game experiments and psychological questionnaires in combination, I follow suggestions by organizational scholars to complement survey research by controlled experiments (e.g., Van Knippenberg & Schippers, 2007; Weingart, 1997). Appendix A presents the instructions for the game experiments, while appendix B presents the psychological questionnaire used in this dissertation. Both instruments will be explained in greater detail in later chapters of this thesis.

Finally, the conclusions section summarizes the conclusions of the individual essays, discusses limitations of the underlying studies, and draws implications for practice.
2 Setting the Stage: A Review of Diversity and Trust Research
Setting the Stage: A Review of Diversity and Trust Research

2.1 Introduction

The effects of diversity and trust in organizations have received a great deal of attention from scholars in recent years. Reflecting this surge of interest in contemporary scholarship, researchers have proposed a plethora of theories and models investigating these two concepts. Given the many perspectives on diversity and trust, I begin with a general literature review, discussing first the effects of group diversity on group outcomes and second theoretical approaches to interpersonal trust development. I will use this review to set the stage for the following chapters of the present dissertation. In order to do so, I keep both concepts separate in this part and will relate them to each other in later chapters of this thesis.

2.2 The Effects of Group Diversity on Group Outcomes

The emerging global and multicultural workplace, the intensified use of cross-functional teams, and the increased reliance on non-traditional workforce talent illustrate the proliferation of diverse work situations (cf. Jackson et al., 2003; Triandis, Kurowski, & Gelfand, 1994; Williams & O’Reilly, 1998) and highlight the importance of making diversity a top research priority. While researchers and practitioners increasingly acknowledge the importance of having a diverse workforce (e.g., Cox & Blake, 1991; Devine, Clayton, Philips, Dunford, & Meliner, 1999; Easely, 2001), research has yielded mixed results about the effects of diversity in organizational settings (cf. Guzzo & Dickson, 1996; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Jackson et al., 2003; Milliken & Martins, 1996; Williams & O’Reilly, 1998). On the one hand, it has been argued that composing teams of members with diverse backgrounds can improve decision making processes which lead to more creativity and innovation (e.g., Bantel & Jackson, 1989; Fiol, 1994; Ibarra, 1995; Lovelace, Shapiro, & Weingart, 2001; Nemeth, 1986). On the other hand, it has also been recognized that workforce heterogeneity can lead to tensions, misunderstandings, and intra/intergroup conflict (e.g., Jackson, May, & Whitney, 1995; Jehn, Chadwick, & Thatcher, 1997; Jehn, Northcraft, & Neale, 1999). In the following sections I will review the literature on work place diversity to assess the state of the art. In particular, I will address four questions (1) How is Group Diversity Defined?, (2) What are the
processes underlying the effects of diversity?, (3) What are the consequences of group diversity on group performance?, and (4) What are potential moderators in the diversity – performance relationship?

2.2.1 How is Group Diversity Defined?

In the past, numerous definitions of diversity have been proposed. At the individual level of analysis, diversity has been defined as objective and subjective differences between individuals on attributes which are likely to trigger the perception that another person is different from the self (e.g., Jackson, 1992a; Triandis et al., 1994; Van Knippenberg, De Dreu, & Homan, 2004; Williams & O’Reilly, 1998). At the group level of analysis, diversity has been described as "the collective amount of differences among members within a social unit" (Harrisson & Sin, 2006: 196). While perceived individual level differences are emphasized in the first definition, the second definition treats diversity as an aggregate measure of individual team or group members’ characteristics. The current dissertation addresses this first conceptual definition of diversity. By choosing the individual level of analysis, I seek to understand how an individual’s behavior is affected by his or her perceptions of peer group members’ characteristics. This approach might add to our understanding of compositional and contextual effects of diversity in heterogeneous environments: "is it who is living in a community that matters (a compositional effect), or who they are living around (a contextual effect)?" (Putnam, 2007: 151). Furthermore, throughout the dissertation, diversity is regarded as a synonym for heterogeneity and the two terms are used interchangeably. In the same way, the terms team and group are used interchangeably.

Scholars have developed a variety of classifications that may be used to categorize different dimensions of diversity. These classifications include the distinction between readily detectable bio-demographic characteristics (e.g., age, sex, racio-ethnicity) and less observable cognitive and personal attributes (e.g., personality, knowledge, values) (e.g., Jackson et al., 1995; Milliken & Martins, 1996). Harrison et al. (1998), for example, proposed to categorize diversity into two broad types, surface-level (demographic) diversity and deep-level (attitudinal) diversity. The researchers defined surface-level diversity as dissimilarity in overt and highly visible demographic characteristics, including race/ethnicity, age, marital status, or sex. In contrast, deep-level diversity was defined as less readily apparent differences among group members’
psychological characteristics, such as attitudes, values, and personalities. Other researchers expanded the concept of team diversity by categorizing diversity attributes into *task- or job-related* and *relations-oriented* attributes (Jackson, 2002; Jackson & Joshi, 2001; Pelled, 1996). According to this approach, observable differences in demographic attributes such as gender, race/ethnicity, nationality, and age fall into the *readily detectable, relations-oriented* category. Differences in characteristics that are not readily visible but are not task- or job-related either, such as attitudes, personalities, and values, fall into the *less observable, relations-oriented* category. Furthermore, differences in educational and functional background are classified as *readily detectable* and *job-related*, while differences in knowledge, expertise, and skills are classified as *less observable* but *job-related*. The present dissertation will primarily focus on analyzing the effects of perceived surface- and deep-level diversity as defined by Harrison et al. (1998).

Finally, the faultline-concept proposed by Lau and Murnighan (1998) is interesting to mention in the discussion of the different dimensions of diversity even though it is not applied in this dissertation. Lau and Murnighan (1998) define faultlines as an alignment of multiple diversity dimensions within one group that yield a basis for clear differentiation between subgroups and accordingly a greater chance of disruptions of group functioning. A strong faultline, for example, exists in a law firm in which all male employees are lawyers and all female employees are secretaries. In this case, the group is divided by two attributes: gender and role. A weak faultline, on the other hand, exists in law firms with an equal number of male and female lawyers as well as an equal number of male and female secretaries. Research has shown that strong faultlines increase intra-group conflict and decrease satisfaction (Lau & Murnighan, 2005), while cross-cutting role assignments reduce intergroup bias (Marcus-Newhall, Miller, Holtz, & Brewer, 1993). Lau and Murnighan (1998) therefore suggest to take also the interaction of differences on different dimensions into account, instead of looking only at the additive effects of dimensions of diversity.

### 2.2.2 What are the Processes Underlying the Effects of Diversity?

Van Knippenberg and Schippers (2007: 517) argue that "(t)he key question in diversity research is how differences between work group members affect group process and performance, as well as group member attitudes and subjective well-being". Three
clusters of theory are almost always used as foundations for diversity research: similarity/attraction theory, social identification/categorization theory, and information/decision-making theory.

Research on in-group/out-group psychology provides most of the theoretical background relating diversity to performance. It has frequently been argued that group homogeneity as compared to heterogeneity promotes integration, trust, and cooperation (e.g., Ancona & Caldwell, 1992; O'Reilly & Flatt, 1989; Tuckman, 1965). Indeed, research on diversity shows that especially in diverse groups distrust and competition occur and interfere with group functioning (e.g., Adler, 1986; Cox, 1993). The similarity-attraction paradigm (Berscheid & Reis, 1998; Byrne, 1971) relates to this point by suggesting that similarity in attitudes and values increases interpersonal attraction and liking, because similarity allows one to have his or her values, attitudes, and beliefs reinforced. Drawing on this logic, it has been argued that individuals with similar demographic backgrounds presume that their attitudes are also similar and are, accordingly, more attracted to each other than to individuals with different demographic backgrounds (e.g., Tsui & O'Reilly, 1989). In the analysis of the effects of diversity on group functioning, the similarity-attraction paradigm predicts that people prefer to work with similar others and dislike interacting with individuals they perceive to be different from themselves (Jackson, 1992b). High levels of diversity in an organization will accordingly negatively affect work processes and, in turn, lead to weaker performance. This analysis is corroborated by studies showing that when given the opportunity to choose with whom to interact, individuals are most likely to select persons who are similar to themselves (e.g., Byrne et al., 1966; Lincoln & Miller, 1979). Research has also shown that the lack of attraction triggered by perceived dissimilarity can lead to decreased communication, communication error, and message distortion (e.g., Barnlund & Harland, 1963; Triandis, 1960).

Self-categorization theory (Turner, 1987) and its intellectual parent social identity theory (Tajfel, 1978; Tajfel & Turner, 1986) provide a more elaborate explanation of the effects of diversity in groups. Social categorization describes the process of social identity formation by grouping oneself and others into a series of social categories along organizational, religious, gender, ethnic, and socioeconomic lines. People often use immediately apparent demographic characteristics to categorize others into in-
group (i.e., similar) and out-group (i.e., dissimilar) categories (Messick & Massie, 1989) and members of demographically heterogeneous groups are even more likely to engage in such demography-based categorization (Stroessner, 1996). In order to maximize self-esteem, individuals strive to maintain a positive image of their in-group by making social comparisons with other social groups that favor their own group (Tajfel & Turner, 1986; Turner, 1987). Research has shown that the positive beliefs and feelings associated with the own group influence trust and cooperation (Brewer & Kramer, 1985; Kramer, 1991; Kramer & Brewer, 1984). Individuals often believe that in-group members are more honest, trustworthy, cooperative, and intelligent than out-group members (e.g., Brewer, 1979; Stephan, 1985; Tajfel, 1982a), while out-group members evoke more distrust and competition than in-group members (Hogg, Cooper-Shaw, & Holzworth, 1993). In the analysis of the effects of diversity on group functioning, self-categorization theory predicts that the perception of surface-level demographic characteristics like sex, race, nationality, age etc. is sufficient to trigger a subconscious categorization of peer group members as either in-group or out-group (Tsui, Egan, & O'Reilly, 1992). In diverse groups, this subconscious tendency of individuals to sort each other into social categories can disrupt group functioning and have negative effects on organizational performance, because of subgroup formation, intergroup biases, and stereotypic perceptions of others (Van Knippenberg & Schippers, 2007). These predictions have received empirical support by findings that dissimilarity to the group lowers subject's self-categorization as a member of the group (Chattopadhyay, George, & Lawrence, 2004) and that heterogeneous groups experience higher turnover (e.g., Wagner, Pfeffer, & O’Reilly, 1984), lower performance (e.g., Murnighan & Conlon, 1991), and lower group cohesion (e.g., O'Reilly, Caldwell, & Barnett, 1989).

Finally, the information/decision-making perspective predicts in contrast to the similarity-attraction paradigm and the self-categorization theory a positive relationship between diversity and performance. This perspective is predicated on the notion that heterogeneous group members, as compared to homogeneous group members, differ in terms of experience, knowledge, information, expertise, and perspectives. Proponents of the cognitive diversity paradigm (e.g., Miller, Burke, & Glick, 1998; Tziner & Eden, 1985) argue that the unique cognitive attributes that need to be integrated and reconciled in diverse groups may stimulate creativity, and foster innovation and
problem solving. It is important, however, to note that the propositions of the cognitive diversity paradigm are only valid for situations in which the task to be solved is complex in nature, requiring knowledge, expertise, and innovative thinking. A routinized task requiring little creativity is less likely to benefit from group heterogeneity. Support for the information/decision-making perspective comes from research showing the benefits gained from a larger pool of knowledge and ideas that is related to heterogeneous group membership (Ancona & Caldwell, 1992; Bantel & Jackson, 1989; Jehn et al., 1999; Zenger & Lawrence, 1989). Most of the research on the effects of cognitive diversity is, however, restricted to functional and educational diversity, while research on the relationship between demographic diversity and the quality of decision-making is fairly shallow (see Watson, Kumar, & Michaelsen [1993] for a notable exception).

Overall, we may conclude that while the positive effects of diversity based on cognitive diversity and informational differences can occur even if differences are not perceived, the negative effects of diversity based on in-group/out-group categorizations rely to large extent on perceptions (Lawrence, 1997). Demographic and psychological differences are only meaningful for social categorization processes if they are perceived (cf. Harrison, Price, Gavin, & Florey, 2002). Since the current dissertation focuses on analyzing the effects of social categorization on interpersonal relations and group functioning, I will concentrate in later chapters primarily on perceived diversity.

2.2.3 What are the Consequences of Group Diversity on Group Performance?
The three clusters of theory described above do not line up consistently with each other. While similarity-attraction paradigm and self-categorization theory predict a negative relationship between diversity and performance, the information/decision-making perspective predicts a positive relationship. Diversity has therefore often been portrayed as a "double-edged sword" (Milliken & Martins, 1996) with potentially positive effects on group performance but negative effects on interpersonal relations (e.g., Triandis et al., 1994). In fact, comprehensive reviews of the literature (Van Knippenberg & Schippers, 2007; Williams & O’Reilly, 1998) as well as meta-analyses (Bowers, Pharmer, & Salas, 2000; Webber & Donahue, 2001) have failed to identify consistent main effects of diversity on work outcomes.
In line with the information/decision-making perspective, scholars have conclusively argued that the unique cognitive attributes that heterogeneous group members bring to work may result in superior group performance relative to cognitively homogeneous groups (Cox & Blake, 1991; Hambrick, Cho, & Chen, 1996). According to this view, cognitive diversity in terms of differences in knowledge, information, and perspectives can promote creativity, innovation, and problem solving in diverse groups (e.g., Bantel & Jackson, 1989; De Dreu & West, 2001; Horwitz & Horwitz, 2007; McLeod, Lobel, & Cox, 1996). The differing perspectives of heterogeneous group members, for example, promote critical debates and hence circumvent groupthink (Williams & O’Reilly, 1998), stimulate team reflexivity (Schippers, Den Hartog, & Koopman, 2007; West, 1996, 2002), which, in turn, facilitates team learning (Gibson & Vermeulen, 2003; Van der Vet & Bunderson, 2005), and fosters task conflict (Jehn et al., 1999; Lovelace et al., 2001; Pelled, Eisenhardt, & Xin, 1999), which is argued to stimulate a more careful consideration of the task at hand. Furthermore, research has shown that diversity facilitates creativity and innovation in teamwork (Albercht & Hall, 1991; Payne, 1990; Richard, McMillan, Chadwick, & Dwyer, 2003; Triandis, Hall, & Ewen, 1965) and effective problem solving trough widening group scanning abilities and fostering a broader range of cognitive skills (Cox & Blake, 1991; Eisenhardt & Schoonhoven, 1990; Keck, 1997).

On the other hand, research on similarity–attraction and social categorization processes has shown that varying member characteristics are immediately identified and categorized by group members and thus have negative effects on team outcomes (Byrne, 1971; Byrne, Clore, & Worchel, 1966; Jackson et al., 1995; Milliken & Martins, 1996; Tajfel & Turner, 1986; Tziner, 1985). Furthermore, while differences in knowledge, information, and perspectives in diverse groups can improve decision quality, the same differences can also make reaching decision consensus difficult (Amason & Schweiger, 1994; Nemeth & Staw, 1989; Souder, 1987). In a similar vein, while some investigators demonstrated that diversity can facilitate effective problem solving, other research shows that heterogeneity in characteristics such as tenure, attitudes, and experience can negatively affect problem-solving processes (e.g., Tsui & O’Reilly, 1989). Finally, there is also evidence that diverse groups experience higher dissatisfaction, absenteeism, and turnover due to more conflict and lower levels of
Setting the Stage: A Review of Diversity and Trust Research

cooporation and trust than homogeneous groups. Investigations at the individual level of analysis, for example, have demonstrated that individuals who are different from others, i.e. minority individuals, have lower perceptions of organizational fairness (Mor-Barak, Cherin, & Berkman, 1998), lower group commitment (Tsui et al., 1992), less trust in peers (Chatopadhyay, 1999), lower task contributions (Kirchmeyer, 1993; Kirchmeyer & Cohen, 1992), and less frequent communication (Zenger & Lawrence, 1989). At the group level of analysis, studies have consistently found that group diversity leads to conflicts and misunderstandings (Jehn et al., 1997), which, in turn, reduce cooperation (Chatman & Flynn, 2001; Chatman & Spataro, 2005) and intra-group cohesiveness (Harrison et al., 1998; Terborg, Castore, & DeNinno, 1976) and increase turnover (Jackson, Brett, Sessa, Cooper, Julin, & Peyronnin, 1991).

Given the mixed findings on the relationship between group diversity and group performance, Horwitz and Horwitz (2007: 993) conclude that "(a)lthough there is a prevailing notion that team effectiveness can be greatly enhanced by diverse members as theorized by the cognitive diversity paradigm, firm conclusions cannot be drawn from the current literature". These inconsistent results raise the question of whether the evidence for the positive and negative effects of diversity can be reconciled and integrated. In their review of the diversity literature, Van Knippenberg and Schippers (2007) point out that past research has focused too much on studying the "main effects" of diversity and neglected to consider the influence of potential moderators that may explain some of the inconsistent findings on the relationship between team diversity and team outcomes. Furthermore, they criticize that the field has often assumed rather than assessed the mediating processes of group diversity. In a similar vein, Horwitz and Horwitz (2007) call for more attention to important moderating variables when developing process models of team diversity. The present dissertation responds to these calls by investigating potential moderators and mediators of the effects of diversity on group outcomes, i.e. the level of behavioral trust in chapter three, the influence of cooperative group norms in chapter four, and the impact of time/tenure in chapter three and four. In the following section I will review further important moderating variables that may influence the relationship between team diversity and team outcomes.
2.2.4 What are Potential Moderators in the Diversity–Performance Relationship?

For several years, investigators have tried to assess theoretically based, moderating variables that may explain the circumstances when diversity leads to positive rather than negative consequences. Their findings and theorizing indicate that task interdependence (i.e., group members depend on each other for task performance) and outcome interdependence (i.e., group members depend on each other for outcomes resulting from task performance) between group members moderate the impact of member diversity on group performance. Gaertner and Dovidio (2000), for example, suggest that more cooperative interdependence fosters the salience of common group memberships and reduces the salience of subgroups. Pettigrew (1998) argues that interdependence fosters intergroup contact, which, in turn, leads to more positive attitudes between different groups. Schippers, Den Hartog, Koopman, and Wienk (2003) showed that outcome interdependence mediated the relationship between team diversity and team reflexivity. It has also been found that task and outcome interdependence in combination mediated the positive effect of diversity on innovative behavior (Van der Vegt & Janssen, 2003) and that task interdependence mediated the relationship between demographic diversity and work group satisfaction and commitment (Jehn et al., 1999). Chatman and Flynn (2001) found that cooperative group norms mediated the relationship between group composition and work outcomes and that greater heterogeneity led to group norms emphasizing lower cooperation. In a similar vein, Chatman, Polzer, Barsade, and Neale (1998) and Chatman and Spataro (2005) showed that collectivistic norms emphasizing cooperation had a positive impact on the interaction between dissimilarity and group performance. Van Knippenberg and Schippers (2007: 530) conclude that "it would be valuable if future research would focus more on the processes underlying the effects of cooperation and interdependence". Responding to this call and following up on the above research on the mediating role of cooperative group norms, chapter four of this dissertation will investigate the impact of social identities and social capital on the evolution of cooperative norms in diverse groups over time.

Researchers have also examined the moderating effects of time and team tenure on diversity dynamics. One of the oldest hypotheses in intergroup relations research, Allport’s (1954) contact hypothesis, for example, proposes that contact between members of different groups who come together under the optimal conditions of equal
group status within the situation, common goals, personal intimacy, and authority support will result in a reduction of prejudice between these groups and an increase in positive attitudes. Pettigrew (1998) argues that the attitudinal change resulting from intergroup contact is a longitudinal process consisting of four interrelated components: learning about the out-group, changing behavior, generating affective ties, and in-group reappraisal. The process by which contact changes attitudes and behavior starts with contact to out-group members that provides individuals with information that disconfirms the stereotypes and prejudices they may have had against the out-group. During this process, individuals often discover interpersonal similarities with their new acquaintance, generating liking on both sides that produces a favorable impact on attitudes and behaviors toward the out-group member. After discovering sympathy toward a single out-group member, the individual will reconsider the stereotypes and prejudices held regarding the entire out-group in order to avoid cognitive dissonance (Dovidio & Gaertner, 1999), thus attenuating the effects of social categorization processes. Other research has shown that over time people’s attention shifts from surface-level diversity to deep-level diversity (Harrison et al., 1998, 2002; Van Vianen, De Pater, Kristof-Brown, & Johnson, 2004). Overall, the evidence on the impact of time and tenure is, however, inconsistent. While some investigators demonstrated that the effects of demographic diversity on group processes and outcomes may become less negative over time (e.g., Chatman & Flynn, 2001; Earley & Mosakowski, 2000; Harrison et al., 1998, 2002; Pelled et al., 1999; Sacco & Schmitt, 2005; Watson et al., 1993), others found the opposite (e.g., Watson, Johnson, & Merritt, 1998). Van Knippenberg and Schippers (2007: 531) conclude that "future research may also take into account the possibility that groups need extended tenure to benefit from differences—that is, that the positive effects of diversity need some time to emerge". Following up on this suggestion, the current dissertation utilizes longitudinal studies to investigate the effects of diversity in two highly diverse MBA classes over time.

Finally, a number of other moderating variables which are partially related to the above mentioned were identified by diversity scholars. As discussed earlier, research indicates that task complexity moderates the relationship between group diversity and outcomes since simple, routinized tasks requiring little creativity are less likely to benefit from group heterogeneity (e.g., Amason & Schweiger, 1994; Fiol, 1994; Jehn,
1995). Some scholars also suggest that team size is a moderator in the sense that larger teams complicate coordination, increase intragroup conflict, and hamper member integration and team cohesiveness (Horwitz & Horwitz, 2007). Other moderators include the outcome of cooperation (Worchel, Andreoli, & Folger, 1977), the structure of cooperative tasks (Bettencourt, Brewer, Croak, & Miller, 1992; Deschamps & Brown, 1983; Gaertner, Dovidio, Rust, Nier, Banker, Ward, Mottola, & Houlette, 1999; Marcus-Newhall et al., 1993), the presence of intergroup anxiety (Stephan & Stephan, 1985; Wilder & Shapiro, 1989), the frequency and duration of intergroup interaction (Wilder & Thompson, 1980; Worchel et al., 1977), status equalization (Cohen, 1984), and organizational culture (Chatman et al., 1998).

2.3 Theoretical Approaches to Interpersonal Trust

Researchers from a variety of disciplines have examined trust, including economics (e.g., Glaeser, Laibson, Scheinkman, & Soutter, 2000), sociology (e.g., Lewis & Weigert, 1985), social psychology (e.g., Lewicki & Bunker, 1995), organizational behavior (e.g., Zaheer, McEvily, & Perrone, 1998), management (e.g., Barney & Hansen, 1994), international business (e.g., Inkpen & Currall, 1997), and marketing (e.g., Moorman, Zaltman, & Deshpande, 1992). This considerable amount of research has produced many insightful views and perspectives on the processes through which trust develops. Unfortunately, there have been few attempts to integrate these diverse perspectives on trust (e.g., Lewicki & Bunker, 1995; Mayer, Davis, & Schoorman, 1995) and scholars from diverse backgrounds seem "to talk past one another" (Schoorman, Mayer, & Davis, 2007: 344). The discussion of all these perspectives, concepts, and models is beyond the scope of this review and I will therefore focus in the following on models of interpersonal trust development, which are most relevant to this dissertation. In the next sections I will address three questions (1) How is trust defined?, (2) Which research traditions exist in trust research?, and (3) What are the consequences of trust?

2.3.1 How is Trust Defined?

Trust scholars have proposed definitions of trust ranging from simple, e.g. "the conscious regulation of one's dependence on another" (Zand, 1972: 230), to complex, e.g. "the willingness of a party to be vulnerable to the actions of another party based
on the expectation that the other will perform a particular action important to the
trustor, irrespective of the ability to monitor or control that other party" (Mayer et al.,
1995: 712). Reviews of prevailing definitions of trust have concluded that most
definitions describe trust as positive expectations leading to a willingness to accept
vulnerability in situations involving risk (e.g., Bigley & Pearce, 1998; Lewicki et al.,

In the present dissertation I adopt an even more complex view and approach trust as a
multifactorial concept that includes cognitive, affective, and behavioral intention
subfactors (Lewis & Weigert, 1985). Cognitive foundations of trust are based on
evidence of trustworthiness, which reduces uncertainty and from which a leap of faith
can be made (Lewis & Weigert, 1985). Mayer et al. (1995) argue that the most
important characteristics that underlie beliefs about another’s trustworthiness are
people's perceptions of the other party's ability, benevolence, and integrity. The
authors define benevolence as a genuine concern of the other party for the own
protection and welfare, ability is defined as the other party’s capacity in terms of skills
and knowledge to perform his/her obligations, and integrity involves beliefs about the
other party's adherence to a set of principles that one finds acceptable. Furthermore,
rational models of trust predict that the cognitive level of trust between subjects
evolves gradually as the parties interact and repeatedly fulfill each others’ expectations
(e.g., Holmes, 1991; Kelley, 1979; Lewicki & Bunker, 1995; Rempel, Holmes, &
Zanna, 1985). Mayer et al. (1995), for example, argue that when trust leads to a
positive outcome, the trustor's perceptions of the trustee will be enhanced, while
perceptions of the trustee will decline after a negative outcome. In the current
dissertation I will therefore operationalize outcomes of past trusting behaviors that
provide evidence for others' trustworthiness as a cognitive foundation of trust.

Affective foundations of trust are based on the emotional bonds between individuals
and are grounded in genuine and reciprocated interpersonal care and concern among
relationship partners (McAllister, 1995). Cognition-based trust is argued to form the
basis for affect-based trust, that is, a certain level of cognition-based trust is necessary
before people develop affect-based trust (Holmes & Rempel, 1989; Rempel et al.,
1985). Lewis and Weigert (1985: 971), for example, point out that "(t)he emotional
content of trust contributes to the cognitive "platform" (mentioned above) from which
trust is established and sustained”. In the present dissertation I will argue that in diverse groups the process of social-identification based on (a) collective group identification and (b) perceived surface- and deep-level similarity provides the basis for emotional bonds between individuals. I will therefore operationalize the degree of collective group identification and the degree of perceived surface- and deep-level similarity as affective foundations of trust.

Finally, behavioral foundations of trust are based on the willingness to accept vulnerability and to act on the basis of the confident expectations about another party. Lewicki et al. (2006: 998) defined behavioral trust as "undertaking a course of risky action based on the confident expectation (cognitive basis) and feelings (emotional basis) that the other will honor trust". In the current dissertation I will operationalize behavioral trust as subjects' willingness to cooperate in an anonymous public goods game despite the presence of strong free-rider incentives.

### 2.3.2 Which Research Traditions Exist in Trust Research?

In their review of models of interpersonal trust development, Lewicki et al. (2006) identified two main research traditions: the behavioral tradition and the psychological tradition. Behavioral approaches view trust as rational-choice behavior, that is, individuals are assumed to make their trust decisions completely rational based on a careful assessment of all available trust-relevant information (e.g., Hardin, 1993; Williamson, 1981). According to this approach, trust finds its expression in cooperative behavior in situations involving risk, while distrust finds its expression in competitive moves (e.g., Arrow, 1974; Axelrod, 1984; Deutsch, 1958; Flores & Solomon, 1998). The evolution of trust over time depends in this tradition on the trustee's choice to reciprocate cooperative behavior, that is, trust will flourish if the trustee reciprocates and will decline immediately once the trustee decides not to reciprocate cooperative moves (e.g., Axelrod, 1984; Deutsch, 1958, 1973; Hardin, 1993; Kramer, 1996; Lindskold, 1978; Pilisuk & Skolnick, 1968). Researchers working within the behavioral approach typically use laboratory game experiments, such as the Prisoner's Dilemma, the public goods game, or the trust game to measure cooperation and trust.
Psychological approaches emphasize cognitive and affective processes and attempt to understand the complex intrapersonal origins of trust that go beyond strict rationality, such as beliefs, expectations, intentions, dispositions, and affect (e.g., Jones & George, 1998; Mayer et al., 1995; McAllister, 1995; Rousseau et al., 1998). The evolution of trust over time depends in this tradition on numerous behavioral, psychological, and contextual factors, including characteristics of trustee and trustor, characteristics of the communication process between trustee and trustor, and characteristics of past and present relationship forms between both parties (cf. Lewicki et al., 2006). A meta-analysis conducted by Colquitt, Scott, and LePine (2004), for example, concluded that the level of interpersonal trust is mainly affected by the perceived trustworthiness of the trustee, the affective attachment to the trustee, and the trustor's disposition to trust. Researchers working within the psychological approach therefore typically use attitudinal measures which focus on the internal psychological processes and dispositions that shape a subject's decision to trust.

In discussing the major issues of research on trust development, Lewicki et al. (2006) conclude that while the measurement of trust within the behavioral tradition has been restricted to observing cooperative behavior, the psychological tradition has mainly focused on measuring beliefs about others' trustworthiness. The current dissertation addresses this "gap to trust measurement" by combining theories and methods from both the behavioral and the psychological research traditions. In particular, I studied the evolution of trust and cooperation by combining behavioral measures, i.e. public goods experiments, with attitudinal and perceptual measures, i.e. psychological survey instruments. Lewicki et al. (2006: 992) also criticize that "most of the empirical trust research is characterized by static, "snapshot" studies that measure trust at a single point in time" and argue that "these studies … provide limited insight into the dynamic nature of the growth and decline of trust over time within interpersonal relationships". For the present dissertation I conducted accordingly a longitudinal study to capture the dynamics of the trust development process in two highly diverse MBA classes over time.

2.3.3 What are the Consequences of Trust?

I conclude this general literature review by discussing some of the proposed consequences of trust. It is important to note here that trust is not inherently good and
that distrust is not inherently bad. On the one hand, trust has been positively associated with high levels of individual performance (e.g., Earley, 1986; Oldham, 1975; Rich, 1997; Robinson, 1996) and group performance (e.g., Dirks, 2000; Klimoski & Karol, 1976), organizational citizenship behavior (e.g., Konovsky & Pugh, 1994; McAllister, 1995; Pillai, Schriesheim, & Williams, 1999; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Robinson, 1996), and various operationalizations of information sharing (Boss, 1978; Mellinger, 1959; O’Reilly, 1978; O’Reilly & Roberts, 1974; Smith & Barclay, 1997; Zand, 1972). Furthermore, trust has been shown to have positive effects on workplace satisfaction (e.g., Brockner, Siegel, Daly, Tyler, & Martin, 1997; Driscoll, 1978; Rich, 1997; Smith & Barclay, 1997; Ward, 1997) and at the organizational level of analysis on revenues and profits (Davis, Schoorman, Mayer, & Tan, 2000). On the other hand, some researchers have postulated that high trust involves the risk of exploitation (e.g., Deutsch, 1958; Elangovan & Shapiro, 1998; Granovetter, 1985; Kramer, 1996; Wicks, Berman, & Jones, 1999) and can lead to impairments of team performance in self-managing teams due to a reluctance to peer monitor (Langfred, 2004). It has therefore been argued that a healthy combination of both trust and distrust is in most situations the best solution (e.g., Luhmann, 1979).
3 Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups: A Longitudinal Study
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups: A Longitudinal Study

ABSTRACT
Does heterogeneity within groups reduce trust? And if so, what kind of differences matter? Trust researchers have pointed to the need for more research that utilizes longitudinal studies to investigate the different factors influencing trust development in diverse settings. The present research responds to these calls by investigating the antecedence of trust and cooperation in diverse groups over time. In my study that uses MBA students as participants in economic game experiments, I find that the decision to trust and cooperate depends on outcomes of past trusting behaviors, perceived deep-level diversity, and the salience of national and group identities. I discuss the implications of these results for group leaders, managers, and organizations wishing to manage diversity in groups effectively.

Keywords:
Trust, Cooperation, Diversity, Affect, Cognition
3.1 Introduction

Interpersonal trust is the basis for cooperation and coordinated social interactions (Blau, 1964; Coleman, 1988) and contributes to more effective work teams within organizations (Lawler, 1992). However, in his influential book on social capital, Putnam (2000) argues that heterogeneity within groups reduces trust. Other social scientists have posited that especially in diverse groups, stereotyping, distrust, and competition occur and interfere with group functioning (e.g., Adler, 1986; Cox, 1993). As diversity's importance has increased dramatically in today's major corporations, the need to understand the impact of diversity on the evolution of trust and cooperation within heterogeneous groups has grown as well.

The present study contributes to trust research as well as diversity research in four ways. First, by studying the evolution of trust and cooperation in diverse groups, I respond to calls by organizational researchers for more empirical research on the different factors influencing trust development in diverse settings (e.g., Williams, 2001). Second, after earlier research was criticized for only considering trust as a result of rational, cognitive processes (e.g., Lewis & Weigert, 1985), I approach trust as a multifactorial concept that includes affective, cognitive, and behavioral subfactors. Third, by choosing the individual level of analysis, I seek to understand how an individual’s decision to trust and cooperate is affected by his or her perceptions of peer group members’ characteristics. This approach might add to our understanding of compositional and contextual effects of diversity in heterogeneous environments: "is it who is living in a community that matters (a compositional effect), or who they are living around (a contextual effect)?" (Putnam, 2007: 151). Finally, trust researchers as well as diversity researchers have pointed to the need for more research that utilizes longitudinal studies to investigate trust development and the relative influence of diversity variables on group functioning over time (e.g., Harrison et al., 1998; Lewicki et al., 2006; Williams, 2001). Accordingly I conducted a longitudinal study to capture the dynamic nature of the trust development process within interpersonal relationships.

The remainder of the article is structured as follows: Drawing on research on in-group/out-group psychology, I begin by exploring how surface-level and deep-level
forms of diversity might influence the evolution of trust and cooperation in groups over time. Next, I develop the theoretical framework guiding my research and derive my hypotheses. Subsequently, I explain my longitudinal research design that uses public goods games and psychological survey instruments in combination to study issues of multilateral trust and cooperation in highly diverse MBA classes. Finally, I will present my empirical findings and discuss theoretical and managerial implications.

3.2 Theoretical Perspectives on Diversity and Trust

The increased importance of diversity and the benefits of trust as a basis for cooperation within groups, highlight the need to understand when demographic differences explain variations in trust development in different groups at different times. Most perspectives on trust recognize that interpersonal trust is mutually beneficial but includes the risk of exploitation (e.g., Bohnet & Zeckhauser, 2004; Deutsch, 1958; Hardin, 2002). On the one hand, interpersonal trust is the basis for cooperation and coordinated social interactions (Blau, 1964; Coleman, 1988; Dawes, 1980; Zucker, 1986) and contributes to more effective work teams (Lawler, 1992). On the other hand, trust involves a "willingness to rely on another's actions in a situation involving the risk of opportunism" (Williams, 2001: 378). A trustor therefore must develop confidence in the motives and behaviors of others. This confidence, in turn, is based on people's perceptions of others' trustworthiness (e.g., Butler, 1991; Pruitt, 1981; Rotter, 1971). Trust development has therefore been described as an experiential process that enables people to learn about the trustworthiness of others by interacting with them over time (e.g., Axelrod, 1984; Lewicki & Bunker, 1996; Mayer et al., 1995; Ring & Van de Ven, 1994; Williams, 2001).

Research on in-group/out-group psychology provides most of the theoretical background relating diversity to group behavior such as trust and cooperation. It has frequently been argued that group homogeneity as compared to heterogeneity promotes integration, trust, and cooperation (e.g., Ancona & Caldwell, 1992; O'Reilly & Flatt, 1989; Tuckman, 1965). Indeed, research on diversity shows that especially in diverse groups distrust and competition occur and interfere with group functioning (e.g., Adler, 1986; Cox, 1993). According to self-categorization theory (Turner, 1987),
the perception of surface-level demographic characteristics like sex, race, nationality, age etc. is sufficient to trigger a subconscious categorization of peer group members as either in-group or out-group (Tsui et al., 1992). In diverse groups, this subconscious tendency of individuals to sort each other into social categories can disrupt group dynamics, since out-group members evoke more distrust and competition than in-group members (Hogg et al., 1993).

3.2.1 Similarity-Attraction Paradigm
The similarity-attraction paradigm (Byrne, 1971; see also chapter 2) relates to this point by suggesting that similarity in attitudes increases interpersonal attraction and liking, because similarity allows one to have his or her values, attitudes, and beliefs reinforced. Drawing on this logic, it has been argued that individuals with similar demographic backgrounds presume that their attitudes are also similar and are, accordingly, more attracted to each other than to individuals with different demographic backgrounds (e.g., Tsui & O'Reilly, 1989). In the analysis of the dynamic effects of diversity on trust and cooperation in groups, the similarity-attraction paradigm predicts a stable relationship between demographic attributes and behavioral outcomes because the level of similarity/diversity remains constant over time (e.g., Pfeffer, 1983). The level of trust and cooperation within diverse groups will accordingly neither increase, nor decrease over time.

3.2.2 Contact Hypothesis
One of the oldest hypotheses in intergroup relations research, Allport’s (1954) contact hypothesis, provides a more dynamic explanation of the effects of diversity in groups. The hypothesis proposes that contact between members of different groups who come together under the optimal conditions of equal group status within the situation, common goals, personal intimacy, and authority support will result in a reduction of prejudice between these groups and an increase in positive attitudes.

Pettigrew (1998) argues that the attitudinal change resulting from intergroup contact is a longitudinal process consisting of four interrelated components: learning about the out-group, changing behavior, generating affective ties, and in-group reappraisal. The process by which contact changes attitudes and behavior starts with contact to out-group members that provides individuals with information that disconfirms the
stereotypes and prejudices they may have had against the out-group. During this process, individuals often discover interpersonal similarities with their new acquaintance, generating liking on both sides that produces a favorable impact on attitudes and behaviors toward the out-group member. After discovering sympathy toward a single out-group member, the individual will reconsider the stereotypes and prejudices held regarding the entire out-group in order to avoid cognitive dissonance (Dovidio & Gaertner, 1999).

As discussed earlier, trust development can be defined as an experiential process that involves learning about others by interacting with them over time. The contact hypothesis therefore implies that early in a group’s formation individuals may be hesitant to trust and cooperate with demographically dissimilar group members because they categorize them as out-group members. The negative influence of demographic diversity may, however, weaken over time as the salience of surface-level demographic attributes dissipates and individuals begin to recategorize demographically dissimilar group members as fellow in-group members.

### 3.2.3 Conflict Theory And Social Identity Theory

The conflict theory suggests that diversity fosters out-group distrust and in-group solidarity due to contentions over limited resources. The more people are exposed to and brought into physical proximity with people of another racial or ethnic group, the more they stick to people of their own group and the less they trust members of the other group (Blalock, 1967; Blumer, 1958; Bobo, 1999; Bobo & Tuan, 2006; Brewer & Brown, 1998; Giles & Evans, 1986; Quillian, 1995; 1996; Taylor, 1998).

Similar argumentation comes from self-categorization theory (Turner, 1987) and its intellectual parent social identity theory (Tajfel, 1978; Tajfel & Turner, 1986). Social categorization describes the process of social identity formation by grouping oneself and others into a series of social categories along organizational, religious, gender, ethnic, and socioeconomic lines. People often use immediately apparent demographic characteristics to categorize others into in-group and out-group categories and members of demographically heterogeneous groups are even more likely to engage in such demography-based categorization (Stroessner, 1996). In order to maximize self-esteem, individuals strive to maintain a positive image of their in-group by making
social comparisons with other social groups that favor their own group (Tajfel & Turner, 1986; Turner, 1987). Research has shown that the positive beliefs and feelings associated with the own group influence trust and cooperation (Brewer & Kramer, 1985; Kramer, 1991; Kramer & Brewer, 1984). Individuals often believe that in-group members are more honest, trustworthy, and cooperative than out-group members (e.g., Brewer, 1979; Stephan, 1985; Tajfel, 1982a), while out-group members evoke more distrust and competition than in-group members (Hogg et al., 1993). In the analysis of the dynamic effects of diversity, conflict theory and social categorization theory can therefore be used to predict that increased contact to people of another social group will enhance in-group/out-group distinctions and accordingly lower trust and cooperation over time.

Given the contradictory predictions of the theoretical perspectives presented above, I believe that an empirical analysis of the different antecedents shaping trust development in diverse groups over time can add to our understanding of this complex topic.

3.3 Antecedents of Trust and Cooperation in Diverse Groups
The decision to trust others is widely seen as a rational, cognitive process (Lewicki & Bunker, 1995; Luhmann, 1979; Rempel et al., 1985). The behavioral tradition of trust has therefore primarily focused on studying cognitive antecedence of trust (see Lewicki et al., 2006), while affective antecedence have received only limited attention (e.g., Williams, 2001). In contrast, my research follows the psychological tradition of trust, "which attempts to understand the complex intrapersonal states associated with trust, including expectations, intentions, affect, and dispositions" (Lewicki et al., 2006: 992).

Figure 3.1 shows the organizing framework for this paper that describes how cognitive and affective antecedents influence the evolution of trust and cooperation in diverse groups. In the following section, I will review theory and data supporting the proposed relationships in my model.
3.3.1 Perceived Trustworthiness

In my study I was interested in analyzing the evolution of interpersonal trust and cooperation in newly formed, diverse groups that work under team-based compensation schemes. Team compensation is a way of rewarding performance in team or group settings, that is, individuals are rewarded based on the performance of the team as opposed to individual performance. Team work under team-based compensation schemes is a typical social dilemma situation in which two or more people are interdependent for obtaining outcomes. In such interdependent situations the people involved can achieve the highest possible outcome for the larger group by cooperating; however, each individual has an incentive for social loafing, that is, to free ride on the cooperation of the others (Poppe, 2005).

Economic theory suggests that most people are rational and selfishly motivated individuals who rarely cooperate in social dilemma situations if they have the chance to take a free-ride on the expected cooperation of others (e.g., Fischbacher, Gächter, & Fehr, 2001). However, empirical evidence from economic experiments shows that despite the presence of free-rider incentives most people are willing to trust and cooperate if they expect others to trust and cooperate as well (Fehr & Fischbacher,
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

2003; Fischbacher & Gächter, 2006; Fischbacher et al., 2001; Frey & Meier, 2004). The fact that the majority of people are conditional trustors and cooperators highlights the importance of beliefs about others’ intentions for group members’ decision to engage in cooperative behavior.

Similar reasoning derived from social psychological theory suggests that beliefs about others’ trustworthiness is a strong predictor for peoples’ decision to trust and cooperate (e.g., Mayer et al., 1995). We have seen that according to these theories trust is often the basis for cooperation and that trust development is an experiential process that is based on people's perceptions of others' trustworthiness. Yet, cooperative behavior does not always reflect trust (Kee & Knox, 1970). Mayer et al. (1995: 713) argue that "(i) there are external control mechanisms that will punish the trustee for deceitful behavior, if the issue at hand doesn't involve vulnerability to the trustor over issues that matter, or if it's clear that the trustee's motives will lead him or her to behave in a way that coincides with the trustor's desires, then there can be cooperation without trust".

However, group members’ effort choices under team-based compensation schemes are often hard to monitor and to evaluate. External control mechanisms can therefore not be effective. Group members thus have an incentive to free-ride, they reduce their own effort by shirking while still getting an equal share from the group-output. To cooperate in such kind of situations involves vulnerability and therefore reflects trust. I therefore argue that people who cooperate under team-based compensation schemes expect others to cooperate as well and therefore trust others not to exploit them. In my first hypothesis I predict a mediating effect of beliefs about peer trustworthiness on the level of trust and cooperation in diverse groups:

H1: Under team-based compensation schemes beliefs about peer trustworthiness determine subjects' decision to trust and to engage in cooperative behavior.

3.3.2 Affective Antecedents – Collective Group Identification
Interpersonal trust has affective and cognitive foundations (Lewis & Weigert, 1985). Affective foundations of trust are based on the emotional bonds between individuals and are grounded in genuine and reciprocated interpersonal care and concern among
relationship partners (McAllister, 1995). I argue that in diverse groups the process of social-identification based on (a) collective group identification and (b) perceived surface- and deep-level similarity provides the basis for emotional bonds between individuals. I will first focus on collective group identification and in the next section on perceived surface- and deep-level similarity.

The consequences of social identification are according to Turner (1982; 1984) intragroup altruism, cohesion, cooperation, and positive evaluations of the own identity group, that form the basis for interpersonal care and concern. Furthermore, we have seen that according to social identity theory individuals strive to maintain a positive image of their in-group and that the positive beliefs and feelings associated with the own group influence trust and cooperation. Individuals believe that in-group members are more honest, trustworthy, and cooperative, while out-group members evoke more distrust and competition. However, research in various social domains shows that individuals often retain multiple identities (Allen, Wilder, & Atkinson, 1983; Thoits, 1983) derived, for example, from demographic identity groups such as race, nationality, sex, age cohort, but also from organizational identity groups such as work groups, departments, and organizations. The extent to which social group membership influences behavior depends on the strength of one's identification with this group (Dutton, Dukerich, & Harquail, 1994). The strength of identification with certain groups is, however, dynamic and responsive to the specific context. As one social group or category membership becomes more salient, others become less salient (e.g., Turner, Oakes, Haslam, & McGarty, 1994). This inverse relationship between the salience of different social categories is known as the principle of functional antagonism (Turner, 1985) and implies that the more subjects focus on organizational membership, the less they focus on demographic group differences and vice versa.

The salience of a particular category varies according to the context. In the context of highly multinational groups (e.g., international MBA classes) one of the most important social categories is probably national identity. While ethnic identity is one of the most widely studied social categories, individuals also have a national identity with important psychological implications, regardless of their ethnicity (Scheibe, 1983). Furthermore, in my study of highly multinational MBA classes I had the highest variance not on the ethnicity variable but on the nationality variable (my
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

participants represented 22 nationalities). Since national culture is deeply rooted in the socialization of individuals, it is plausible to assume that nationality affects organizational group members’ preferences and behaviors. For example, in a study of international joint ventures, Salk (1996) found strong in-group identification according to national origins in multinational management teams. I have argued before that individuals believe that in-group members are more trustworthy than out-group members. A salient national identity will therefore increase the perceived trustworthiness of individuals with similar nationality and decrease the perceived trustworthiness of individuals with a different nationality. Since multinational groups are by definition composed of subjects of different national origins, it can be assumed that the salience of national identities will have a negative impact on group members’ beliefs about peer trustworthiness. In my second hypothesis I predict accordingly that:

**H2:** The salience of national identities has a negative impact on beliefs about peer trustworthiness in diverse groups.

A second important social category in the context of multinational groups is the group’s collective identity, i.e. organizational group identity. National identity and organizational group identity are two competing social categories. While the salience of national identities tends to reduce perceived trustworthiness of peer group members, it can be expected that the salience of a collective group identity will increase trust and cooperation in multinational groups. These conclusions have received increasing empirical and theoretical support in the past. Van der Vegt and Bunderson (2005), for example, argue that a motivational climate (the readiness to engage vs. disengage) in diverse groups begins with a collective team identification within the group. Earley and Mosakowski (2000) present evidence that the creation of a common group identity helps heterogeneous teams to overcome initial problems in team functioning and performance. In a similar vein, other researchers have argued that "members of diverse groups must shift their focus from the qualities that make them unique to the superordinate identity of the group" (Swann, Polzer, Seyle, & Ko, 2004: 10). Following up on this line of reasoning, I predict in my third hypothesis that:

**H3:** The salience of a collective group identity has a positive impact on beliefs about peer trustworthiness in diverse groups.
3.3.3 Affective Antecedents – Perceived Diversity

Surface-level diversity (which is just the opposite of surface-level similarity) refers to dissimilarity in overt and highly visible demographic characteristics, including race/ethnicity, age, marital status, or sex. Deep-level diversity (which is just the opposite of deep-level similarity), on the other hand, refers to less readily apparent differences among group members’ psychological characteristics, such as attitudes, values, and personalities (Harrison et al., 1998). Harrison et al. (2002) and Harrison et al. (1998) provide an in-depth explanation of why personalities, values, and attitudes are the most interesting deep-level attributes to study and why race/ethnicity, sex, age, and marital status are the most interesting surface-level characteristics to study. As argued before, it is plausible to assume that nationality affects organizational group members’ preferences and behaviors. I therefore added nationality to my list of interesting surface-level variables to study. Finally, since diversity effects rely on perceptions (Lawrence, 1997) and demographic and psychological differences (resp. similarities) are only meaningful if they are perceived (Harrison et al., 2002), I focus here on perceived diversity.

The similarity-attraction paradigm (Byrne, 1971) suggests that individuals with a shared background presume that their attitudes are also similar and are, accordingly, more attracted to each other than to individuals from different backgrounds. Furthermore, in their review of the diversity literature, Jackson et al. (2003) point out that research indicates that people tend to dislike dissimilar others and Harrison et al. (2002: 1031) argue that people will have "less positive attitudes toward, and will form fewer social attachments with, those whom they perceive to be less like themselves".

I have argued before that the consequences of social identification are intragroup altruism, cohesion, cooperation, and positive evaluations of the own identity group, that form the basis for emotional bonds between individuals. I have also argued that individuals believe that in-group members are more trustworthy than out-group members. I therefore predict in my next hypotheses that while social-identification based on perceived surface- and deep-level similarity has a positive impact, perceived surface- and deep-level diversity have a negative impact on beliefs about peer trustworthiness:
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

**H4:** Perceived surface-level diversity has a negative impact on beliefs about peer trustworthiness in diverse groups.

**H5:** Perceived deep-level diversity has a negative impact on beliefs about peer trustworthiness in diverse groups.

### 3.3.4 Cognitive Antecedents

Interpersonal trust has not only affective but also cognitive foundations. Rational models of trust predict that the level of trust between subjects evolves gradually as the parties interact and repeatedly fulfill each others’ expectations (e.g., Holmes, 1991; Kelley, 1979; Lewicki & Bunker, 1995; Rempel et al., 1985). Mayer et al. (1995), for example, argue that when trust leads to a positive outcome, the trustor's perceptions of the trustee will be enhanced, while perceptions of the trustee will decline after a negative outcome.

We have seen that cooperation under team-based compensation schemes reflects trust. People who cooperate under such conditions expect others to cooperate as well and therefore trust others not to exploit them. Any favorable or unfavorable outcomes of this trusting behavior will subsequently affect the trustor's perceptions of the trustee. While Boyle and Bonacich (1970) have argued that positive or negative outcomes of trusting behavior will affect trust directly, Mayer et al. (1995: 728) suggest that "the outcome of the trusting behavior (favorable or unfavorable) will influence trust indirectly through the perceptions of ability, benevolence, and integrity at the next interaction". In line with Mayer et al. (1995) I predict in my last hypothesis that in diverse groups:

**H6:** Outcomes of trusting behaviors will lead to updating of prior beliefs about peer trustworthiness.

### 3.4 Methods

Trust researchers have pointed to the need for more research that utilizes longitudinal studies to investigate how category membership influences trust development (e.g.,
Williams, 2001). Harrison et al. (1998: 105) point out that present theories provide only little guidance on the proper time span to employ, but that "(i)deally, any study of the relative influence of diversity variables on group functioning would follow both the dependent and independent variables over the history of the group". Accordingly, two longitudinal studies have been conducted to track the evolution of trust and cooperation in two highly diverse MBA classes.

To test the hypotheses proposed above, I used game experiments and psychological questionnaires in combination. Sixty-seven MBA students of two MBA classes participated in public goods games and completed survey instruments at three different times over the course of six months. The survey instruments were administered to measure individual differences in general trust attitudes, the degree of actual and perceived surface- and deep-level diversity, and the degree of national and collective group identification. Public goods games (Ledyard, 1995) were conducted to study issues of multilateral trust and cooperation in the groups.

My choice of method, i.e. economic experiments instead of psychological experiments, was motivated by an attempt to avoid deception, which is a common feature of many psychological experiments. There is a taboo in experimental economics against deceiving subjects by actively lying about the experimental conditions, such as telling them they are playing another person when they are not. The point is that deception only can work if subjects trust the experimenter, they have to believe the information that is given to them in the experiment. Given the dissemination of experimental studies through academic journals, economists worry that subjects may become aware of this material. If deception would be a common practice, subjects would expect to be mislead which in turn would undermine the credibility of information given in experiments in the long run. In this case experimental control will be lost since the intended environment will be usurped by subjects’ second guesses.

3.4.1 Setting, Design, and Procedures
In my study I analyzed the dynamics of diversity in newly formed groups, i.e. MBA classes, over time. The individual ages of the participants ranged from 21 to 44 years; their mean age was 29.6 (s.d. = 4.5). 30 percent of the participants were female; 67
percent were Caucasian; 1.5 percent, African; 30 percent, Asian; 1.5 percent, Hispanic. The participants had a diverse educational background and represented 22 nationalities from all continents. 23 percent of the participants were married. The vast majority of the students had never met before they started the program.

My study consisted of behavioral and attitudinal measures, all the subjects took part in public goods experiments and completed a number of survey instruments at the end of the experiments. Since I was interested in demonstrating effects over time, I conducted the study at three different times over the course of six months. The first study (time 1) was completed shortly after the formation of the classes in the first week of the semester, before the individuals had had the chance to become acquainted with one another. The second study (time 2) was conducted three months after the first study, while the third and last study (time 3) was administered six months after the first study. I conducted my studies in the computer lab of the University of St. Gallen, using the software z-Tree (Fischbacher, 2007).

All public goods games and survey instruments were administered under double-blind anonymity to minimize confounding effects emanating from self-presentation and/or social desirability motivations. The subjects’ behavior was tracked over time by anonymous identification codes. As we will see later, in the public goods game the subjects play in groups of \( n = 4 \). In each session the software z-Tree allocated the subjects randomly to these groups. The composition of the groups was unknown to the subjects and was not revealed after the experiments. Furthermore, group compositions have been different at time 1, 2, and 3 to avoid reputation formation or any kind of repeated game behavior. During the experimental/survey sessions communication between the subjects was strictly prohibited. The subjects were offered real monetary incentives to ensure that their behavior in the public goods games represented what they would do if given the task ‘for real’ and were paid confidentially at the end of each session to protect their anonymity.

3.4.2 The Public Goods Game

Experimental studies are important for unobtrusively measuring people's nonconscious responses to members of different social categories (Williams, 2001). While field evidence on the evolution of trust and cooperation in diverse groups is indispensable,
laboratory game experiments can help to distinguish between the different antecedents shaping trust development, which is generally difficult in the field because too many uncontrolled factors simultaneously affect the results.

As organizations are increasingly relying on teamwork and team-based compensation schemes (Balkin & Montemayor, 2000; Lawler, Mohrman, & Ledford, 1995), a growing number of problems in work settings revolve around issues of multilateral cooperation in the presence of free-rider incentives. Baker, Jensen, and Murphy (1988) point out that the effects of team-based compensation are poorly understood and argue that the free-rider problem associated with such profit-sharing plans is 'insurmountable'. The public goods game (Ledyard, 1995) is a useful tool to study in a laboratory setting the dynamics that can be found in groups working under team-based compensation schemes. The game involves a decision task that represents a social dilemma situation where mutual cooperation is in the interest of the whole group, but each individual group member has an incentive to free ride on the cooperation of the others. Subjects who cooperate in a public goods situation trust others not to exploit them. To cooperate in an anonymous public goods game despite the presence of free-rider incentives therefore reflects trust (cf. Gächter, Herrmann, & Thoeni, 2003).

In my laboratory experiments groups with \( n = 4 \) members played the following public goods game. Every subject was endowed with 20 CHF (Swiss Francs)\(^1\) and had to decide whether to keep the money for him/herself or invest \( c_i \) CHF (0 \( \leq c_i \leq 20 \)) into a public good, called project. The subjects had to decide simultaneously how much they want to contribute to the project. Each contribution benefited all group members alike, that is, regardless of the amount contributed every subject received a marginal per capita return of 0.5 from the sum of all contributions to the project. The payoff function for each subject \( i \) in a group of \( n = 4 \) was given by (see also Gächter et al., 2003):

\[
\pi_i = 20 - c_i + 0.5 \sum_{j=1}^{n} c_j
\]

According to the above payoff function, the social marginal return of a contribution to the project is 2, which implies that group welfare is maximized if everyone contributes

\(^1\) 20 CHF (\( \approx 19 \) US$)
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

to the project, i.e. the public good\(^2\). However, for each subject the individual marginal payoff of a contribution to the project is less than 1, while the marginal cost of contributing equals 1. Hence, it was always in the material self-interest of any subject to free ride completely (i.e., to choose \(c_i = 0\)), irrespective of how much the other three group members contributed.

A natural question to ask is whether contributions in the public goods game actually measure trust. First, it is important to emphasize that the double-blind condition in my design minimized many potentially confounding effects emanating from self-presentation and/or social desirability motivations, intertemporal considerations of strategy choices, reputation formation, or any other kind of repeated game considerations. In public goods games each participant has an incentive to free ride on the cooperation of others. To cooperate in an anonymous public goods game despite the presence of free-rider incentives perfectly reflects the definition of trust provided by Mayer et al. (1995: 712): "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". Furthermore, research published in outstanding academic outlets such as the American Economic Review has shown that higher levels of trust are strongly associated with higher contributions in the public goods game (e.g., Anderson, Mellor, & Milyo, 2004; De Cremer, Snyder, & Dewitte, 2001; Parks & Hulbert, 1995).

In the present study I used contributions in the public goods game as a measure of the level of behavioral trust and cooperation in my groups, i.e. MBA classes. The participants actually played in groups of four; however, since they never knew with whom they were paired, they had to incorporate their average beliefs of the whole class into their decision making. I therefore also elicited group members’ beliefs about the average contribution of all other class members as a measure of peoples’ beliefs about the level of cooperation in the groups. However, when analyzing the correlation between beliefs and cooperation it is important to note that causality cannot easily be established from beliefs, since behavior can also influence expectations (Frey & Meier, 2004). Beliefs that evolve endogenously in the experiment are beyond the

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\(^2\) If all group members kept their whole endowment of 20 CHF privately, each subject earned only 20 CHF. Whereas if all group members invested their whole endowment, each subject earned \(0.5 \times 80 = 40\) CHF.
control of the experimenter, it is thus important to induce beliefs experimentally (Gächter, 2006). In my experiment I induced beliefs by using a revealed preference method developed by Fischbacher et al. (2001) and Fischbacher and Gächter (2006) to infer subjects’ contribution preferences in a standard public goods dilemma as a function of other group members’ contributions.

The subjects received written instructions explaining the above public goods game in great detail. After reading the instructions, the subjects had to answer a number of control questions that tested their understanding of the game. The experiment did not proceed until all the subjects had answered all control questions correctly to ensure that everyone understood the mechanics and implications of the underlying payoff function. After all the subjects had successfully solved the control questions they had to make two types of contribution decisions, an ‘unconditional contribution’, and filling in a ‘contribution table’. The ‘unconditional contribution’ was a single decision about how many of the 20 CHF to invest into the project (i.e., the subjects had to choose an integer number between 0 and 20).

While the unconditional contribution decision was a usual one-shot public goods game, the ‘contribution table’ elicited a vector of 21 contributions. Specifically, the subjects had to fill in a table showing the 21 possible average contribution levels of the other three group members (rounded to integers). They were asked to state their corresponding contribution for each of the 21 possibilities (see Figure 3.2), that is, their task was to indicate the own contribution conditional on the average contribution of the other three group members. The subjects made both types of decisions without time pressure and without knowing the others’ decisions.
### Figure 3.2: The Contribution Table

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Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

I also asked the subjects to estimate the average of the unconditional contributions of all other class members as a measure of peoples’ beliefs about the level of cooperation in the group. The subjects were paid for the accuracy of their estimates, that is, they received 3 CHF in addition to their other earnings if their estimation was exactly right. If the estimation was off the actual average contribution of all other class members by 1 (2) point(s), the subjects still earned 2 (1) CHF in addition to their other earnings. The subjects received no additional money if their estimate deviated by 3 or more points from the correct result.

After all the subjects had made both types of decisions, including the estimation, a random mechanism determined which of the two decisions became outcome relevant. The random mechanism (throw of a die) selected one subject in each group that contributed according to his or her ‘contribution table’, while the other three group members contributed according to their unconditional contribution\(^3\). All the subjects had the same probability of being chosen by the random mechanism. The random mechanism made both decisions potentially payoff relevant, and the subjects therefore had an incentive to think carefully about both types of decisions. See Fischbacher et al. (2001) for further details.

Finally, the subjects were anonymously paid their earnings from the experiment. We have seen that cooperation in an anonymous public goods game reflects trust. Subjects who cooperate expect others to cooperate as well and therefore trust others not to exploit them. The income of each group member in a public goods game is dependent on his or her own cooperation and the cooperation of the other group members and is therefore a direct trusting behavior outcome. Relatively high earnings are the result of either successful cooperation or free-riding, while relatively low earnings are the result of unsuccessful cooperation efforts. This means that the lower the income of a group

\(^3\) An example adopted from Fischbacher et al. (2001: 399) illustrates this. Remember, the subjects played the public goods game in groups of four. Assume that the four subjects made unconditional contributions of 2, 4, 6 and 8 CHF and that the random mechanism (throw of a die) selected the fourth subject, whose unconditional contribution was 8 CHF. Subject number four therefore contributed according to his or her ‘contribution table’, while the other three group members contributed according to their unconditional contribution. The average unconditional contribution of the non-selected group members was therefore four CHF. Assume that the fourth subject indicated in the ‘contribution table’ that he/she would contribute 3 CHF if the others contributed on average 4 CHF, then his/her contribution to the public good was taken to be three CHF. The sum of contributions in this example is therefore 15 CHF. Individual payoffs were then calculated according to the above payoff function.
member, the more his or her cooperation and trust were exploited by the other group members. The students confirmed that they perceived low experimental earnings as a trust violation. I therefore adopted experimental earnings as a measure of the favorableness or unfavorableness of trusting behavior outcomes. Since I argued that the outcome of trusting behavior will influence trust at the next interaction, I adopted experimental earnings at time 1 (time 2) as a predictor of trusting behavior at time 2 (time 3).

3.4.3 The Survey Instruments
My study consisted of two elements. All the subjects took part in public goods experiments. At the end of the experiments I let the participants complete a number of survey instruments that measured individual differences in general trust attitudes, the degree of actual and perceived surface- and deep-level diversity, and the degree of national and collective group identification.

In order to control for individual differences in general trust attitudes, I adopted standard trust questions from the U.S. National Opinion Research Center’s General Social Survey (GSS). In particular, I used the questions GSS trust, GSS fair, and GSS help and calculated the GSS index as the normalized sum of de-meaned, normalized, and resigned GSS trust, GSS fair, and GSS help (see Appendix C for more details). Since nationality diversity was one of the defining characteristics of the MBA classes under investigation and since part of my study was to analyze the impact of national identity on trust, I controlled for nationality-based factors that may have a direct effect on trust. First, I controlled for religious activities. Religion is one of the fundamental determinants of national culture (Hill, 2007) and has been reported to interact with trust measures (e.g., La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997; Putnam, 1993). I measured the frequency of religious activity by the following question: "How often do you go to church, mosque, temple or other religious services?" The answer range was: 0 (never), 1 (sometimes), and 2 (at least once a week). Second, I controlled for individual differences in the importance of equality (brotherhood and equal opportunity for all) as a guiding principle in one’s life and career. Nations differ in their effort to create equality and to promote equality norms among their citizens (Uslaner, 2002). Research has shown that individuals who support equality are also more inclined to believe that most other people can be trusted (Rothstein & Uslaner,
I measured the importance of equality by the following question: "Please indicate the importance of equality (brotherhood and equal opportunity for all) as a guiding principle in your life and career". The subjects rated the importance of equality on a scale from 1 (not at all) to 7 (to a great extent). Finally, I created a dichotomous dummy variable and controlled for class affiliation (0 = member of first MBA class; 1 = member of second MBA class).

I adopted Luhtanen and Crocker’s (1992) collective self-esteem scale to measure the salience of national identities and the degree of collective group identification in the MBA classes. The collective self-esteem scale is composed of four 4-item subscales: Membership, Private, Public, and Identity. Membership esteem measures the extent to which individuals feel that they are good or worthy members of their social groups. Private collective self-esteem assesses one’s personal judgments of how good one’s social groups are and how satisfied one is about being a member of these groups. Public collective self-esteem indicates how individuals feel that others evaluate their social groups. Importance to identity refers to the importance of one’s social group memberships to one’s self-concept.

Crocker and Luhtanen (1990) point out that the private collective self-esteem subscale is most consonant with Tajfel's (1982b) definition of social identity. Indeed, most measures of social identity assess group-derived self-evaluation in a way similar to Luhtanen and Crocker’s (1992) private subscale (Cameron, 2004). In a similar vein, Rubin and Hewstone (1998) note that the private subscale comes closest to the conceptualization of social self-esteem in social identity theory, while the other three subscales are related to interpersonal evaluations of belonging, respect by others, and importance. The analyses reported here are therefore based on the private subscale. The participants completed Luhtanen and Crocker's private subscale using 7-point Likert-type scales, ranging from 1 (strongly disagree) to 7 (strongly agree). To measure the degree of collective group identification in the MBA classes under investigation I altered several wordings of the private subscale, that is, I substituted ‘the group I belong to’ by ‘the MBA class I belong to’. In the same way, I substituted ‘the group I belong to’ by ‘the nation I belong to’ in order to measure the salience of national identities within the MBA classes. Research has shown that fitting the unspecific item formulations of the collective self-esteem scale to the specific social.
category under investigation does not compromise the psychometric properties of the scale (Crocker, Luhtanen, Blaine, & Broadnax, 1994; Luhtanen & Crocker, 1992).

As discussed earlier, deep-level diversity refers to differences among group members’ psychological characteristics, including personalities, values, and attitudes. The selection of which deep-level variables to study is, however, complicated by the sheer number of conceivably important values and attitudes to pick from. Since the relevance of each deep-level attribute likely differs across situations, Harrison et al. (1998: 105) point out that "(t)he crucial point is that the relevant deep-level variables in any situation are those that bear directly on the fundamental purposes of the group". The relevant purpose and context of MBA classes is career-related. I therefore chose career-related deep-level variables.

My measure of attitudinal diversity is adopted from Igbaria and Baroudi (1993). This scale assesses individual differences in career attitudes; the measure evaluates nine career orientations: technical, managerial, autonomy, job security, geographic security, service, pure challenge, life-style, and entrepreneurship. In order to measure individual differences in personality, I adopted a brief measure of the Big-Five personality dimensions developed by Gosling, Rentfrow, and Swann (2003). This short measure analyzes the personality dimensions: Extraversion (sociable, active, energetic), Agreeableness (cooperative, considerate, trusting), Conscientiousness (dependable, organized, persistent), Emotional Stability (calm, secure, unemotional), and Openness to Experience (imaginative, intellectual, artistically sensitive). I chose the Big-Five personality dimensions because they are related to educational achievement and vocational interests. De Fruyt and Mervielde (1996), for example, observed for the Big Five dimensions study major and/or gender specific relationships with educational outcomes. Furthermore, Larson, Rottinghaus, and Borgen (2002) show an overlap of Holland’s Big Six domains of vocational interest with the Big Five personality factors, they are Artistic–Openness, Enterprising–Extraversion, Social–Extraversion, Investigative–Openness, and Social–Agreeableness. Finally, my measure of value diversity is adopted from Rokeach (1973) and assesses individual differences in the importance of 18 terminal values as guiding principles in one’s life and career. A set of other questions assessed subject’s actual surface-level diversity.
Appendix D presents the questions I used to elicit perceived surface- and deep-level diversity. The subjects rated, on a five-point scale, how the other students of their MBA class were "very different", 1, to "very similar", 5, on several surface-level variables (age, nationality, race/ethnicity, and marital status) and deep-level variables (personality, career attitudes, and personal values). I did not include a question about perceived sex differences in my survey, following Harrison et al.'s (1998, 2002) argumentation that such a question would have had little face validity due to the obviousness of this attribute. I also assessed perceived diversity in satisfaction with the MBA program and commitment to the MBA program as elements of deep-level diversity. Satisfaction and commitment are both regarded as fundamental work attitudes (Harrison et al., 1998). I aggregated these perceptual measures and created three separate constructs, perceived surface-level diversity (composed of perceived age, nationality, race/ethnicity, and marital status diversity), perceived deep-level diversity (composed of perceived personality, career attitudes, and personal values diversity), and perceived work attitudes diversity (composed of perceived satisfaction with the MBA program and commitment to the MBA program diversity).

I have argued before that diversity effects rely on perceptions and that demographic and psychological differences (resp. similarities) are only meaningful if they are perceived. In the present study I therefore focus on perceived surface- and deep-level diversity, while my assessment of actual surface- and deep-level diversity is mainly to give the subjects a common understanding of what I mean when I ask them to indicate their perceived diversity on dimensions such as personality, values, or attitudes.

3.5 Results

We have seen that researchers have pointed to the need for more research that utilizes longitudinal studies to investigate trust development and the relative influence of diversity variables on group functioning over time. Lewicki et al. (2006) cautioned that most research on trust adopted a "snapshot" view, giving limited attention to conceptualizing and measuring trust development over time.

I therefore begin my analysis by first examining the development of trust and cooperation in my groups, i.e. MBA classes, over time. For the present study I used
contributions in the public goods game as a measure of the level of behavioral trust and cooperation. In the unconditional contribution decision the subjects contributed on average 9.03 CHF at time 1 (s.d. = 7.49), 10.03 CHF at time 2 (s.d. = 8.96), and 10.39 CHF at time 3 (s.d. = 9.44) of their 20 CHF endowment into the project. While the differences between time 1, 2, and 3 are not significant, the results indicate that behavioral trust and cooperation were substantial early in the group’s formation and grew slightly further over time. Next, I used the subjects’ beliefs about the average unconditional contribution of all other class members as a measure of beliefs about peer trustworthiness. The subjects expected other group members to contribute on average 9.77 CHF at time 1 (s.d. = 6.14), 12.30 CHF at time 2 (s.d. = 6.08), and 13.02 CHF at time 3 (s.d. = 6.45) of their 20 CHF endowment into the project. The difference between time 1 and time 2 is significant at a five percent level (t = 2.63, p < .05), indicating that the slight increase in behavioral trust was accompanied by a sharp increase in perceived peer trustworthiness. In the following sections I will shed light on the processes behind these dynamics by analyzing the antecedence of trust and cooperation in my groups.

3.5.1 Perceived Trustworthiness
Hypothesis 1 predicted that beliefs about peer trustworthiness determine subjects' decision to trust and to engage in cooperative behavior. In my study I used unconditional contributions in the public goods game as a measure of the level of behavioral trust and cooperation. Furthermore, I used the subjects’ beliefs about the average unconditional contribution of all other class members as a measure of beliefs about peer trustworthiness. Both variables are positively correlated at time 1 (r = .883, p < .001), time 2 (r = .773, p < .001), and time 3 (r = .650, p < .001). In a more rigorous test of this link I ran a regression with beliefs as independent variable predicting actual unconditional contributions. Results are convincing, beliefs explain 77.7 % of the variance in unconditional contribution behaviors at time 1 (adjusted $R^2 = .777, p < .001$), 59 % of the variance at time 2 (adjusted $R^2 = .590, p < .001$), and 41.3 % of the variance at time 3 (adjusted $R^2 = .413, p < .001$).

However, we have seen that causality cannot easily be established from beliefs, because behavior can also influence expectations. I therefore induced beliefs experimentally in the ‘contribution table’ to infer the subjects’ contribution
preferences as a function of other group members’ contributions. As explained before, the subjects had to fill in a table showing the 21 possible average contribution levels of the other three group members⁴ (rounded to integers). They were asked to state their corresponding contribution for each of the 21 possibilities (see Figure 3.2). For my analysis I calculated for each of the 21 possible values the average corresponding contribution of all the subjects.

This average ‘conditional cooperation vector’ taken over all the subjects is monotonically increasing in the contributions of the other group members, that is, the subjects contributed and therefore cooperated more if they expected others to cooperate more as well. Induced beliefs (the 21 possible average contribution levels) and the average ‘conditional cooperation vector’ taken over all the subjects have a strong positive correlation at time 1 ($r = .996, p < .001$), time 2 ($r = .994, p < .001$), and time 3 ($r = .990, p < .001$). A regression analysis revealed that induced beliefs explain some convincing 99.1% of the variance in conditional contribution behaviors at time 1 (adjusted $R^2 = .991, p < .001$), 98.7% of the variance at time 2 (adjusted $R^2 = .987, p < .001$), and 97.9% of the variance at time 3 (adjusted $R^2 = .979, p < .001$). Hypothesis 1 is therefore strongly supported by my empirical results. In the following sections we will see that perceived trustworthiness mediates the relationship between behavioral trust and collective self-esteem, perceived diversity, and outcomes of past trusting behaviors.

### 3.5.2 Affective Antecedents – Collective Group Identification

Having addressed the issue of the correlation between beliefs about peer trustworthiness and the subjects' decision to trust, I turn my attention to the dynamic nature of the trust development process in my diverse groups. The present study was conducted at three different times over the course of six months. For my analysis I divided these six months into two periods. I defined the period between time 1 and time 2 as period 1 and the period between time 2 and time 3 as period 2. In order to capture effects over time, I operationalized beliefs about peer trustworthiness, perceived surface-level diversity, perceived deep-level diversity, perceived work attitudes diversity, private collective self-esteem (MBA class), private collective self-

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⁴ Remember, subjects play the public goods game in groups of four.
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

esteem (nationality), and the GSS index as measures of changes between two points in time. In particular, I calculated for these variables ($v$) in period 1 the difference between observed values at time 2 and time 1.

$$\Delta v_1 = v_2 - v_1$$

In the same way, I calculated in period 2 the difference between observed values at time 3 and time 2.

$$\Delta v_2 = v_3 - v_2$$

A positive difference indicated a positive change of the variable from time 1 (time 2) to time 2 (time 3), while a negative difference indicated a negative change.

Religious activities and importance of equality were measured at time 1 and assumed to be stable over the course of my six months study. Furthermore, I adopted experimental earnings (my measure of trusting behavior outcomes) at time 1 (time 2) as a predictor of trusting behavior at time 2 (time 3). Table 3.1 presents descriptive statistics and Cronbach's alpha coefficients for all aggregated measures for time 1-3. Table 3.2 and Table 3.3 present descriptive statistics and correlations among the variables for period 1 and period 2.

To test hypotheses 2-6 I performed several hierarchical regression analyses with beliefs about peer trustworthiness (subjects’ beliefs about the average unconditional contribution of all other class members) as dependent variable. In all the regressions, religious activity, importance of equality, changes in general trust attitudes over time as measured by the GSS index, and a dichotomous variable for class affiliation (0 = member of first MBA class; 1 = member of second MBA class) were entered as control variables in the first step. I used hierarchical multiple regression analysis, because analyses involving control variables require specification of a hierarchy of variables (Cohen & Cohen, 1975). Table 3.4 shows results of a hierarchical multiple regression analysis for period 1, while Table 3.5 presents the same results for period 2.
### Table 3.1: Means, Standard Deviations, and Alpha Coefficients for Time 1-3

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Unconditional contributions</td>
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</tr>
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<td>Beliefs about peer trustworthiness</td>
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<td>6.14</td>
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<td>Religious activity</td>
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</tr>
<tr>
<td>Importance of equality</td>
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<td>1.40</td>
<td></td>
</tr>
<tr>
<td>GSS index</td>
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<td>.706</td>
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<td>4.82</td>
<td></td>
</tr>
<tr>
<td>Private collective self-esteem (MBA class)</td>
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<td>.791</td>
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<td>Private collective self-esteem (nationality)</td>
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<td>.930</td>
</tr>
<tr>
<td>Perceived surface-level diversity</td>
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<td>.601</td>
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<tr>
<td>Perceived deep-level diversity</td>
<td>8.57</td>
<td>2.27</td>
<td>.693</td>
</tr>
<tr>
<td>Perceived work attitudes diversity</td>
<td>4.46</td>
<td>1.48</td>
<td>.787</td>
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\(^a\) N = 67
### Table 3.2: Means, Standard Deviations, and Correlations Between Variables for Period 1

<table>
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<th>3</th>
<th>4</th>
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<th>8</th>
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<td>4</td>
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<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>2 Δ Beliefs about peer trustworthiness</td>
<td>2.53</td>
<td>7.51</td>
<td>.73**</td>
<td>1</td>
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**Controls**

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<td>.50</td>
<td>.22</td>
<td>.34**</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<td>2</td>
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<td>8</td>
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<td>1.40</td>
<td>.05</td>
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<td>4</td>
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<td>7</td>
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<tr>
<td>6 Δ GSS index</td>
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<td>.06</td>
<td>.17</td>
<td>.12</td>
<td>.07</td>
<td>.18</td>
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**Main Effects**

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<th>5</th>
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<tbody>
<tr>
<td>7 Trusting behavior outcomes from experiment 1</td>
<td>24.89</td>
<td>4.82</td>
<td>.34**</td>
<td>.48**</td>
<td>.21</td>
<td>-.16</td>
<td>-.14</td>
<td>.11</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>8 Δ Private collective self-esteem (MBA class)</td>
<td>-2.53</td>
<td>4.30</td>
<td>.11</td>
<td>.05</td>
<td>-.36**</td>
<td>-.15</td>
<td>.19</td>
<td>.16</td>
<td>.03</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
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<td>9 Δ Private collective self-esteem (nationality)</td>
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<td>3.46</td>
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<td>-.15</td>
<td>.17</td>
<td>-.16</td>
<td>.22+</td>
<td>.24+</td>
<td>-.01</td>
<td>.04</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>10 Δ Perceived surface-level diversity</td>
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<td>3.11</td>
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<td>-.01</td>
<td>.01</td>
<td>.05</td>
<td>-.22+</td>
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<td>.12</td>
<td>-.06</td>
<td>-.20</td>
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<td>2</td>
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<td>-.01</td>
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<td>.19</td>
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<td>.09</td>
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<td>-.33**</td>
<td>.28+</td>
<td>-.15</td>
<td>.39**</td>
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*a* N = 67  
*b* I defined the period between time 1 and time 2 as period 1. Variables with Δ are calculated as the difference between observed values at time 2 and time 1.  
c Experimental earnings from experiment 1.  
+ p < 0.1; * p < 0.05; ** p < 0.01
Table 3.3: Means, Standard Deviations, and Correlations Between Variables for Period 2\textsuperscript{a}

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<td>.62***</td>
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<td>.02</td>
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<td>.16</td>
<td>.26*</td>
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<td>-.19</td>
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<td>-.18</td>
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<td>4.06</td>
<td>.20</td>
<td>.20</td>
<td>-.07</td>
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<td>.16</td>
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<td>.46</td>
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<td>-.10</td>
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\textsuperscript{a} N = 67
\textsuperscript{b} I defined the period between time 2 and time 3 as period 2. Variables with Δ are calculated as the difference between observed values at time 3 and time 2.
\textsuperscript{c} Experimental earnings from experiment 2.

+ p < 0.1; * p < 0.05; ** p < 0.01
Table 3.4: Results of Hierarchical Multiple Regression Analysis for Period 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
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<td>Δ Beliefs</td>
<td>Δ Beliefs</td>
<td>Δ Beliefs</td>
<td>Δ Beliefs</td>
</tr>
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<td></td>
<td></td>
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<td>.36*</td>
<td>.23+</td>
</tr>
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<tr>
<td>Δ Private collective self-esteem (MBA class)</td>
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<td>Δ Private collective self-esteem (nationality)</td>
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<td>-.28*</td>
<td>-.35**</td>
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<tr>
<td>Δ Perceived surface-level diversity</td>
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</tr>
<tr>
<td>Δ Perceived deep-level diversity</td>
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<td></td>
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<tr>
<td>Δ Perceived work attitudes diversity</td>
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<tr>
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<td>-.05</td>
<td>-.07</td>
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<tr>
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<td>-.31*</td>
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<td></td>
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<tr>
<td></td>
<td>.39*</td>
<td>.45**</td>
<td></td>
<td></td>
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<tr>
<td><strong>Cognitive Antecedents</strong></td>
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<td></td>
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</tr>
<tr>
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<td>3.01**</td>
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<td>.10*</td>
<td>.12*</td>
<td>.15**</td>
</tr>
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</table>

a $N = 67$

b I defined the period between time 1 and time 2 as period 1. Variables with Δ are calculated as the difference between observed values at time 2 and time 1.

c Experimental earnings from experiment 1.

+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$
Table 3.5: Results of Hierarchical Multiple Regression Analysis for Period 2

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<td>.20+</td>
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<td>Δ Private collective self-esteem (MBA class)</td>
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<td>Δ Private collective self-esteem (nationality)</td>
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<td><strong>Affective Antecedents - Perceived Diversity</strong></td>
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<tr>
<td>Δ Perceived surface-level diversity</td>
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<td>Δ Perceived deep-level diversity</td>
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<tr>
<td>Δ Perceived work attitudes diversity</td>
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<td><strong>Cognitive Antecedents</strong></td>
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<tr>
<td>Trusting behavior outcomes from experiment 2</td>
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<td></td>
<td></td>
<td>.41**</td>
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<table>
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<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.34**</td>
<td>4.81**</td>
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<tr>
<td>R² (Adjusted R²)</td>
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<td>.37 (.26)</td>
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</tr>
<tr>
<td>∆ R²</td>
<td>.10</td>
<td>.14**</td>
<td>.12*</td>
<td>.12**</td>
</tr>
</tbody>
</table>

a N = 67
b I defined the period between time 2 and time 3 as period 2. Variables with ∆ are calculated as the difference between observed values at time 3 and time 2.
c Experimental earnings from experiment 2.
+ p < 0.1; * p < 0.05; ** p < 0.01
The results illustrate that there is a moderately positive effect \((p < .10)\) of class affiliation on beliefs about peer trustworthiness in both periods and a significant \((p < .05)\) and positive effect of changes in the GSS index from time 2 to 3 in period 2. Furthermore, I find significant effects of religious activity and importance of equality in period 2 \((p < .01)\) that go along with a strong effect of national identity. This finding will be discussed further in the discussion section of this article.

I predicted that the salience of national identities has a negative impact \((H2)\) and that the salience of a collective group identity has a positive impact \((H3)\) on beliefs about peer trustworthiness in diverse groups. The first analysis of main effects therefore puts private collective self-esteem (nationality) and private collective self-esteem (MBA class) in step 2 of the hierarchical regression. Results show a significant improvement in model \(R^2\) in period 1 \((\Delta R^2 = .10)\) at \(p < .05\) and period 2 \((\Delta R^2 = .14)\) at \(p < .01\). Consistent with my proposition in hypothesis 2 I find for both periods a negative and significant relationship between the salience of national identities and beliefs about peer trustworthiness \(\beta = -.29, p < .05\) for period 1 and \(\beta = -.30, p < .01\) for period 2). Furthermore, in line with the proposition of hypothesis 3 I find for both periods a positive and significant relationship between the salience of a collective group identity and beliefs about peer trustworthiness \(\beta = .34, p < .01\) for period 1 and \(\beta = .18, p < .10\) for period 2). Hypotheses 2 and 3 are therefore both supported by my empirical results.

### 3.5.3 Affective Antecedents – Perceived Diversity

Hypotheses 4 and 5 predicted that perceived surface- and deep-level diversity have a negative impact on beliefs about peer trustworthiness. The second analysis of main effects therefore puts perceived surface-level diversity, perceived deep-level diversity, and perceived work attitudes diversity in the third step of the hierarchical regression. Entering the measures of perceived diversity in model 3 results in a significant improvement at the five percent level in model \(R^2\) in period 1 \((\Delta R^2 = .12)\) and period 2 \((\Delta R^2 = .12)\). In line with the proposition of hypothesis 4 I find for both periods a negative but non-significant relationship between perceived surface-level diversity and beliefs about peer trustworthiness \(\beta = -.07\) for period 1 and \(\beta = -.13\) for period 2). Furthermore, consistent with my proposition in hypothesis 5 I find for both periods a
negative and significant relationship between perceived deep-level diversity and beliefs about peer trustworthiness ($\beta = -.31$, $p < .05$ for period 1 and $\beta = -.24$, $p < .05$ for period 2). Finally, in partial support of hypothesis 5 I find for period 2 a negative and significant relationship between perceived work attitudes diversity and beliefs about peer trustworthiness ($\beta = -.30$, $p < .01$). However, in period 1 I find a positive and at the one percent level significant relationship between both variables ($\beta = .45$, $p < .01$). I therefore find a positive impact of perceived work attitudes diversity on beliefs about peer trustworthiness early in the groups’ formation. This effect, however, turned negative in latter phases of group interaction. I will discuss this finding further in the discussion section of this article. Overall, my empirical data support hypothesis 5.

3.5.4 Cognitive Antecedents

In hypothesis 6 I predicted that outcomes of trusting behaviors will lead to updating of prior beliefs about peer trustworthiness. The third analysis of main effects therefore puts trusting behavior outcomes in the last step of the hierarchical regression. Results show a significant improvement in model $R^2$ in period 1 ($\Delta R^2 = .15$) at $p < .01$ and period 2 ($\Delta R^2 = .12$) at $p < .01$. Consistent with my proposition in hypothesis 6 I find for both periods a positive and significant relationship between trusting behavior outcomes and beliefs about peer trustworthiness ($\beta = .42$, $p < .01$ for period 1 and $\beta = .41$, $p < .01$ for period 2). These findings imply that positive/negative outcomes of the trusting behavior at previous interactions will positively/negatively affect beliefs about peer trustworthiness at the next interaction.

Overall, my independent variables help to explain 39 percent of the variance in beliefs about peer trustworthiness in period 1 (adjusted $R^2 = .39$, $p < .01$) and 39 percent of the variance in period 2 (adjusted $R^2 = .39$, $p < .01$).

3.6 Discussion

The present research investigated the antecedence of trust and cooperation in highly diverse MBA classes over time. Results of my research indicate that trust and cooperation were substantial early in the group’s formation; the subjects contributed at time 1 almost fifty percent of their endowment into the public good. This finding is in
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

line with research showing that considerable levels of initial trust between strangers are possible (Berg, Dickhaut, & McCabe, 1995; Kim, Ferrin, Cooper, & Dirks, 2004; McKnight, Cummings, & Chervany, 1998; Meyerson, Weick, & Kramer, 1996), even though it has been argued that repeated, positive interactions are needed for high levels of trust to develop (e.g., Butler, 1991; Shapiro, Sheppard, & Cheraskin, 1992).

Results of my study also show that trust and cooperation grew slightly further over time. This outcome is in contrast to earlier research according to which contributions decay rapidly in repeatedly played public goods games, especially when subjects know the number of repetitions for sure (Isaac & Walker, 1988; Isaac, Walker, & Thomas, 1984; Kim & Walker, 1984; Ledyard, 1995). The experiments reported in these studies were conducted using subjects randomly drawn from a population of university students, that is, from a subject pool without affective or emotional bonds. My results therefore indicate the importance of affective ties for the upholding of trust and cooperation in situations requiring multilateral cooperation in the presence of free-rider incentives.

I found beliefs about peer trustworthiness to play an important role in the processes behind these dynamics by determining subjects' decision to trust and cooperate. This finding seems obvious; however, it is important to recognize that under team-based compensation schemes the incentive for free-riding grows proportional to the expected cooperation (i.e., trustworthiness) of others. This outcome therefore demonstrates that most subjects prefer to cooperate despite the presence of strong free-rider incentives as long as they have positive beliefs about others’ intentions. Furthermore, I did not find a direct link between trust-based cooperation and its cognitive and affective antecedents, indicating that beliefs about peer trustworthiness mediated this relationship. The transition from beliefs to actual behavior is, however, a slow process as table 1 shows. Beliefs about peer trustworthiness increased on a much faster pace than contributions in the public goods game, indicating that a substantial increase in perceived trustworthiness is needed before behavioral trust and cooperation are pulled along.
In line with my theoretical reasoning I identified collective group identification, perceived diversity, and outcomes of past trusting behaviors as predictors of beliefs about peer trustworthiness. My finding that outcomes of the trusting behavior at previous interactions affected beliefs about peer trustworthiness at the next interaction supports rational models of trust predicting that the level of trust between subjects evolves gradually as the parties interact and repeatedly fulfill each others’ expectations. This result is, for example, in line with Mayer et al.'s (1995) argumentation that the outcome of trusting behavior will either weaken or reinforce cognitions about others' trustworthiness. It also demonstrates the importance of conceptualizing and measuring the development of trust and cooperation over time. Furthermore, the fact that cognitive antecedents of trust (outcomes of past trusting behaviors) and affective antecedents of trust (perceived diversity and collective self-esteem) always showed up together in the statistical analysis, provides support for the argumentation that cognition-based trust is the basis for affect-based trust. According to this view, a certain level of cognition-based trust is necessary before people develop affect-based trust (Holmes & Rempel, 1989; Rempel et al., 1985).

My finding that changes in perceived diversity over time predicted changes in beliefs about peer trustworthiness and therefore the level of trust and cooperation in the groups demonstrates that diversity effects rely to a large extent on perceptions. These perceptions are subject to temporal changes since attention to specific characteristics can change over time (e.g., Harrison et al., 1998; 2002). Chatman and Flynn (2001: 957) point out that the similarity-attraction paradigm "cannot account for such temporal changes in the demography-behavior relationship. The similarity-attraction model implies that a stable relationship exists between demographic characteristics and behavior because similarity remains constant". My results therefore contradict theoretical reasoning derived from the similarity-attraction paradigm, according to which the level of trust and cooperation within diverse groups will neither increase, nor decrease over time.

In contrast to predictions of hypothesis 5 I found a positive impact of perceived work attitudes diversity on beliefs about peer trustworthiness early in the groups’ formation. This effect, however, turned negative in latter phases of group interaction. One explanation for the finding of period 1 might be that in MBA classes students are
operating under a competitive reward structure. Slavin (1977: 634) explained competitive reward structures as follows: "If one student works especially hard to make an "A" and the number of A's is fixed, then that student's performance reduces the probability that other students will also receive A's". Rewards are therefore negatively related among individuals, that is, students compete for good results. If students perceive that other students are equally ambitious in their work attitudes, that is, that they are similarly satisfied with and committed to the MBA program, they might feel threatened by these students. The perceived level of competition and thread that is associated with perceived work attitudes similarity might explain why this construct had a negative impact on beliefs about peer trustworthiness early in the groups’ formation. This finding therefore indicates that high levels of perceived intra-group competition might be detrimental to the evolution of trust and cooperation in diverse groups. In period two the effect of perceived work attitudes diversity turned negative. The reason probably is that the students in our MBA classes are required to engage in extensive team work. Over time the students find out that they are interdependent for obtaining results in collective group assignments and group projects and thus come to appreciate the value of similarity in work attitudes. Hence, in order to align perceived work attitudes similarity and perceived trustworthiness organizations have to create environments that foster team work and reduce perceived intra-group competition.

In line with my theoretical reasoning I found that for both periods decreasing perceptions of surface-level and deep-level diversity had a positive impact on beliefs about peer trustworthiness. However, while the effects of perceived surface-level diversity were insignificant, I found perceived deep-level diversity to be significant in early and late phases of group interaction. This result is in contrast to findings of other research showing that effects of surface-level diversity have immediate but short-lived consequences, while effects of deep-level diversity take time to emerge (e.g., Harrison et al., 1998; 2002). I believe that diversity effects are different when people intentionally volunteer for diverse groups compared to a situation where people get unintentionally assigned to diverse groups or settings (e.g., diverse neighborhoods or diverse work groups). If subjects get unintentionally assigned to a diverse setting they unconsciously use immediately apparent demographic characteristics to categorize others into in-group and out-group categories. However, if subjects intentionally
become members of a deliberately diverse group composed of people with very different backgrounds (such as highly diverse and multicultural MBA classes), the observable degree of surface-level diversity might already be part of the group identity. Casual evidence shows that in our MBA program the students are very excited about working and living with people from different nations, ethnicities, or ages. Since richness of surface-level diversity is part of the group identity, categorization of peer group members into in-group and out-group categories is based on perceived deep-level attributes such as similar personalities or values. This argumentation has strong parallels with the notion of "diversity mind-sets" (Van Knippenberg, Van Ginkel, Homan, & Kooij-de Bode, 2005), which suggests that people's diversity cognitions may influence the effects of diversity. According to this concept, diversity mind-sets favoring diversity prevent surface-level diversity based intergroup bias. My results indicate, however, that even though group members are prepared and excited about living and working in a highly diverse group, the perception of similarity in deep-level attributes is indispensable.

The above argumentation implies that when subjects intentionally become members of a deliberately diverse group, perceived deep-level diversity plays a more important role than perceived surface-level diversity. This finding might improve our understanding of diversity dynamics in this specific context. According to this view, the level of perceived deep-level diversity determines whether trust and cooperation prospers in intentionally diverse groups or not. If subjects discover interpersonal similarities in terms of similar attitudes, values, and personalities, they ignore surface-level differences and begin to recategorize demographically dissimilar subjects as fellow in-group members. In this case, increased contact over time will erode in-group/out-group distinctions and increase trust and cooperation as suggested by the contact hypothesis. However, if subjects perceive high levels of deep-level diversity, subjects might turn their attention to surface-level characteristics assuming that people with similar attitudes can be identified this way (e.g., Tsui & O'Reilly, 1989). In this case, increased contact over time will enhance in-group/out-group distinctions and lower trust and cooperation as suggested by conflict theory.

While I have so far discussed the effects of extrinsic perceptions of others, I turn my attention now to the effects of intrinsic identities. The above categorization processes
are partially affected by the salience of national and collective group identities. My results indicate that a salient group identity fosters the recategorization of demographically dissimilar subjects as fellow in-group members and therefore increases trust and cooperation. My results, however, also indicate that salient national identities enhance in-group/out-group distinctions and therefore lower trust and cooperation. The fact that national identities and organizational group identities are two competing social categories can be observed by comparing effects of period 1 and 2. While collective group identification had a stronger impact on beliefs about peer trustworthiness in period 1, the weaker effect of group identity in period 2 was substituted by stronger effects of national identities and nationality-based factors such as religious activity and importance of equality. These findings therefore provide support for the claim that national identities have important psychological implications and can affect organizational group members’ preferences and behaviors (e.g., Scheibe, 1983).

3.7 Managerial Implications

The present study offers a number of implications for practitioners trying to manage diversity in groups effectively. First, it is important to recognize that trust and cooperation among employees is integral to organizational success and fundamental for effective group functioning. Given an increased reliance on team-based work arrangements in organizations (Allred, Snow, & Miles, 1996; Lawler, 1998), companies are faced with the fundamental problem of deciding whether to emphasize cooperation or competition among the members of diverse work groups. It has been argued that competition stimulates group members to outperform each other and hence promotes efficiency and innovation (cf. Beersma, Hollenbeck, Humphrey, Moon, Conlon, & Ilgen, 2003). However, increasing technological complexity and global competition force companies to improve internal coordination by encouraging group members to work collaboratively (e.g., Townsend, DeMarie, & Hendrickson, 1998). Second, diversity effects rely to a large extent on perceptions. Indeed, developing and maintaining employees’ trust and cooperation may be difficult, in part because managers have not fully appreciated the importance of managing people's beliefs and perceptions in the trust development process. My study shows that the decision to trust
Cognitive and Affective Antecedents of Trust and Cooperation in Diverse Groups

and cooperate depends on subjects' beliefs about peer trustworthiness. Beliefs in turn are determined by the degree of perceived diversity and the salience of competing social identities. While actual diversity remains constant over time, the level of perceived diversity can be actively managed by organizations. Offering diversity training programs may help to reduce the negative impact of perceived surface- and deep-level diversity on the trust development process. For an excellent discussion of instructional and experiential diversity training methods see Avery and Thomas (2004). Furthermore, composing diverse groups of likeminded people with similar attitudes, values, and personalities will reduce perceived deep-level diversity and may foster high levels of cooperation and trust without comprehensive training efforts.

Third, a salient collective identity increases trust and cooperation in diverse groups. The principal of functional antagonism as well as the results of my study imply that the negative effects of social identities that divide members of diverse groups such as national or ethnic identities can be reduced by fostering a high level of collective group identification. Consequently, it is important that managers activate group members’ collective identity by supporting and recognizing the group, by allocating members' full-time to the group (e.g., Scott, 1997), by setting collective goals among group members and by creating the right mix of task and goal interdependence (e.g., Van der Vegt, Van de Vliert, & Oosterhof, 2003), and by installing powerful and influential group leaders (Scott 1997).

Finally, as my results indicate, organizations have to create environments that foster teamwork and reduce perceived intra-group competition in order to align perceived work attitudes similarity and trust and cooperation in groups.

3.8 Conclusions

Responding to calls for more empirical research on the different factors influencing trust development in diverse settings, I conducted a longitudinal study to capture the dynamic nature of the trust development process.

My results indicate that the salience of national and collective group identities, changes in perceived deep-level diversity, and outcomes of past trusting behaviors are
important factors influencing trust development in heterogeneous groups. These findings might improve our understanding of diversity dynamics. I argue that for the evolution of trust and cooperation in groups that accept surface-level diversity as part of their group identity (i.e., groups with positive attitudes toward diversity) a good match of group members’ deep-level characteristics can be more critical than a good match of surface-level characteristics. Furthermore, my findings indicate that beliefs about peer trustworthiness mediate the relationship between behavioral trust and its cognitive and affective antecedents. The belief dependence of behavioral trust therefore renders the management of beliefs and perceptions in diverse groups important. The present research suggests that emphasizing a common group identity, deemphasizing national identities, and decreasing perceived diversity can help to foster positive beliefs about peer trustworthiness. Optimistic beliefs, in turn, will increase trust and cooperation and hence improve the performance of diverse groups.

Turning to the issue of generalizability, it is important to note that the laboratory nature of the task necessarily limits the direct generalizability of the findings to more complex organizational settings. I attempted to address the lack of external validity by drawing the participants for my study from an MBA program that is highly selective, only admitting candidates with substantial work experience. Furthermore, I believe that the team-based compensation scheme under which the students operated in my experiments approximates the kinds of performance pressures and stakes that people face in real work group settings. Nevertheless, while complementing survey research by controlled experiments allows for superior investigation of group processes (Weingart, 1997), field studies are an important complement to any laboratory research.
4 The Evolution of Cooperative Norms in Diverse Groups: The Impact of Social Identities and Social Capital
The Evolution of Cooperative Norms in Diverse Groups: The Impact of Social Identities and Social Capital

ABSTRACT
Recent work has conclusively argued that cooperative group norms mediate the relationship between group composition and group outcomes. But what factors cause cooperative norms to emerge in diverse groups? Responding to this research question I conducted a longitudinal study that examined the impact of social identities and social capital on the evolution and enforcement of cooperative norms in diverse groups over time. In my study that uses MBA students as participants in economic game experiments, I find that cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction and that the evolution of cooperative norms is a result of the interaction between strongly reciprocal and selfish group members. Furthermore, my findings indicate that a salient collective group identity and trust-based social capital can lead to group norms emphasizing cooperation, while salient national identities are detrimental to a group's emphasis on interdependence and cooperation. I also find that actual and perceived value diversity have an impact on the strengths of generalized norms of cooperation. I discuss the implications of these results for group leaders, managers, and organizations wishing to manage diversity in groups effectively.

Keywords: Diversity, Groups, Cooperation, Norms, Punishment
The evolution of cooperative norms in diverse groups

4.1 Introduction
Research has yielded mixed results about the effects of diversity in organizational settings. Comprehensive reviews of the literature (Van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998) as well as meta-analyses (Bowers et al., 2000; Webber & Donahue, 2001) failed to identify consistent main effects of diversity on work outcomes. Chatman and Flynn (2001) addressed these inconsistencies by suggesting that past researchers have overemphasized the direct influence of diversity and neglected to consider the influence of cooperative group norms on work processes. In their own study they found that cooperative group norms mediated the relationship between group composition and work outcomes and that greater heterogeneity led to group norms emphasizing lower cooperation. In conclusion, Chatman and Flynn (2001) point out that future research should focus more on the specific factors that cause cooperative group norms to emerge.

The present research responds to this call by presenting findings from a longitudinal study that examined the impact of social identities and social capital on the evolution of cooperative norms in diverse groups over time. Drawing on theories of strong reciprocity (e.g., Fehr & Fischbacher, 2003; Fehr et al., 2002; Gintis et al., 2003), I begin by arguing that the interaction between strongly reciprocal and selfish individuals is essential for the understanding of cooperation and the development of cooperative norms in diverse groups. Strong reciprocators sanction norm violations and thus enforce cooperation in groups, even if punishment is costly for them and yields no individual benefits (e.g., Fehr & Gächter, 2002). I then develop hypotheses that relate cooperative group norms and the sanctioning of norm violations to two constructs that have received increasing attention during the past years, i.e. collective group identification and social capital. By drawing on self-categorization theory (e.g., Turner, 1987) and its intellectual parent social identity theory, I propose that while social identities that divide members of diverse groups such as national or ethnic identities have negative effects on the evolution of cooperative group norms, a salient superordinate group identity can foster collective group norms. Furthermore, based on social capital research (e.g., Coleman, 1988; Putnam, 1995), I suggest that trust within diverse groups can foster the development of generalized norms of cooperation.
In my study of highly multinational MBA classes I find that, arguably as a result of a learning process that enables heterogeneous class members to overcome dissimilarity of cognitive schemata, cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction. I also find that in line with my prediction the evolution of cooperative norms was a result of the interaction between strongly reciprocal and selfish group members. When given the opportunity to sanction selfish behaviors, strong reciprocators created a credible punishment threat that greatly enhanced the scope for cooperative norms. However, without a sanctioning opportunity, selfish behavior prevailed and the overall level of cooperation in the groups was much below the groups’ actual capabilities. Furthermore, results of my research indicate that a salient collective group identity and trust-based social capital led to group norms emphasizing cooperation, while salient national identities were detrimental to the evolution of cooperative group norms.

The remainder of the article is structured as follows: First, I develop the theoretical framework guiding my research and derive my hypotheses. Subsequently, I explain my longitudinal research design that uses public goods games with a third-party punishment opportunity and psychological survey instruments in combination to study the evolution of cooperative norms in highly diverse MBA classes. Finally, I will present my empirical findings and discuss theoretical and managerial implications.

4.2 The Evolution of Cooperative Norms in Diverse Groups

The emerging global and multicultural workplace, the intensified use of cross-functional teams, and the increased reliance on non-traditional workforce talent illustrate the proliferation of diverse work situations. Past research on the effects of demographic heterogeneity in organizational settings has, however, yielded contradictory findings about the effects of diversity on group effectiveness. One reason for this discrepancy may be that researchers have often taken the direct effects of demographic composition for granted and failed to consider the mediating role of social norms in the group composition-outcome link (Chatman & Flynn, 2001).

Group norms are normative standards of behavior against which the appropriateness of behavior can be evaluated (Birenbaum & Sagarin, 1976) and which are enforced by
informal social sanctions (Fehr & Fischbacher, 2004). Cooperative norms are present in groups emphasizing interdependence and shared objectives, while competitive norms prevail in groups giving precedence to individual achievement and self-interest (Wagner, 1995). Given an increased reliance on team-based work arrangements in organizations (Allred et al., 1996; Lawler, 1998), companies are faced with the fundamental problem of deciding whether to emphasize cooperative or competitive norms among the members of diverse work groups. It has been argued that competition stimulates group members to outperform each other and hence promotes efficiency and innovation (cf. Beersma et al., 2003). However, increasing technological complexity and global competition force companies to improve internal coordination by encouraging group members to work collaboratively (e.g., Townsend et al., 1998). Furthermore, Chatman and Flynn (2001) found that a team’s emphasis on cooperative norms had a positive impact on team efficiency and effectiveness by improving communication frequency and timing. Members of more cooperative teams were more satisfied with their team experience than members of teams that developed less cooperative norms, with a likely positive effect on members’ willingness to remain with the team. The enhanced focus on group-level goals in cooperative teams was positively related to team members’ contributions to group objectives, leading to increased team performance. And a group's emphasis on interdependence and cooperation reduced the negative effects of demographic heterogeneity.

As diversity's importance and the reliance on team-based work systems have increased dramatically in today's major corporations, and given the centrality of cooperative group norms in promoting group efficiency and effectiveness, understanding the evolution of cooperative group norms over time is critical. The present article contributes to this stream of research by investigating possible antecedents and consequences of a diverse group's emphasis on cooperative norms. Figure 4.1 shows the conceptual framework guiding my research. In the following sections, I will review theory and data supporting the proposed relationships in my model.
4.2.1 Formation of Cooperative Group Norms

In my study I was interested in examining the development of norms in newly formed, diverse groups, i.e. MBA classes, over time. The norm formation process in groups has been described as an experiential process that enables group members to learn about socially shared guidelines to accepted and expected group behavior. While specific group norms are typically absent in newly formed groups (e.g., Levine & Moreland, 1991), several theoretical perspectives have tried to explain the norm formation process in groups over time. Opp (1982), for example, has argued that norms can develop through negotiations among group members in order to resolve conflict (voluntary norms), through learning of legitimate behavior from certain group members (evolutionary norms), or through externally mandated guidelines, e.g. by a group's leader (institutional norms). Feldman (1984) argues that group norms can evolve out of critical events in the group's history, can be imported from the social environment surrounding the group, or can be the result of initial behavioral patterns of the group. Finally, Bettenhausen and Murnighan (1985) argue that people bring to a group scripts (i.e., mental images) that specify appropriate behavior in different situations. These scripts are based on the norms they held as members of different groups in similar situations. The speed with which norms develop in groups depends according to Bettenhausen and Murnighan on the extent to which group members classify situations in the same way and on the extent to which each group member's scripts conform to others' behaviors.
The evolution of cooperative norms in diverse groups

While Bettenhausen and Murnighan (1985) showed that group norms formed early in homogeneous groups, often before a group's members adequately understood their tasks, I argue that in diverse groups the norm formation process takes longer. Previous research has shown that people from different backgrounds have different frameworks for approaching a wide range of situations (Hofstede 1980; Laurent 1983, 1986). In particular, members of heterogeneous groups use different cognitive structures to make sense of new stimuli (e.g., Michel & Hambrick, 1992) and therefore tend to have different perceptions of what constitutes appropriate behavior in particular situations. The experiential process of developing and learning socially shared guidelines to accepted group behavior therefore takes longer in diverse groups than in homogeneous groups in which each group member's scripts typically conform to others' behaviors. Following up on the above line of reasoning, I argue that in diverse groups cooperative group norms are the result of an experiential process that enables group members to overcome dissimilarity of cognitive schemata and to develop and learn shared normative standards of behavior. In my first hypothesis I predict accordingly that norm formation in diverse groups takes place over an extended period of time and that the degree to which norms are enforced intensifies after an initial experiential process and learning phase (e.g., Chatman & Flynn, 2001):

**H1:** *In diverse groups cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction.*

### 4.2.2 Sanctioning of Norm Violations

Corporations have long recognized the positive impact of cooperative orientations on organizational processes and outcomes. However, many attempts to realize the intended structural and procedural gains of an increased emphasis on interdependence and cooperation have met with failure (Hackman, 1998; Robbins & Finley, 2000). Despite careful efforts to improve cooperation in work groups, casual observations as well as empirical evidence suggest that in most organizational settings some group members resist attempts to increase teamwork and rather pursue their own self-interested goals (e.g., Kramer, 1989; Milgrom & Roberts, 1988).

These observations are in line with theoretical reasoning derived from the notion of strong reciprocity (e.g., Fehr & Fischbacher, 2003; Fehr et al., 2002; Gintis et al.,
The evolution of cooperative norms in diverse groups

2003), according to which the interaction between strongly reciprocal and selfish individuals is essential for the understanding of human cooperation. Strongly reciprocal individuals reward others for cooperative, norm-abiding behaviors and impose sanctions for norm violations, even if they gain no individual benefit from their acts (Fehr & Fischbacher, 2003). Strong reciprocators typically reward cooperative behaviors by increasing their own cooperation, but reduce collaboration in response to expected free-riding of others. The fact that a substantial percentage of the population are strong reciprocators but that there are also many purely self-interested individuals (Fischbacher et al., 2001) can help to explain why organizations find it so difficult to establish and maintain cooperation in work groups. Individuals often have optimistic expectations about others’ during first encounters (Berg et al., 1995; Kramer, 1994; McKnight et al., 1998). However, owing to the existence of selfish subjects, this expectation will necessarily be disappointed, leading to a decay of cooperation over time. If strongly reciprocal individuals believe that others will free ride, they will reduce their cooperation as well. Theoretical reasoning suggests that even a small minority of self-interested individuals in a group of strong reciprocators can cause cooperation to break down completely (Fehr & Schmidt, 1999). The fact that many people are conditional cooperators highlights the importance of beliefs about others’ intentions for group members’ decision to engage in cooperative behavior.

In order to maintain high levels of cooperation in work groups, it is therefore important to foster beliefs that most members of the group will cooperate by giving selfish individuals persuasive reasons not to defect. If organizational practices that should set the stage for employees to collaborate fail to provide strong incentives for self-interested individuals to cooperate, they will not be effective. Such incentives can be created by giving employees the opportunity for targeted punishment. If strongly reciprocal individuals have the opportunity to directly punish non-cooperators, they will impose strong sanctions in order to constrain the opportunistic tendencies of selfish people. Research has shown that by punishing free-riding strong reciprocators are capable of enforcing widespread cooperation in social interactions (Fehr & Gächter, 2002; Ostrom, Walker, & Gardner, 1992; Yamagishi, 1986). Furthermore, theoretical reasoning suggests that even a small minority of strongly reciprocal individuals can enforce high levels of cooperation in a group of self-interested individuals by punishing those who defect (Fehr & Schmidt, 1999). In fact, a credible
punishment threat is often sufficient to enforce cooperation in groups, thus rendering actual punishment unnecessary (Fehr & Fischbacher, 2003). In line with previous research I argue that the interaction between strongly reciprocal and selfish individuals is essential for the understanding of cooperation in diverse groups. In my next hypotheses I predict accordingly that:

**H2a:** If diverse groups possess means to sanction opportunistic behavior, strongly reciprocal group members can create a punishment threat that will greatly enhance the scope for cooperative norms in the groups and cooperation will flourish.

**H2b:** If diverse groups cannot sanction opportunistic behavior, selfish behavior will prevail and the overall level of cooperation in the groups will be much below the groups’ actual capabilities.

A group greatly magnifies its capability of enforcing cooperation if some group members are willing to bear the cost of sanctioning opportunistic behavior. Punishing non-cooperators is often costly for the punisher in terms of the effort related to monitoring uncooperative behavior and scolding selfish individuals, or spreading the word so the free-rider is ostracized by other group members. The question therefore is: who will be willing to bear the costs of punishing defectors? I have argued before that strong reciprocators are willing to impose sanctions in order to constrain the opportunistic tendencies of selfish people, even if they gain no individual benefit from their acts. Casual and empirical evidence suggest that those who cooperate are typically strong reciprocators because most people have a strong aversion against being exploited and being the sucker and are therefore willing to bear the costs of punishing non-cooperators (cf. Fehr & Gächter, 2000). If groups possess means to sanction opportunistic behavior, a group’s emphasis on cooperative norms will therefore increase intra-group collaboration in two ways. First, by emphasizing interdependence and shared objectives cooperative group norms encourage group members to work collaboratively. Second, by increasing cooperation, cooperative group norms also increase the scale of punishment of those who resist attempts to foster teamwork and rather pursue their own self-interested goals. In the next sections I
will investigate possible antecedents of a diverse group's emphasis on cooperative norms.

4.2.3 Social Identities and Cooperative Group Norms

Despite compelling pleas for researchers to study the different antecedents shaping the development of cooperative norms in diverse groups over time, such research remains scarce (see Chatman & Flynn [2001] for a notable exception). In the following sections, I will therefore develop and test hypotheses that relate the evolution of cooperative group norms to two constructs that have received increasing attention during the past years, i.e. collective group identification and social capital. For the most part, this reasoning is exploratory. I would therefore like to note that I am not proposing that these two constructs are the only antecedents of cooperative norms in diverse groups. Instead, I propose that examining the effects of social identities and social capital will increase our understanding of the determinants of cooperative group norms in diverse settings.

Research on in-group/out-group psychology suggests that differences between people elicit social categorization processes that may disrupt group functioning (e.g., Turner, 1987). Social categorization describes the process of social identity formation by grouping oneself and others into a series of social categories. Individuals often retain multiple identities (Allen et al., 1983; Thoits, 1983) derived, for example, from demographic identity groups such as race, nationality, sex, age cohort, but also from organizational identity groups such as work groups, departments, and organizations. The extent to which social group membership influences behavior depends on the strength of one's identification with this group (Dutton et al., 1994), which in turn is dynamic and responsive to the specific context. In the context of highly multinational groups (e.g., international MBA classes) one of the most important social categories is probably national identity. While ethnic identity is one of the most widely studied social categories, individuals also have a national identity with important psychological implications, regardless of their ethnicity (Scheibe, 1983). Furthermore, in my study of highly multinational MBA classes I had the highest variance not on the ethnicity variable but on the nationality variable (my participants represented 22 nationalities). Since national culture is deeply rooted in the socialization of individuals, it is plausible to assume that nationality affects organizational group
members’ preferences and behaviors. For example, in a study of international joint ventures, Salk (1996) found strong in-group identification according to national origins in multinational management teams.

I have argued before that the norm formation process in groups is an experiential process that enables group members to learn about socially shared guidelines to accepted and expected group behavior. While group learning behavior is one aspect of a group’s interaction process (Hackman & Morris, 1975), research has shown that most individuals prefer to interact with members of their own social categories (McPherson, Smith-Lovin, & Cook, 2001). It has therefore been suggested that due to discrimination and self-segregation members of diverse groups find it particularly difficult to engage in social interaction processes (e.g., Jehn et al., 1999). The investigative interaction and learning processes underlying the development of group norms are thus hampered if heterogeneous group members use immediately apparent demographic characteristics such as national origin to categorize other group members into out-group categories. Salient national identities will therefore have a negative impact on the evolution of shared norms in diverse groups. Furthermore, social identity theory (e.g., Tajfel & Turner, 1986) suggests that individuals emphasize the positive aspects of their in-group in relation to other social groups, which end up suffering by comparison. Research has shown that the negative beliefs and feelings associated with out-groups influence trust and cooperation (Brewer & Kramer, 1985; Kramer, 1991; Kramer & Brewer, 1984). Individuals often believe that in-group members are more honest, trustworthy, and cooperative than out-group members (e.g., Brewer, 1979; Stephan, 1985; Tajfel, 1982a), while out-group members evoke more distrust and competition than in-group members (Hogg et al., 1993). Salient national identities in multinational groups will therefore have a negative impact on the evolution of shared normative standards of behavior in general, and on cooperative group norms in particular. Given an established negative link between out-group categorization and associated cooperative behavior, I predict in my third hypothesis that:

\[ \text{H3: The salience of national identities has a negative impact on the evolution of cooperative norms in diverse groups.} \]
The evolution of cooperative norms in diverse groups

While social identities that divide members of diverse groups such as national or ethnic identities can have negative effects on the development of cooperative group norms, it has also been argued that a salient superordinate group identity can foster collective group norms. We have seen that individuals often retain multiple identities and that the strength of one's identification with certain identity groups is dynamic. National identity and organizational group identity, for example, are two competing social categories. As one social group or category membership becomes more salient, the other becomes less salient (e.g., Turner et al., 1994). This inverse relationship between the salience of different social categories is known as the principle of functional antagonism (Turner, 1985) and implies that the more subjects focus on organizational membership, the less they focus on demographic group differences and vice versa. Some theorists have therefore argued that a salient group identity can foster the recategorization of demographically dissimilar subjects as fellow in-group members (e.g., Dovidio, Gaertner, & Validzic, 1998) and therefore facilitates the necessary interaction and learning process underlying the evolution of shared group norms in heterogeneous groups. Van der Vegt and Bunderson (2005: 535), for example, suggest that "one might expect that diverse teams will be better able to exchange information and learning (...) when there is a shared sense of team identification than when there is not".

Furthermore, we have seen that the positive beliefs and feelings associated with the own in-group foster trust and cooperation. Research has shown that the consequences of social identification are intragroup altruism, cohesion, and cooperation (e.g., Turner, 1984), that form the basis for the evolution of cooperative group norms. The salience of a collective group identity will therefore have a positive impact on the evolution of shared normative standards of behavior in general, and on cooperative group norms in particular. These conclusions have received increasing empirical and theoretical support in the past. Earley and Mosakowski (2000), for example, present evidence that the creation of a common group identity helps heterogeneous teams to overcome initial problems in team functioning and performance. In a similar vein, other researchers have argued that "members of diverse groups must shift their focus from the qualities that make them unique to the superordinate identity of the group" (Swann et al., 2004: 10). Given an established positive link between in-group categorization and associated cooperative behavior, I predict in my fourth hypothesis that:
The evolution of cooperative norms in diverse groups

**H4:** The salience of a collective group identity has a positive impact on the evolution of cooperative norms in diverse groups.

### 4.2.4 Social Capital and Cooperative Group Norms

A growing body of research suggests that social capital is an important determinant of cooperation (e.g., Gächter et al., 2003; La Porta et al., 1997; Sobel, 2002). Social capital has been defined as "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995: 67).

Two particularly important aspects of social capital are trust and trustworthiness. Trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al., 1995: 712). Trustworthiness, on the other hand, is the willingness not to "exploit other's exchange vulnerabilities" (Barney & Hansen, 1994: 176). While Adler and Kwon (2002) point out that there is a lack of clarity in the relationship between trust and social capital (i.e., whether trust is a source or a consequence of social capital), it is well accepted that trust and trustworthiness are two key components of social capital (cf. Glaeser et al., 2000). In the present study I conceptualize social capital accordingly as a combination of trust and trustworthiness. I selected these two constructs based on theory and based on their particular relevance to my setting. First, trust and trustworthiness have been shown to interact with the salience of a collective group identity and the salience of national identities. Glaeser et al. (2000), for example, found that when individuals are socially closer trust and trustworthiness rise, while trustworthiness declines when individuals are of different nationalities. Second, scholars have widely acknowledged that trust can lead to cooperation and coordinated social interactions (Blau, 1964; Coleman, 1988; McAllister, 1995) and contributes to more effective work teams within organizations (Lawler, 1992). Putnam (1993) suggests that if people trust each other a virtuous circle is initiated in which trust promotes cooperation and cooperation fosters trust. Over time, this coevolution of trust and cooperation may lead to the development of generalized norms of cooperation (Nahapiet & Ghoshal, 1998). I predict in my last hypothesis accordingly that:
The evolution of cooperative norms in diverse groups

H5: Trust-based social capital has a positive impact on the evolution of cooperative norms in diverse groups.

4.3 Methods

The present article is based on two longitudinal studies that were conducted to track the evolution of cooperative norms in two highly diverse MBA classes. To test the hypotheses proposed above, I used game experiments and psychological questionnaires in combination. Sixty-seven MBA students of two MBA classes participated in public goods experiments and completed survey instruments at three different times over the course of six months. The survey instruments were administered to measure trust-based social capital and the degree of national and collective group identification. Public goods games with a third-party punishment opportunity (Ledyard, 1995; Fehr & Fischbacher, 2004) were conducted to study the evolution and enforcement of cooperative norms in the groups.

4.3.1 Setting, Procedures, and Design

In my study I analyzed the dynamics of diversity in newly formed groups, i.e. MBA classes, over time. The individual ages of the participants ranged from 21 to 44 years; their mean age was 29.6 (s.d. = 4.5). 30 percent of the participants were female; 67 percent were Caucasian; 1.5 percent, African; 30 percent, Asian; 1.5 percent, Hispanic. The participants had a diverse educational background and represented 22 nationalities from all continents. 23 percent of the participants were married. The vast majority of the students had never met before they started the program.

My study consisted of behavioral and attitudinal measures; all the subjects took part in public goods experiments and completed a number of survey instruments at the end of the experiments. Since I was interested in demonstrating effects over time, I conducted the study at three different times over the course of six months. The first study (time 1) was completed shortly after the formation of the classes in the first week of the semester, before the individuals had had the chance to become acquainted with one another. The second study (time 2) was conducted three months after the first study, while the third and last study (time 3) was administered six months after the first
The evolution of cooperative norms in diverse groups

study. I conducted my studies in the computer lab of the University of St. Gallen, using the software z-Tree (Fischbacher, 2007).

Experimental studies are important for unobtrusively measuring people's nonconscious responses to members of different social categories (Williams, 2001). While field evidence on the evolution and enforcement of cooperative norms in diverse groups is indispensable, laboratory game experiments can help to distinguish between the different antecedents shaping norm development, which is generally difficult in the field because too many uncontrolled factors simultaneously affect the results (Fehr & Fischbacher, 2004).

The public goods game with a third-party punishment opportunity has proved to be very useful for studying the characteristics and the strength of social norms (cf. Fehr & Fischbacher, 2004). Norms are enforced by creating strong incentives for potential defectors not to violate the behavioral standard. Such incentives can be created within groups by giving group members the opportunity for targeted punishment of norm violations. Punishment can take the form of either second party sanctions (i.e., the sanctioning individual is directly harmed by the norm violation) or third party sanctions (i.e., the sanctioning individual is not affected by the norm violation). Fehr and Fischbacher explain the difference between second- and third-parties as follows: "one party in an exchange relationship may violate an implicit agreement, hurting the exchange partner. The cheated partner is the 'second party' in this case, while an uninvolved outside party who happens to know that cheating occurred is the 'third party'" (2004: 64). While second party sanctions can often be rationalized by non-normative motives, I argue, in line with Fehr and Fischbacher (2004: 65), that third-party punishment reveals "the truly normative standards of behavior" and can therefore help to quantify the strength of cooperative norms in groups.

Second party sanctions are likely to be triggered by motives such as retaliation, that is, the desire to repay the damage that was originally inflicted by the norm violator. The impulse to retaliate cannot, however, be taken as unambiguous evidence for the enforcement of an appreciated normative standard of behavior. Third-party punishment, on the other hand, means that individuals impose sanctions on others for norm violations, although they are not harmed by the norm violation and although the
punishment is costly and yields no individual benefit. A hypothetical example illustrates why the degree of third-party punishment is a good measure of the strength of social norms. Assume a boy named Sue walks through the streets of his neighborhood and observes someone stealing a car. In the moment Sue tries to stop the thief, for example by calling the police, he engages in third-party punishment. Sue imposes sanctions for the violation of the social norm that one should not steal other people’s possessions, although the thief is not stealing his car (he is not harmed by the norm violation) and although the punishment is costly for him in terms of the effort, time, and risk involved in convicting the thief. In some neighborhoods of this world people like Sue would try to stop the thief no matter whether he is stealing a car or roses in the park. However, in other neighborhoods people would try to prevent the stealing of cars but would not care if someone is stealing roses in the park and in again other neighborhoods people would not care at all. The degree of third-party punishment thus reflects the strength of the norms that are enforced. In neighborhood 1 the social norms that one should not steal and that one should help and cooperate with his neighbors are certainly stronger and are therefore more thoroughly enforced than in neighborhoods 2 and 3. Thus, if I can measure the degree of third-party punishment imposed for uncooperative behaviors in my MBA classes, I can draw conclusions about the strength of a respective cooperation norm in the classes.

4.3.2 The Public Goods Game with Third-Party Punishment Opportunity

The public goods game with a third-party punishment opportunity provides such a measure. In this game, a third party is introduced into a two stage public goods game. Stage one is a typical public goods game (Ledyard, 1995), that is, a decision task that represents a social dilemma situation where mutual cooperation is in the interest of the whole group, but each individual group member has an incentive to free ride on the cooperation of the others. In my laboratory experiments groups with $n = 4$ members played the following public goods game. Every subject was endowed with 20 CHF (Swiss Francs)$^5$ and had to decide whether to keep the money for him/herself or invest $c_i$ CHF ($0 \leq c_i \leq 20$) into a public good, called project. The subjects had to make a single simultaneous decision about how many of the 20 CHF to invest into the project, i.e. the subjects had to choose an integer number between 0 and 20. Each contribution

$^5$ 20 CHF ($\approx 19$ US$)
benefited all group members alike, that is, regardless of the amount contributed every subject received a marginal per capita return of 0.5 from the sum of all contributions to the project. The payoff function in stage one for each subject $i$ in a group of $n = 4$ was given by (see also Gächter et al., 2003):

$$\pi_i^1 = 20 - c_i + 0.5 \sum_{j=1}^{n} c_j$$

According to the above payoff function, the social marginal return of a contribution to the project is 2, which implies that group welfare is maximized if everyone contributes to the project, i.e. the public good. However, for each subject the individual marginal payoff of a contribution to the project is less than 1, while the marginal cost of contributing equals 1. Hence, it was always in the material self-interest of any subject to free ride completely (i.e., to choose $c_i = 0$), irrespective of how much the other three group members contributed.

In stage two, after the simultaneous contribution decision of the first stage, a third party observed the actions of the players and had the opportunity to anonymously punish them. This design is motivated by the idea that a cooperation norm applies in the public goods game of the first stage and that those who cooperate (i.e., typically strong reciprocators) are willing to enforce this norm. Thus, if the third parties punish contributions in the public goods game that are below a certain level, even if their payoffs are unaffected by the contribution and although punishment is costly for them, we can assume that these contributions violate an existing cooperation norm in the MBA classes. The players were aware in the first stage that a third party could punish them in a second stage. In my experiments, after making the own contribution decision in the first stage, the players had the opportunity to simultaneously punish a player of another group for his/her contribution by assigning deduction points. The punishment procedure was administered under double-blind anonymity, that is, neither the punisher, nor the person undergoing punishment were informed of other players’ identities. The double-blind condition minimized many potentially confounding effects emanating from self-presentation and/or social desirability motivations, intertemporal

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6 If all group members kept their whole endowment of 20 CHF privately, each subject earned only 20 CHF. Whereas if all group members invested their whole endowment, each subject earned $0.5 \times 80 = 40$ CHF.

7 I used the phrase "assigning deduction points" in order to avoid the terms "punishment" or "sanction" that may have caused negative framing effects.
The evolution of cooperative norms in diverse groups

considerations of strategy choices, reputation formation, or any other kind of repeated
game considerations and thus ruled out reciprocity between the players. Figure 4.2
illustrates the punishment procedure:

**Figure 4.2: The Third-Party Punishment Opportunity**

If subjects could punish players of their own group they would be second party
punishers, because their payoffs are affected by the contribution decisions of these
players. Since the subjects punished players of another group they were third party
punishers, because their payoffs were not affected by the contribution decisions of
these players. Punishing a player of another group was, however, costly for the third
parties. The assignment of one deduction point $p_{ij}$ by subject $i$ to subject $j$ reduced the
first-stage payoff of subject $i$ by one CHF and that of subject $j$ by three CHFs. Punishment was therefore costly for the third parties, but three times more costly for
the punished player. If subject $i$ received $p_{ki}$ deduction points from a subject $k$ of
another group and assigned $p_{ij}$ deduction points to a subject $j$ of another group (while $k$
and $j$ are not the same players), the final payoff after stage two of subject $i$, $\pi_i^2$, was
(see also Fehr & Gächter [2002], who used the same punishment function):

$$\pi_i^2 = \pi_i^1 - (3p_{ki} + p_{ij}).$$

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8 Remember, subjects play the public goods game in groups of four.
Since players rarely choose certain contribution levels in the public goods game, I would have few data for these levels if players could only respond to other players' actual choices. I was, however, interested in analyzing the pattern of third-party punishment for the full range of possible contributions from complete free-riding to full cooperation. I therefore implemented the so called strategy method (Selten, 1967) in order to analyze third-party punishment behavior in my MBA classes in much more statistical depth. Let us assume player i of group 1 had the opportunity to anonymously punish player j of group 2. For each possible contribution $c_j$ of player j in the first stage ($0 \leq c_j \leq 20; \ c_j \in \mathbb{Z}$) player i had to indicate in a table how many deduction points he/she would like to assign to player j, without knowing j’s actual contribution (i.e., I elicited a punishment vector of 21 punishment decisions: see Figure 4.3). After the experiment, the experimenter carried out the indicated punishment for the actual contribution of player j.
The evolution of cooperative norms in diverse groups

**Figure 4.3: The Punishment Table**

<table>
<thead>
<tr>
<th>Contribution of player j in the first stage:</th>
<th>How many deduction points would you like to assign to player j?</th>
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</table>
The evolution of cooperative norms in diverse groups

Since I was interested in demonstrating effects over time, I conducted the present study at three different times over the course of six months. Accordingly, I also measured the evolution of third-party punishment by eliciting the punishment vector at three different times over the course of six months. For my analysis I divided these six months into two periods. I defined the period between time 1 and time 2 as period 1 and the period between time 2 and time 3 as period 2. In order to capture effects over time, I operationalized most of my variables (v) as measures of changes between two points in time. In particular, I calculated for these variables in period 1 the difference between observed values at time 2 and time 1.

$$\Delta v_1 = v_2 - v_1$$

In the same way, I calculated in period 2 the difference between observed values at time 3 and time 2.

$$\Delta v_2 = v_3 - v_2$$

A positive difference indicated a positive change of the variable from time 1 (time 2) to time 2 (time 3), while a negative difference indicated a negative change. Hence, by subtracting for each subject the punishment vector ($\tilde{p}_n$) elicited at time 1 (time 2) from the punishment vector elicited at time 2 (time 3) I calculated a new vector ($\Delta \tilde{p} = \tilde{p}_n - \tilde{p}_{n-1}$) representing changes in third-party punishment for all 21 contribution levels in period 1 (period 2). I then calculated the arithmetical mean of the vector components ($\overline{\Delta \tilde{p}}$) to obtain a single composite measure for each subject that reflects individual level changes in third-party punishment for the full range of possible contributions. In the present study I used this composite measure calculated for period 1 (period 2) as an individual level measure of the evolution and strength of a cooperation norm in my groups, i.e. MBA classes, in period 1 (period 2). By choosing the individual level of analysis, I seek to understand how a single group member's perception and enforcement of cooperative group norms may be affected by self-categorization processes and the presence or absence of trust-based social capital.

The above public goods game and the below described survey instruments were administered under double-blind anonymity to minimize confounding effects emanating from self-presentation and/or social desirability motivations. The subjects’ behavior was tracked over time by anonymous identification codes. At the beginning
of each experiment the subjects received written instructions explaining the above public goods game in great detail. After reading the instructions, the subjects had to answer a number of control questions that tested their understanding of the game. The experiment did not proceed until all the subjects had answered all control questions correctly to ensure that everyone understood the mechanics and implications of the underlying payoff function. After all the subjects had successfully solved the control questions they had to make their decisions without time pressure and without knowing the others’ decisions. We have seen that social sanctions can often be rationalized by motives such as retaliation. In the above public goods game the income of each group member is dependent on the behavior of the other group members. To rule out that the repetition of my study created punishment through direct retaliation against other class members who harmed the punisher in previous experiments, group compositions\(^9\) were unknown to the subjects and were not revealed after the experiments. Moreover, group compositions have been different at time 1, 2, and 3 to avoid any kind of repeated game behavior. Furthermore, to control for the possibility that despite the anonymous setting the subjects punished others as a form of general retaliation against the class for low earnings in the previous session, I adopted experimental earnings at time 1 (time 2) as a control variable in my statistical analysis of the evolution of third-party punishment in period 1 (period 2). During the experimental/survey sessions communication between the subjects was strictly prohibited. The subjects were offered real monetary incentives to ensure that their behavior in the public goods games represented what they would do if given the task ‘for real’ and were paid confidentially at the end of each session to protect their anonymity.

4.3.3 The Survey Instruments

My study consisted of two elements. All the subjects took part in public goods experiments. At the end of the experiments I let the participants complete a number of survey instruments that measured the degree of national and collective group identification and trust-based social capital.

I adopted Luhtanen and Crocker’s (1992) collective self-esteem scale to measure the salience of national identities and the degree of collective group identification in the

\(^9\) Remember, subjects play the public goods game in groups of four.
MBA classes. The collective self-esteem scale is composed of four 4-item subscales: Membership, Private, Public, and Identity. Membership esteem measures the extent to which individuals feel that they are good or worthy members of their social groups. Private collective self-esteem assesses one’s personal judgments of how good one’s social groups are and how satisfied one is about being a member of these groups. Public collective self-esteem indicates how individuals feel that others evaluate their social groups. Importance to identity refers to the importance of one’s social group memberships to one’s self-concept. The participants completed Luhtanen and Crocker's collective self-esteem scale using 7-point Likert-type scales, ranging from 1 (strongly disagree) to 7 (strongly agree). To measure the degree of collective group identification in the MBA classes under investigation I altered several wordings of the collective self-esteem scale, that is, I substituted ‘the group I belong to’ by ‘the MBA class I belong to’. In the same way, I substituted ‘the group I belong to’ by ‘the nation I belong to’ in order to measure the salience of national identities within the MBA classes. Research has shown that fitting the unspecific item formulations of the collective self-esteem scale to the specific social category under investigation does not compromise the psychometric properties of the scale (Crocker et al., 1994; Luhtanen & Crocker, 1992). A preliminary statistical analysis revealed that in period 1 of my study the importance to identity subscale predicted for both salience of national identities and collective group identification in the MBA classes the subjects' third-party punishment behavior. I therefore included importance to identity (MBA class) and importance to identity (nationality) in my statistical analysis of period 1. In period 2 of my study the importance to identity subscale predicted again for collective group identification in the MBA classes the subjects' third-party punishment behavior, while the private collective self-esteem subscale predicted for salience of national identities the subjects' third-party punishment behavior. I therefore included importance to identity (MBA class) and private collective self-esteem (nationality) in my statistical analysis of period 2.

In order to measure trust-based social capital, I adopted standard trust questions from the U.S. National Opinion Research Center’s General Social Survey (GSS). In particular, I used the questions GSS trust, GSS fair, and GSS help and calculated the GSS index as the normalized sum of de-meaned, normalized, and resigned GSS trust, GSS fair, and GSS help (see Appendix C for more details). Much of the social capital
The evolution of cooperative norms in diverse groups

research relies upon these standard trust questions which are widely used to measure group-level social capital (e.g., Knack & Keefer, 1997; Zak & Knack, 2001). Trustworthiness was assessed using a self-reported measure that has frequently been used by other researchers (e.g., Gächter et al., 2003; Glaeser et al., 2000; Holm & Danielson, 2005). Confronted with the statement "I am trustworthy!", the subjects had to evaluate themselves on a scale from 1 (disagree strongly) to 6 (agree strongly) (see Appendix C).

Because this was an exploratory study, a number of other things were tried in order to find relationships between independent variables and the evolution of cooperative group norms. First, since the subjects of my study were MBA students, I controlled for managerial career orientation as a predictor of the subjects' willingness to enforce cooperation in groups by third-party punishment. Igbaria and Baroudi describe managerially oriented subjects as people "who wish to supervise, influence, and lead others" (1993: 133, see also Schein, 1987). I adopted a composite measure from Igbaria and Baroudi (1993) to assess individual differences in managerial career orientations (see Appendix E for more details). Second, I was interested in analyzing the impact of actual and perceived value diversity on the evolution and enforcement of cooperative group norms. Values are general standards or ideas about what is desirable or ideal and are used as guiding principles in life (Rokeach, 1973). Jones and George (1998: 539) argue that "(s)hared values result in strong desires to cooperate, even at personal expense, which overcomes problems of shirking and free riding". Shared values might therefore also result in stronger cooperative group norms and a higher willingness to bear the cost of sanctioning opportunistic behavior. My measure of actual value diversity is adopted from Rokeach (1973) and assesses individual differences in the importance of 18 terminal values as guiding principles in one’s life and career. A preliminary statistical analysis revealed that individual differences in the two terminal values 'True Friendship (close companionship)' and 'Self-Respect (self-esteem)' predicted the subjects' third-party punishment behavior. I therefore included these two variables in my statistical analysis. Furthermore, in order to elicit perceived value diversity, I asked the subjects to rate, on a five-point scale how the other students of their MBA class were "very different", 1, to "very similar", 5, in terms of personal values.
4.4 Results
I begin my statistical analysis by first examining the evolution of cooperative norms in my groups, i.e. MBA classes, over time.

4.4.1 Formation of Cooperative Group Norms
In hypothesis 1 I predicted that in diverse groups cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction. Figure 4.4 provides first graphical evidence. I described above that the subjects were shown a table of the 21 possible contributions in the first stage public goods game of a player of another group (from 0 to 20) and were asked to state their corresponding punishment (see Figure 4.3). For my analysis I calculated for each of the 21 possibilities the average corresponding third-party punishment of all the subjects. Figure 4.4 shows this average punishment vector, with the 21 possible contributions on the X-axis and the average number of deduction points assigned on the Y-axis for time 1, time 2, and time 3.

Figure 4.4: The Evolution of Third-Party Punishment
The evolution of cooperative norms in diverse groups

The average punishment vectors are monotonically decreasing, that is, the subjects punished less the more others contributed and therefore cooperated in the public goods game. While the level of punishment is almost equal at time 1 and time 2, Figure 4.4 shows that third-party punishment at time 3 is for all contribution levels (except 20) much stronger than at time 1 and time 2. A one-sample t-test confirmed the visual impression from Figure 4.4 that the difference between third-party punishment at time 1 and time 2 is not significant, while the difference between time 2 and time 3 is significant (t = 13.17, p < .001). I argued above that the level of third-party punishment in public goods games is a measure of the strength of a cooperation norm. While Bettenhausen and Murnighan (1985) showed that group norms formed early in homogeneous groups, results of my study indicate that in diverse groups, arguably as a result of a learning process that enables heterogeneous group members to overcome dissimilarity of cognitive schemata, cooperative group norms take longer to evolve. Hypothesis 1 finds therefore support in my empirical data.

4.4.2 Sanctioning of Norm Violations

I argued above that some people, i.e. strong reciprocators, are willing to impose sanctions in order to constrain the opportunistic tendencies of selfish people, even if they gain no individual benefit from their acts whatsoever. In order to test whether a situation with third-party punishment opportunity will lead to more cooperation than a situation without punishment (hypotheses 2a and 2b), I conducted first a public goods game with third-party punishment opportunity and then a public goods game without punishment opportunity. My results show that in the first condition more than 40% of the subjects engaged in costly third-party punishment at time 1, time 2, and time 3, which suggests the existence of strong reciprocators in the MBA classes. Furthermore, a closer look in Figure 4.5 on the cooperation behavior in the two conditions reveals the existence of two major groups of subjects: complete free-riders (i.e., subjects who contribute nothing in the public goods game) and full cooperators (i.e., subjects who contribute their full endowment of 20 CHF).
Figure 4.5: Contributions in the Public Goods Game

Contributions in the Public Goods Game
Without Third-Party Punishment (0-20)

Contributions in the Public Goods Game
With Third-Party Punishment (0-20)

\[10 \, 0 = \text{complete free-rider; } 20 = \text{full cooperator}\]
The evolution of cooperative norms in diverse groups

In both conditions the number of complete free-riders and full cooperators increased from time 1 to time 3, which suggests that single group members' perceptions of group norms evolved over time. Some group members completely resisted attempts to increase cooperation and rather pursued their own selfish goals. Other subjects were strong reciprocators whose optimistic expectations about others' cooperation during first encounters were disappointed and who reduced their cooperation accordingly as well. Again other subjects were strong reciprocators whose optimistic expectations were not disappointed and who increased their cooperation accordingly. These findings support my argument that the interaction between strongly reciprocal and selfish individuals is essential for the understanding of cooperation in groups. Overall, 82% of the subjects in the non-punishment condition and 79% of the subjects in the punishment condition were at time 3 either full cooperators or complete free-riders.

Figure 4.5 also shows that in the condition with third-party punishment threat more subjects were full cooperators and fewer subjects were complete free-riders compared to the non-punishment condition. Furthermore, in the condition without third-party punishment threat the subjects contributed on average 9.03 CHF at time 1 (s.d. = 7.49), 10.03 CHF at time 2 (s.d. = 8.96), and 10.39 CHF at time 3 (s.d. = 9.44) of their 20 CHF endowment into the project. In the condition with third-party punishment threat the subjects contributed on average 11.18 CHF at time 1 (s.d. = 6.59), 11.84 CHF at time 2 (s.d. = 8.39), and 13.41 CHF at time 3 (s.d. = 8.64) into the project. The difference in cooperation between the two conditions is significant at a one percent level at time 1 (t = 3.15, p < .01), time 2 (t = 2.68, p < .01), and time 3 (t = 2.85, p < .01), indicating that if groups possess means to sanction selfish behavior, strongly reciprocal group members can create a credible punishment threat that greatly enhances the scope for cooperative norms in groups. The fact that no significant relationship was found between received punishment for uncooperative behavior at time t and cooperative behavior at time t+1 shows that often the pure punishment threat is sufficient to enforce cooperation in groups, thus rendering actual punishment unnecessary. Hypotheses 2a and 2b are therefore strongly supported by my empirical results. However, because all the subjects played the punishment game and the non-punishment game in the same order, I cannot control for order effects. A word of caution is therefore in order in interpreting these results.
4.4.3 Social Identities and Cooperative Group Norms

In the following sections, I will turn my attention to the antecedents of a diverse group's emphasis on cooperative norms. I explained in the methods section above that I used a composite measure that reflects individual level changes in third-party punishment as a measure of the evolution and strength of a cooperation norm in my groups. I also explained that I divided the six months of my study into two periods. In order to capture effects over time, I operationalized the measure of changes in third-party punishment, importance to identity (MBA class), importance to identity (nationality), private collective self-esteem (nationality), the GSS index, trustworthiness, managerial career orientation, and perceived value diversity as measures of changes between two points in time ($\Delta v_1$ and $\Delta v_2$). True friendship (close companionship) and self-respect (self-esteem) were measured at time 1 and assumed to be stable over the course of my six months study. Table 4.1 presents descriptive statistics and Cronbach's alpha coefficients for all aggregated measures for time 1-3. Table 4.2 and Table 4.3 present descriptive statistics and correlations among the variables for period 1 and period 2.

To test hypotheses 3-5 I performed several hierarchical regression analyses with individual level changes in third-party punishment (my measure of the strength of a cooperation norm) as dependent variable. In all the regressions, experimental earnings, managerial career orientation, and a dichotomous variable for class affiliation (0 = member of first MBA class; 1 = member of second MBA class) were entered as control variables in the first step. I used hierarchical multiple regression analysis, because analyses involving control variables require specification of a hierarchy of variables (Cohen & Cohen, 1975). Table 4.4 shows results of a hierarchical multiple regression analysis for period 1, while Table 4.5 presents the same results for period 2.
Table 4.1: Means, Standard Deviations, and Alpha Coefficients for Time 1-3

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>s.d.</td>
<td>α</td>
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<tr>
<td>Deduction points assigned on average</td>
<td>1.31</td>
<td>1.83</td>
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<tr>
<td>(Third-party punishment)</td>
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<td></td>
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<tr>
<td>Importance to identity (MBA class)</td>
<td>18.75</td>
<td>4.72</td>
<td>.656</td>
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<tr>
<td>Importance to identity (nationality)</td>
<td>17.23</td>
<td>6.19</td>
<td>.825</td>
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<tr>
<td>Private collective self-esteem (nationality)</td>
<td>22.84</td>
<td>5.65</td>
<td>.930</td>
</tr>
<tr>
<td>GSS index</td>
<td>4.75</td>
<td>.82</td>
<td>.706</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>5.69</td>
<td>.59</td>
<td>.706</td>
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<tr>
<td>Managerial career orientation</td>
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<td>.713</td>
</tr>
<tr>
<td>Perceived value diversity</td>
<td>2.71</td>
<td>.99</td>
<td></td>
</tr>
<tr>
<td>Experimental earnings</td>
<td>24.89</td>
<td>4.82</td>
<td></td>
</tr>
<tr>
<td>True friendship (close companionship)</td>
<td>6.08</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>Self-respect (self-esteem)</td>
<td>6.23</td>
<td>1.06</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) N = 67
The evolution of cooperative norms in diverse groups

**Table 4.2: Means, Standard Deviations, and Correlations Between Variables for Period 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<td>1 Δ Third-party punishment</td>
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<tr>
<td><strong>Controls</strong></td>
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<tr>
<td>2 Class</td>
<td>.53</td>
<td>.50</td>
<td>.19</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3 Experimental earnings from experiment 1</td>
<td>24.89</td>
<td>4.82</td>
<td>.33**</td>
<td>.21</td>
<td></td>
<td></td>
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<tr>
<td>4 Δ Managerial career orientation</td>
<td>-.12</td>
<td>.76</td>
<td>.13</td>
<td>.04</td>
<td>.25+</td>
<td></td>
<td></td>
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<tr>
<td><strong>Main Effects</strong></td>
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</tr>
<tr>
<td>5 Δ Importance to identity (MBA class)</td>
<td>-3.41</td>
<td>5.08</td>
<td>.24+</td>
<td>-.01</td>
<td>.05</td>
<td>-.03</td>
<td></td>
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<tr>
<td>6 Δ Importance to identity (nationality)</td>
<td>-.30</td>
<td>3.81</td>
<td>-.19</td>
<td>.07</td>
<td>-.04</td>
<td>-.06</td>
<td>.03</td>
<td></td>
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<tr>
<td>7 Δ GSS index</td>
<td>-.13</td>
<td>.72</td>
<td>.20</td>
<td>.12</td>
<td>-.12</td>
<td>.01</td>
<td>-.23+</td>
<td></td>
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<tr>
<td>8 Δ Trustworthiness</td>
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<td>.57</td>
<td>-.25+</td>
<td>.06</td>
<td>.09</td>
<td>.17</td>
<td>.05</td>
<td>-.11</td>
<td>.20</td>
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<td></td>
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<tr>
<td>9 Δ Perceived value diversity</td>
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<td>1.23</td>
<td>-.05</td>
<td>.03</td>
<td>-.16</td>
<td>-.10</td>
<td>-.19</td>
<td>.23+</td>
<td>-.24+</td>
<td>-.05</td>
<td></td>
<td></td>
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<tr>
<td>10 True friendship (close companionship)</td>
<td>6.23</td>
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<td>.05</td>
<td>.12</td>
<td>.06</td>
<td>.09</td>
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<td>-.04</td>
<td>.08</td>
<td>.03</td>
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<td>-.01</td>
<td>-.09</td>
<td>-.08</td>
<td>.10</td>
<td>.05</td>
<td>-.01</td>
<td>.15</td>
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\[ N = 67 \]

\[ I \] I defined the period between time 1 and time 2 as period 1. Variables with Δ are calculated as the difference between observed values at time 2 and time 1.

\[ + p < 0.1; * p < 0.05; ** p < 0.01 \]
### Table 4.3: Means, Standard Deviations, and Correlations Between Variables for Period 2

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<th>Variable</th>
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<th>7</th>
<th>8</th>
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<td>1 Δ Third-party punishment (^b)</td>
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<td>-.04</td>
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<td>.00</td>
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<td>.26(^*)</td>
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<td>-.02</td>
<td>.01</td>
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<td>.16</td>
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<td>.11</td>
<td>.19</td>
<td>-.21</td>
<td>-.11</td>
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<td>-.11</td>
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<tr>
<td>10 True friendship (close companionship)</td>
<td>6.23</td>
<td>1.06</td>
<td>-.24(^+)</td>
<td>.12</td>
<td>-.06</td>
<td>-.25(^+)</td>
<td>.09</td>
<td>-.25(^+)</td>
<td>-.07</td>
<td>.02</td>
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<td>-.04</td>
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\(^a\) \(N = 67\)

\(^b\) I defined the period between time 2 and time 3 as period 2. Variables with Δ are calculated as the difference between observed values at time 3 and time 2.

\(+ p < 0.1; * p < 0.05; ** p < 0.01\)
The evolution of cooperative norms in diverse groups

Table 4.4: Results of Hierarchical Multiple Regression Analysis for Period 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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</thead>
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<td>∆Third-party punishment</td>
<td>∆Third-party punishment</td>
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<tr>
<td>Controls</td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>Class</td>
<td>.13</td>
<td>.15</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Experimental earnings from experiment 1</td>
<td>.29*</td>
<td>.27*</td>
<td>.26*</td>
<td>.27*</td>
</tr>
<tr>
<td>∆ Managerial career orientation</td>
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<td>.05</td>
<td>.15</td>
<td>.18</td>
</tr>
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<td>Social Identities</td>
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</tr>
<tr>
<td>Δ Importance to identity (MBA class)</td>
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<td>.24*</td>
<td>.26*</td>
<td>.30**</td>
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<td>-.20</td>
<td>-.19</td>
<td>-.23*</td>
</tr>
<tr>
<td>Social Capital</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ GSS index</td>
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<td>.21+</td>
</tr>
<tr>
<td>Δ Trustworthiness</td>
<td></td>
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<td>-.38**</td>
<td>-.39**</td>
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<td>Perceived and actual value diversity</td>
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<td></td>
<td></td>
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<tr>
<td>Δ Perceived value diversity</td>
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<td>True friendship (close companionship)</td>
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<tr>
<td>Self-respect (self-esteem)</td>
<td></td>
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<td>.24*</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>2.76*</td>
<td>3.10*</td>
<td>4.41**</td>
<td>4.00**</td>
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<td>R² (Adjusted R²)</td>
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<td>.22 (.15)</td>
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<tr>
<td>Δ R²</td>
<td>.13+</td>
<td>.09*</td>
<td>.15**</td>
<td>.07+</td>
</tr>
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</table>

a  N = 67
b  I defined the period between time 1 and time 2 as period 1. Variables with ∆ are calculated as the difference between observed values at time 2 and time 1.
c  Experimental earnings from experiment 1.
+ p < 0.1; * p < 0.05; ** p < 0.01
Table 4.5: Results of Hierarchical Multiple Regression Analysis for Period 2

<table>
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<tr>
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<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
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<td>ΔThird-party punishment(^b)</td>
<td>ΔThird-party punishment(^b)</td>
<td>ΔThird-party punishment(^b)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
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<tr>
<td>Class</td>
<td>.20</td>
<td>.14</td>
<td>.21(^+)</td>
<td>.21(^+)</td>
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<tr>
<td>Experimental earnings from experiment 2</td>
<td>-.02</td>
<td>-.04</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>Δ Managerial career orientation</td>
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<td>.14</td>
<td>.22(^+)</td>
<td>.11</td>
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<td><strong>Social Identities</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ Importance to identity (MBA class)(^b)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ Private collective self-esteem (nationality) (^b)</td>
<td>-.36(^{**})</td>
<td>-.35(^{**})</td>
<td>-.42(^{**})</td>
<td></td>
</tr>
<tr>
<td><strong>Social Capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ GSS index (^b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ Trustworthiness (^b)</td>
<td>.37(^{**})</td>
<td>.32(^{**})</td>
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<td></td>
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<tr>
<td><strong>Perceived and actual value diversity</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Δ Perceived value diversity (^b)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>True friendship (close companionship)</td>
<td>-.19(^+)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Self-respect (self-esteem)</td>
<td>-.27(^*)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>1.10</td>
<td>3.53(^{**})</td>
<td>4.30(^{**})</td>
<td>4.17(^{**})</td>
</tr>
<tr>
<td>R(^2) (Adjusted R(^2))</td>
<td>.05 (.01)</td>
<td>.24 (.17)</td>
<td>.36 (.28)</td>
<td>.46 (.35)</td>
</tr>
<tr>
<td>Δ R(^2)</td>
<td>.05</td>
<td>.19(^{**})</td>
<td>.12(^*)</td>
<td>.09(^*)</td>
</tr>
</tbody>
</table>

\(^a\) N = 67

\(^b\) I defined the period between time 2 and time 3 as period 2. Variables with Δ are calculated as the difference between observed values at time 3 and time 2.

\(^c\) Experimental earnings from experiment 2.

\(^+\) p < 0.1; \(^*\) p < 0.05; \(^{**}\) p < 0.01
The results illustrate that there is a significant \((p < .05)\) and positive effect of experimental earnings at time 1 on changes in third-party punishment in period 1. Since the effect is positive I can conclude that the subjects did not punish others as a form of retaliation against the class for low earnings in the previous session.

I predicted that the salience of national identities has a negative impact \((H3)\) and that the salience of a collective group identity has a positive impact \((H4)\) on the evolution of cooperative norms in diverse groups. The first analysis of main effects therefore puts for period 1 importance to identity (nationality) and importance to identity (MBA class) and for period 2 private collective self-esteem (nationality) and importance to identity (MBA class) in step 2 of the hierarchical regression. Results show a significant improvement in model \(R^2\) in period 1 \((\Delta R^2 = .09)\) at \(p < .05\) and period 2 \((\Delta R^2 = .19)\) at \(p < .01\). Consistent with my proposition in hypothesis 3 I find for both periods a negative and significant relationship between changes in the salience of national identities and changes in third-party punishment \((\beta = -.23, p < .05 \text{ for period 1 and } \beta = -.42, p < .01 \text{ for period 2})\). Furthermore, in line with the proposition of hypothesis 4 I find for both periods a positive and significant relationship between changes in the salience of a collective group identity and changes in third-party punishment \((\beta = .30, p < .01 \text{ for period 1 and } \beta = .23, p < .05 \text{ for period 2})\). Hypotheses 3 and 4 are therefore both supported by my empirical results.

**4.4.4 Social Capital and Cooperative Group Norms**

Hypothesis 5 predicted that trust-based social capital has a positive impact on the evolution of cooperative norms in diverse groups. The second analysis of main effects therefore puts the GSS index and the self-reported measure of trustworthiness in the third step of the hierarchical regression. Entering the measures of social capital in model 3 results in a significant improvement at the one percent level in model \(R^2\) in period 1 \((\Delta R^2 = .15)\) and at the five percent level in period 2 \((\Delta R^2 = .12)\). In line with the proposition of hypothesis 5 I find for both periods a positive and significant relationship between my measure of changes in general trust attitudes, i.e. the GSS index, and changes in third-party punishment \((\beta = .21, p < .10 \text{ for period 1 and } \beta = .32, p < .01 \text{ for period 2})\). In contrast to predictions of hypothesis 5, however, I find for period 1 a negative and at the one percent level significant relationship between
changes in self-reported trustworthiness and changes in third-party punishment ($\beta = -.39$). This effect disappeared in the second period of group interaction. The reason for the negative effect of the trustworthiness variable is, of course, that I used a self-reported measure of trustworthiness, which is prone to a self-presentation and social desirability bias. Glaeser et al. used the same measure and found that self-reported trustworthiness was negatively (but insignificantly) related to actual trustworthiness and note: "(w)e are not surprised that those people who are willing to admit to being untrustworthy are not the least trustworthy of our subjects" (2000: 833). It therefore appears that those who admit to being untrustworthy to a certain degree are more honest and thus more trustworthy than subjects who say that they are trustworthy. My self-reported measure therefore assessed subjects’ motivation (or lack thereof) to be honest and honesty and truth telling are part of the norms that produce social capital and allow members of a group to cooperate (Fukuyama, 1995). Overall, my empirical data thus support hypothesis 5.

4.4.5 Perceived and Actual Value Diversity

Finally, I was interested in analyzing the impact of actual and perceived value diversity on the evolution and enforcement of cooperative group norms. The third analysis of main effects therefore puts perceived value diversity and the two terminal values that showed significant effects in the preliminary correlation analysis, i.e. true friendship (close companionship) and self-respect (self-esteem), in the last step of the hierarchical regression. Results show a significant improvement in model $R^2$ in period 1 ($\Delta R^2 = .07$) at $p < .10$ and period 2 ($\Delta R^2 = .09$) at $p < .05$. I find in period 1 a positive and significant relationship between self-esteem and changes in third-party punishment ($\beta = .24$, $p < .05$). This effect disappeared in the second period of group interaction. In period 2 I find for both true friendship ($\beta = -.27$, $p < .05$) and changes in perceived value diversity ($\beta = -.19$, $p < .10$) a negative and significant relationship with changes in third-party punishment. Self-esteem had therefore only a significant effect in period 1, while true friendship and changes in perceived value diversity had only a significant effect in period 2.
Overall, my independent variables help to explain 33 percent of the variance in changes in third-party punishment in period 1 (adjusted $R^2 = .33, p < .01$) and 35 percent of the variance in period 2 (adjusted $R^2 = .35, p < .01$).

4.5 Discussion

The purpose of this exploratory study was to investigate the evolution of cooperative norms in diverse groups over time. Results of my research indicate that in diverse groups cooperative norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction. This outcome is in contrast to findings from Bettencourt and Murnighan (1985) who showed that group norms formed early in homogeneous groups, often before a group's members adequately understood their tasks. I argue that in diverse groups the norm formation process takes longer, because members of heterogeneous groups have to overcome dissimilarity of cognitive schemata first before they can develop and learn shared normative standards of group behavior. This reasoning is in line with Van Knippenberg et al.'s (2004) argumentation that heterogeneous groups need extended tenure before the positive effects of diversity emerge. Chatman and Flynn (2001) suggest that past researchers have overemphasized the direct influence of diversity and neglected to consider the influence of cooperative group norms on work processes. A group’s emphasis on cooperative norms allows heterogeneous group members to make use of their broader range of knowledge, skills, and abilities that are presumed to drive the positive effects of diversity. Findings from past research that diverse groups need more time to work together effectively than homogeneous groups may therefore not only be attributed to social categorization processes (e.g., Harrison et al., 1998; Harrison et al., 2002; Van Vianen et al., 2004), but also to the fact that cooperative group norms take longer to evolve in diverse settings.

In line with previous findings my research indicates that the interaction between strongly reciprocal and selfish individuals is essential for the understanding of human cooperation. My results also show that if groups possess means to sanction selfish behavior, strongly reciprocal group members can create a credible punishment threat that greatly enhances the scope for cooperative norms in groups. In fact, it has been argued that even a small minority of strongly reciprocal individuals can enforce high
The evolution of cooperative norms in diverse groups

levels of cooperation in a group of self-interested individuals by punishing those who defect (Fehr & Schmidt, 1999). These are important findings, because they demonstrate how organizations can foster cooperation by emphasizing control within rather than from outside the group and by facilitating team self-management through self-observation, self-evaluation, and self-reinforcement. I have argued before that those who cooperate are typically strong reciprocators because they dislike being exploited and are therefore willing to bear the costs of punishing non-cooperators. A group’s emphasis on cooperative norms in combination with team self-management and peer-based control will therefore increase intra-group cooperation by encouraging group members to work collaboratively and, as a result of higher cooperation, by increasing the scale of punishment of those who resist attempts to foster teamwork (see Figure 4.6). By emphasizing cooperative group norms and by organizing work groups as teams of peers who are all equally responsible for managing their own work behaviors, a form of control can be created that is "more powerful, less apparent, and more difficult to resist" (Barker, 1993: 408) than any hierarchical form of control. In the managerial implications section below I will discuss ways to facilitate team-self management and peer-based control.

Figure 4.6: Cooperative Group Norms and Peer-Based Control
Figure 4.6 illustrates that collective group identification plays a central role in this process. Towry (2003), for example, found that a strong collective group identity increased the level of coordination among group members and thus enhanced the effectiveness of peer-enacted control systems. Furthermore, results of my study suggest that a salient group identity fosters the recategorization of demographically dissimilar subjects as fellow in-group members and therefore strengthens cooperative norms in diverse groups. My results, however, also suggest that salient national identities enhance in-group/out-group distinctions and therefore hamper the evolution of cooperative norms in diverse groups. The fact that national identities and organizational group identities are two competing social categories can be observed by comparing effects of period 1 and 2. While collective group identification had a stronger impact on changes in third-party punishment in period 1, the weaker effect of group identity in period 2 was substituted by stronger effects of national identities. These findings therefore provide support for the claim that national identities have important psychological implications and can affect organizational group members’ preferences and behaviors (e.g., Scheibe, 1983).

In line with my theoretical reasoning I identified trust-based social capital as an individual level antecedent of a group’s emphasis on cooperative norms. My finding that changes in trust-based social capital predicted the evolution and enforcement of cooperative group norms provides support for the argumentation that social capital is an important determinant of cooperation and that trust can lead to the development of generalized norms of cooperation (e.g., Nahapiet & Ghoshal, 1998). Finally, as part of the exploratory approach of this research, a number of other things were tried in order to find relationships between independent variables and a group’s emphasis on interdependence and cooperation. While managerial career orientation did not predict the subjects’ willingness to enforce cooperation in groups, but was controlled for in the analysis, actual and perceived value diversity had an impact on the strengths of cooperative group norms. Perceived value diversity had a moderately negative effect in period 2, suggesting that perceptions of shared values can indeed result in a desire to cooperate (e.g., Jones & George, 1998). This result is furthermore consistent with findings of other research showing that the effects of deep-level diversity take time to emerge (e.g., Harrison et al., 1998; 2002).
The statistical analysis also revealed that individual differences in the subjects' ratings of the importance of true friendship (close companionship) and self-respect (self-esteem) predicted the development of group norms emphasizing cooperation. While previous research has yielded conflicting evidence on the magnitude and direction of the relationship between self-esteem and cooperativeness (e.g., Kagan & Knight, 1979; Lu & Argyle, 1991), perceived importance of self-esteem was positively associated with the evolution and enforcement of cooperative norms in period 1 of my study. This finding is in line with research showing that individuals who believe to be a valued part of their group or organization, that is, individuals with high self-esteem are more likely to engage in behaviors that make a difference in the organization, such as enforcement of collective group norms. Korman (1970), for example, argues that high self-esteem fosters positive attitudes and behaviors toward others and will accordingly increase subjects' willingness to get involved and contribute to the organization. Whereas the positive effect of self-esteem disappeared in the second period of group interaction, perceived importance of true friendship had only in period 2 a significant and negative effect. I can only speculate that subjects emphasizing true friendship perceive close companionship as more important than the enforcement of cooperative group norms and are therefore less likely to punish peer group members. Furthermore, since friendship takes time to develop, this effect was only significant in period 2. Thus, the potentially positive effects of close friendship and companionship on team social integration may only obtain up to a certain level, beyond which the negative effect on the evolution and enforcement of collective group norms may outweigh the positive effects of team social integration. While the results of my exploratory study reveal some interesting effects of actual and perceived value diversity, future research should continue to investigate their effects on the strengths of cooperative group norms.

4.6 Managerial Implications

The present study offers a number of implications for practitioners trying to manage diversity in groups effectively. As a first step, it is important to recognize that cooperative group norms mediate the relationship between group composition and group outcomes. Results of my research indicate that emphasizing cooperative group norms and facilitating team-self management and peer-based control is a feasible
strategy for counteracting the potentially negative effects of diversity. My study shows that cooperative group norms can be strengthened in diverse groups by fostering a collective group identity while deemphasizing social identities that divide group members (i.e., national identities), by developing and maintaining group members’ social trust, and by taking the effects of perceived and actual value diversity into account. The present research, however, also suggests that managers have to be patient in expecting good results because the learning process underlying the evolution of cooperative norms takes time in heterogeneous groups. Team-self management and peer-based control, on the other hand, can be facilitated by a strong collective group identity (Towry, 2003), by establishing peer-based control instead of supervisor-based control (Dumaine, 1990), by using team-based compensation schemes (DeMatteo, Eby, & Sundstrom, 1998) and lateral control regimes (Lazega, 2000).

From a practical standpoint, this study provides evidence on the usefulness and centrality of a strong collective group identity for the evolution and enforcement of cooperative group norms. Consequently, it is important that managers activate group members’ collective identity by supporting and recognizing the group, by allocating members' full-time to the group (e.g., Scott, 1997), by setting collective goals among group members and by creating the right mix of task and goal interdependence (e.g., Van der Vegt et al., 2003), and by installing powerful and influential group leaders (Scott 1997).

4.7 Conclusions
Responding to calls for more empirical research on the specific factors that cause cooperative group norms to emerge in diverse groups, I conducted a longitudinal study that examined the impact of social identities and social capital on the evolution and enforcement of cooperative norms over time. My results indicate that in heterogeneous groups cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction and that the evolution of cooperative norms is a result of the interaction between strongly reciprocal and selfish group members. Furthermore, my findings indicate that a salient collective group identity and trust-based social capital can lead to group norms emphasizing cooperation, while salient national identities are detrimental to a group's emphasis on interdependence and
The evolution of cooperative norms in diverse groups

cooperation. I also found that actual and perceived value diversity had an impact on the strengths of generalized norms of cooperation. Though exploratory, this research should be a good starting point for future research on the effects of competing social identities, social capital, and actual and perceived value diversity on the evolution of cooperation norms.

Turning to the issue of generalizability, it is important to note that the laboratory nature of the task necessarily limits the direct generalizability of the findings to more complex organizational settings. I attempted to address the lack of external validity by drawing the participants for my study from an MBA program that is highly selective, only admitting candidates with substantial work experience. Nevertheless, while complementing survey research by controlled experiments allows for superior investigation of group processes (Weingart, 1997), field studies are an important complement to any laboratory research.
5 Diagnosing Diversity Issues and Determining Optimal Training: The Advantages of Experiential Games
Diagnosing Diversity Issues and Determining Optimal Training: The Advantages of Experiential Games

ABSTRACT
While diversity training is widely used, there is a lack of rigorous evaluations that determine the most appropriate diversity training method for a given context. The present article introduces a framework that describes how experiential games adopted from economic game theory can help to diagnose different types of diversity issues and to determine optimal diversity training methods accordingly. I address the two most prominent sources of discrimination and mistrust based on demographic group affiliations, i.e. stereotypes and prejudice.

Keywords: Trust; Diversity; Training
5.1 Introduction

The emerging global and multicultural workplace, the intensified use of cross-functional teams, and the increased reliance on non-traditional workforce talent, highlight the importance of making diversity a top business priority. Accordingly, companies and universities are recognizing the need to prepare their employees and students for an increasingly diverse workplace. In 2005 about two-thirds of U.S. employers provided some form of diversity training for employees (Compensation & Benefits for Law Offices, 2006). In the same tenor educators seek to develop students’ diversity management skills already before they enter the workplace (Day & Glick, 2000). Diversity training is undoubtedly permeating the education and work environment and has long been identified as a source of competitive advantage in the global marketplace (Cox, 1991; Louw, 1995; Rynes & Rosen, 1995; Wentling & Palma-Rivas, 1998).

Unfortunately, research on the effectiveness of diversity training is scarce. Jackson et al. (2003: 822) argue in favor of more research in order to understand "how the design and context of diversity training influences program effectiveness". Many diversity training programs are not designed on established theory or empirical evidence (Paluck, 2006) and there is a serious lack of rigorous evaluations that determine the adequacy and the impact of different types of diversity trainings (Roberson et al., 2001; Stephan & Stephan, 2001). When evaluations are conducted, successful programs are typically defined as those that trainees simply evaluate as useful (Bhawuk & Triandis, 1996; Roberson et al., 2001). Training evaluations focused solely on trainees’ qualitative feedback ignore, however, other outcomes such as affective or behavioral changes. In order to improve the theory and practice of diversity training, Paluck (2006: 579) therefore suggests that "(a) clear theoretical rationale for predictions about the implementation and outcomes of diversity training: for whom, when, for how long, with which methods, and to what ends" is needed.

The present article contributes to this line of research by introducing a framework that describes how experiential games adopted from economic game theory can help to establish such a theoretical rationale. First, by diagnosing diversity issues, the framework helps to determine for whom and when diversity training is necessary.
Second, by precisely distinguishing between stereotypes and prejudice, the framework provides guidance in defining the ends of the training and in determining the most appropriate diversity training methods. The overall aim of this article is to help put diversity training on more solid theoretical and empirical grounds.

The remainder of the article is structured as follows: First, some popular forms of diversity training are discussed. Next, I explain how experiential games can help to diagnose stereotypes and prejudices in order to determine for whom, when, with which methods, and to what ends diversity training is necessary. Finally, I will make some concluding remarks.

5.2 A Structured Approach to Diversity Training

Diversity training methods can be classified along a continuum from instructional to experiential training methods (Gudykunst & Hammer, 1983; Lindsay, 1994; Stephan & Stephan, 2001). Instructional training methods supply information and heighten awareness of the potential benefits and problems associated with diversity. By providing information about demographically dissimilar groups, instructional methods are particularly suitable to replace myths and stereotypes (cf. Rothbart 1981). Experiential training methods take a personalized and participatory approach and often involve positive contact and interaction with members of demographic groups other than one’s own. If such interactions are structured properly, experiential methods are particularly suitable to reduce prejudice (Allport, 1954; Dovidio, Gaertner, & Kawakami, 2003; Smith & Schonfeld, 2000). Table 5.1 summarizes some of the most commonly used instructional and experiential diversity training methods in an educational context. For an excellent discussion of each of these methods see Avery and Thomas (2004).
Table 5.1: Instructional and Experiential Diversity Training Methods

<table>
<thead>
<tr>
<th>Type</th>
<th>Method</th>
<th>Potential Resources</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Methods</td>
<td>Lecture</td>
<td>Mulligan &amp; Kirkpatrick (2000)</td>
<td>Providing information &amp; knowledge</td>
</tr>
<tr>
<td></td>
<td>Readings</td>
<td>DeVita &amp; Armstrong (2002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Film</td>
<td>Mallinger &amp; Rossy (2003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Role-playing</td>
<td>Mercado (2000)</td>
<td>Applying acquired knowledge</td>
</tr>
<tr>
<td></td>
<td>Simulations</td>
<td>Hames (1998)</td>
<td></td>
</tr>
<tr>
<td>Experiential Methods</td>
<td>Immersion experience</td>
<td>Serey (1994)</td>
<td>Providing meaningful contact and interaction with demographically dissimilar others</td>
</tr>
<tr>
<td></td>
<td>Team projects</td>
<td>DiTomaso, Kirby, Milliken, &amp; Triandis (1998)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service learning</td>
<td>Godfrey (1999)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jigsaw assignments</td>
<td>Brewer &amp; Miller (1996)</td>
<td></td>
</tr>
<tr>
<td>Instructional &amp;</td>
<td>Guest speakers</td>
<td>Humphreys (2002)</td>
<td>Providing information, knowledge, &amp; contact</td>
</tr>
<tr>
<td>Experiential Methods</td>
<td>Case studies</td>
<td></td>
<td>Applying acquired knowledge in diverse group settings</td>
</tr>
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</table>
How can we determine which diversity training methods are most appropriate for a given context? We need a structured approach that systematically answers the following questions: for whom and when is diversity training necessary, and with which methods and to what ends should it be implemented? Figure 5.1 shows the organizing framework for this paper that describes how experiential games adopted from economic game theory can help (1) to diagnose discrimination and mistrust within organizations; (2) to precisely distinguish between stereotypes and prejudices; (3) to determine to what extent existing stereotypes actually hold true; and (4) to identify the most adequate diversity training methods to address these problems.
Diagnosing diversity issues and determining optimal training

Figure 5.1: A Structured Approach to Diversity Training

1. Diagnosing diversity issues
2. Determining optimal diversity training methods
5.3 For Whom and When

While diversity training is often used as a preventive measure that aims at developing trainees’ ‘diversity management competency’ (Avery & Thomas, 2004) before specific diversity issues arise, it can also be used as a 'prejudice reduction and social inclusion intervention' (Paluck, 2006) after problems have been detected. In order to know for whom and when diversity training is necessary, it is therefore important to control for specific diversity related issues on a regular basis.

5.3.1 Interpersonal Trust: An Early Indicator of Diversity Related Problems

Although research has established long-term advantages of diversity in work groups (e.g., Jackson et al., 2003; Williams & O'Reilly, 1998), other research has suggested that "(i)n the short run, … immigration and ethnic diversity tend to reduce social solidarity and social capital" (Putnam, 2007: 137). The latter research indicates that one way of diagnosing diversity issues within diverse groups or organizations is to detect suspicion and mistrust against certain identity groups. Trust is interesting because it is an essential aspect of working well together (Williams, 2001). Interpersonal trust is the basis for cooperation and coordinated social interactions (Blau, 1964; Coleman, 1988) and contributes to more effective work teams within organizations (Lawler, 1992). However, especially in diverse groups, stereotyping, distrust, and competition occur and interfere with group functioning (e.g., Adler, 1986; Cox, 1993). According to self-categorization theory (Turner, 1987), the perception of 'surface-level' demographic characteristics like sex, race, nationality, or age is sufficient to trigger a subconscious categorization of peer group members as either ingroup or outgroup (Tsui et al., 1992). In diverse groups, this subconscious tendency of individuals to sort each other into social categories disrupts group dynamics, since outgroup members evoke more distrust and competition than ingroup members (Hogg et al., 1993). Williams (2001: 377) argues that "it is often difficult to develop trust and cooperation across group boundaries, because people frequently perceive individuals from other groups as potential adversaries with conflicting goals, beliefs, or styles of interacting". The development of trust and cooperation within diverse environments is a highly sensitive process and low or diminishing levels of interpersonal trust are therefore often early indicators of diversity related problems.
5.3.2 The Trust Game: Measuring Discrimination and Mistrust

The experiential games described in this article are adopted from economic game theory. In these games pairs of subjects make decisions in controlled settings. Games are usually played among anonymous individuals who play once, for real money, without communicating. Subjects are offered real monetary incentives to ensure that their behavior in the games represents what they would do if given the task for real (Harrison, 1994; Wilcox, 1993). Care is taken that subjects will not know the identity of the person they are playing with, since this knowledge might influence what they do for many reasons (Hoffman, McCabe, Shachat, & Smith, 1994). As it is known that the framing of such games can influence subjects' decisions (Andreoni, 1995), the games are usually explained in plain, abstract language, using numbers or letters to represent strategies rather than concrete descriptions. At the end of a game, subjects usually receive feedback on what the subject they are paired with has done and are paid their actual earnings. For more methodological details see Camerer (2003).

A simple game to measure trust is the trust game, proposed by Berg et al. (1995). The trust game is a two-player game with one player taking the role of an investor and the other player taking the role of a trustee. At the beginning of the game, both investor and trustee receive an amount of money X from the game facilitator. However, only the investor can then send between zero and X to the trustee. The amount sent by the investor (y) will be tripled by the game facilitator so that the trustee has 3y (in addition to the endowment of X). The trustee is then free to send any amount between zero and 3y back to the investor. If z denotes the final transfer from the trustee to the investor, the payoff of the investor is X – y + z, while the payoff of the trustee is X + 3y – z. In such a game, gains are obtainable through cooperation. However, the investor who transfers a positive amount bears the risk of being exploited by the trustee, who has no monetary incentive to transfer anything back to the investor. An investor who still transfers a positive amount trusts that the trustee will give back enough to make his or her initial trust worthwhile. The amount y sent by the investor measures the amount of trust, while the amount z returned by the trustee measures trustworthiness. Both z and y serve as an indication of the two players’ ability to cooperate. Psychologists and sociologists have criticized that this two-person one-shot game does not capture all there is to trust because it does not include many aspects that may support or affect trust, such as communication, relationships, or social sanctions. However, as Camerer
Diagnosing diversity issues and determining optimal training

(2003) argued, this is exactly the point: the game is a plain measure of pure trust and therefore a useful tool for diagnosing diversity issues.

It is important to note that this game is played anonymously, that is, neither the investor nor the trustee know anything about the identity of the person with whom they are matched. The amount of information given to the subjects is manipulated by the game facilitator. Depending on the demographic attribute under investigation, the facilitator provides a single piece of information about either gender, ethnicity, nationality, religion, or even organizational affiliation of the opponent. In particular, this game is administered as an anonymous pencil-and-paper exercise, that is, subjects receive a sheet of paper on which they have to indicate their decision. By using pencil and paper the game can be run in non-laboratory environments like classrooms and can be played independently at different locations and different points in time. The information about the person with whom the subjects are matched is written at the bottom of the decision sheet (either the person’s race, or sex, or religion, etc., no further information). By not revealing more than a single attribute, the facilitator ensures that participants are identical on all but one dimension. Since gains are obtainable through cooperation and subjects are assumed to prefer more money to less, we can assume that transfer distribution differences in the trust game are due to this one dimension. For instance, if the amount of money transferred to trustees of a certain ethnic group (e.g., Hispanics) is significantly lower than that transferred to trustees of other ethnic groups (e.g., Asians), then this can be taken as a clear indication for higher discrimination and mistrust against members of this particular group (e.g., Hispanics).

The trust game is therefore a powerful measure of discrimination and mistrust based on demographic group affiliations (c.f. Fershtman & Gneezy, 2000; 2001). If this simple game is played in big number studies with members of diverse groups or organizations, one can assess players’ attitudes to trust people who belong to demographic groups other than their own and by this detect suspicion and mistrust against certain identity groups. Fershtman and Gneezy, for example, used the trust game to analyze discrimination and mistrust between members of the Sephardic (i.e., Asian and African) and Ashkenazic (i.e., American and European) Jewish
Diagnosing diversity issues and determining optimal training


\textbf{5.4 With Which Methods and to What Ends}

The trust game is an elegant method to reveal discrimination and mistrust; however, it says little about the reasons or the level of discrimination. Yet, the level of discrimination defines the ends of the training and by this the most appropriate diversity training methods. Discrimination is, according to social psychological theory, a result of stereotyping that promotes prejudice, which in turn promotes discrimination (cf. Dovidio, Brigham, Johnson, & Gaertner, 1996; Mackie & Smith, 1998). Stereotypes have been identified with beliefs about an out-group, e.g. "most people with mental illness are dangerous" and "Henrietta is mentally ill, so she is likely to be dangerous"\textsuperscript{12}. They are standardized, commonly held perceptions of a group of people and involve certain expectations pertaining to various types of characteristics that are used to predict the behavior of the members of this group (Ashmore & Del Boca, 1981; Fiske, 1998; Hamilton & Sherman, 1994). Prejudice, on the other hand, has been identified with the perceiver's attitude toward an out-group and can reflect feelings such as dislike, anger, disgust, discomfort, fear, and even hatred against these people (Allport, 1954), e.g. "that's right, all mentally ill are dangerous, and I'm scared of them".

While the usually accepted direction of causality is that stereotypes cause prejudice, some theorizing suggests that prejudice may in fact dictate stereotypes (Dovidio et al., 1996; Schaller & Maass, 1989). The crux here is that discrimination can exist at different levels, with prejudice going much farther than stereotyping since it involves the development of an emotional reaction. Distinguishing between stereotypes and prejudice is important, since reducing prejudice demands different approaches than changing stereotypes. It is therefore essential to define the ends of the training: changing stereotypes vs. reducing prejudice, in order to be able to determine optimal diversity training methods.

\textsuperscript{11} In their study of Sephardic and Ashkenazic Jews, Fershtman and Gneezy (2001) provided participants with nothing more than the family name of the person with whom they were matched. Typical ethnic family names provide a good indication of ethnic affiliation in Israel.

\textsuperscript{12} Examples adopted from Corrigan, Edwards, Green, Diwan, and Penn (2001).
5.4.1 The Dictator Game: Distinguishing Between Stereotypes and Prejudice

While the trust game can be used to detect discrimination and mistrust, the dictator game helps to identify the reasons or the level of discrimination by distinguishing between stereotypes and prejudice. The dictator game is a two-player game with one player taking the role of a dictator and the other player taking the role of a recipient (Kahneman, Knetsch, & Thaler, 1986). However, the game is actually a one person decision task: one player, the dictator, receives an amount of money X from the game facilitator and dictates how to distribute the money between him- or herself and the recipient. The recipient in this game is a passive player who does not have any strategic role.

It is important to note here as well that neither the dictator nor the recipient know anything about the identity of the person with whom they are matched. The amount of information given to the subjects is again manipulated by the game facilitator according to the demographic attribute under investigation. Since the recipient in the dictator game is a passive player devoid of any strategic role, stereotypes, which may provide expectations regarding his or her strategic behavior during the second stage of the game (which are important in the trust game), have no effect in this game. This means that any transfer distribution differences in the dictator game must be due to prejudice (c.f. Fershtman & Gneezy, 2001).

Thus, by comparing the transfers in the trust game with those of the dictator game, one can distinguish between stereotype-based and prejudice-based discrimination and mistrust. Transfers in the trust game are strategic investments involving trust. Investors who transfer a positive amount expect the trustee to cooperate as well and therefore trust him or her not to exploit them. Transfers in the dictator game, on the other hand, are pure donations involving empathy for the recipient, who otherwise would walk out of the game without any earnings.

For instance, if in the trust game the average amount of money transferred to trustees of a certain identity group is significantly lower than the amount transferred to trustees of other identity groups, this can either be the outcome of stereotypes concerning the trustworthiness of this group or the result of a taste for discrimination. In case of
Diagnosing diversity issues and determining optimal training

stereotypes, subjects have an impression that members of this group might be uncooperative, selfish, or untrustworthy and use this stereotype in the trust game to predict that trustees of this group will return only small amounts and therefore do not invest in the first place. It is important to note that stereotypes are only vague beliefs or perceptions about a certain identity group, they do not necessarily constitute a negative feeling. In case of a taste for discrimination, "individuals are willing to sacrifice money, wages, or profits in order to cater to their prejudice" (Fershtman & Gneezy, 2001: 351). Prejudice, therefore, is a pure matter of liking or disliking.

The dictator game can help to distinguishing between stereotypes and prejudice. In contrast to the trust game, the dictator in the dictator game can make his or her decision free of considerations about the recipient’s possible reaction. Stereotypes, which provide expectations of uncooperative or selfish responses, therefore provide no explanation for the dictator’s behavior. If the majority of dictators decide to share some of their endowment with one ethnic group but not with the other, then this is a pure question of liking or disliking. Hence, if transfer distribution differences exist in the trust game but not in the dictator game, this must be due to stereotypes. However, if transfer distribution differences exist in both the trust and the dictator game, this must be due to prejudice.

Fershtman and Gneezy, for example, used the dictator game to distinguish between stereotype-based and prejudice-based discrimination in their analysis of the relationships between secular and religious Jews (2000) and between Sephardic and Ashkenazic Jews (2001) in Israel. In the first study, they found that the transfers of secular players to religious partners were lower than the transfers to secular players both in the trust and dictator game and concluded that in this case the initially found discrimination was due to prejudice of secular Jews against religious Jews. In the second study, Fershtman and Gneezy found no transfer distribution differences between Sephardic and Ashkenazic Jews in the dictator game and concluded that in this case the initially found discrimination in the trust game was due to stereotypes against Sephardic Jews and not due to prejudice.
5.4.2 Determining Optimal Diversity Training Methods

Defining the ends of the training (changing stereotypes vs. reducing prejudice) is important for determining optimal diversity training methods, since reducing prejudice requires different approaches than changing stereotypes.

The most common approach to changing stereotypes is to provide individuals with stereotype-inconsistent or disconfirming information. The theoretical rational behind this approach is based on Rothbart’s (1981) cognitive models of stereotype change, i.e. the bookkeeping model and the conversion model. The bookkeeping model posits that stereotypes are continually open to revision and change incrementally if there is a steady stream of disconfirming information. Any single piece of disconfirming information leads to a small change in the stereotype, while major changes occur gradually. According to the conversion model, stereotype change occurs suddenly and in a radical fashion, but only after some critical level of disconfirming information has been encountered, while minor disconfirming information will lead to no change. A more moderate version of this model predicts substantial change if new information has dramatically disconfirmed the stereotype, but allows for modest change in response to less extreme disconfirmation (see Johnston & Hewstone, 1992).

While these approaches dispute the critical level of disconfirming information that has to be encountered to allow for stereotype change, they do agree on the notion that disconfirming information can substantially change stereotypes. Instructional training methods such as lectures or readings can provide participants with stereotype-inconsistent or disconfirming information about demographically dissimilar groups and are therefore particularly suitable to change stereotypes.

Prejudice goes much farther than stereotypes since it involves emotional components such as negative attitudes or feelings against the members of a certain group (Allport, 1954). Whereas stereotypes involve aspects such as beliefs, perceptions, and thoughts, which can be changed by providing appropriate information, reducing prejudicial attitudes often requires personal contact, experience, and interaction with members of the discriminated demographic group (Allport, 1954; Dovidio et al., 2003; Smith & Schonfeld, 2000). One of the oldest hypotheses in intergroup relations research, Allport’s (1954) contact hypothesis, proposes that contact between members of
Diagnosing diversity issues and determining optimal training
different groups who come together under the optimal conditions of equal status,
common goals, personal intimacy, and institutional support will result in a reduction of
prejudice between these groups and an increase in positive attitudes (see also Amir,
1969; Cook, 1971). Experiential training methods such as immersion experience, team
projects, or service learning take a personalized and participatory approach and
involve contact and interaction with members of demographic groups other than one’s
own. If structured properly, experiential methods are therefore particularly suitable to
reduce prejudice.

5.4.3 Who Discriminates Against Whom: True vs. Untrue Stereotypes
If it turns out that discrimination is due to stereotypes, a last question would be
whether these stereotypes actually hold true or not. Consider the following example:
by conducting a trust game a university observes that the amount of money transferred
to trustees of a certain ethnicity is significantly lower than that transferred to trustees
of other ethnicities. A dictator game provides evidence that this discrimination is due
to stereotypes. By examining the actual responses of the affected trustees in the trust
game, one can easily determine whether the stereotype is true or not. If the
'discriminated' trustees indeed transfer significantly less money back than other
trustees, the stereotype is true and the assessment therefore accurate. However, if
return levels do not differ significantly, the stereotype is untrue. Fershtman and
Gneezy (2001), for example, detected a systematic discrimination and mistrust against
Sephardic men that was due to mistaken ethnic stereotypes. Ethnic affiliation is just
one example here, one could also think of suspicion, distrust, and animosity between
members of different functional areas within a large corporation. Stereotypes of group
A against group B may well be justified in this case, since members of group B indeed
refuse to cooperate with members of group A. In this case, diversity training should
concentrate not only on the justified perceptions of group A, but also on the reasons
for the behavioral pattern of group B.

5.5 Concluding Remarks
The framework presented in this article helps to put diversity training on more solid
theoretical and empirical grounds by more adequately addressing sources of diversity
tensions and by reestablishing the link between cause and effect.
Diagnosing diversity issues and determining optimal training

Research on nonconscious stereotyping strongly suggests that simply asking people to self-report on their stereotypes and prejudices will, at best, provide an incomplete understanding of their biases (e.g., Hilton & von Hippel, 1996). The experiential games introduced in this article offer, in contrast, an indirect approach by unobtrusively measuring participants’ actual behavior, while avoiding self-presentation- and social desirability biases that typically plague qualitative measures. My approach is based on the assumption that social category labels and stereotypes respectively prejudices are connected in memory through associative links. Such negative feelings are automatically activated upon exposure to the social category, for example, by perceiving a member of a certain demographic group or by thinking about this group (Banaji & Hardin, 1996; Devine, 1989). Experiential games reduce the potential for self-presentation by directly exposing subjects to members or some symbolic equivalent of certain groups. Because the traits and beliefs associated with this group become quickly accessible upon exposure, subjects are unable to prevent the activation of related stereotypes and prejudices (Stangor, 2000).

Finally, it is important to note that trust games and dictator games are both meant for big number studies. They can inform the design and implementation of diversity trainings in universities or corporations by identifying larger trends in a certain population. In combination, these games can help to determine which identity groups are on average most discriminated and mistrusted by their colleagues. Furthermore, they can help to distinguish between stereotype-based and prejudice-based discrimination, to determine to what extent existing stereotypes on average hold true, and to identify the most adequate diversity training methods to address these problems. Finally, experiential games can also be used as an exercise and educational tool to let trainees and students experience and reflect on their own unconscious stereotypes, automatic associations, and subtle prejudices that they may harbor against demographically different others (cf. Fershtman & Gneezy, 2001).
6 Conclusions

The present thesis investigated the effects of diversity on the development of trust and cooperation in heterogeneous groups. The main message of this dissertation is that the evolution of trust and cooperation in diverse groups does not only have objective, cognitive antecedents but also subjective, affective foundations. An individual’s decision to trust and cooperate is significantly affected by the degree of perceived diversity and the salience of competing social identities. Managing people's beliefs and perceptions, and activating group members’ collective identity is therefore fundamental for achieving high levels of trust and cooperation in diverse groups.

6.1 Summary of Conclusions

A literature review identified a number of research gaps and methodological issues that guided the selection of topics to be covered in the current thesis. Responding to calls for more empirical research on the dynamic nature of the trust development process in diverse settings, the second essay explored the different factors influencing the evolution of trust in heterogeneous groups. My results indicate that the salience of national and collective group identities, changes in perceived deep-level diversity, and outcomes of past trusting behaviors are important factors influencing trust development in diverse groups. These findings might improve our understanding of diversity dynamics. I argue that for the evolution of trust and cooperation in groups that accept surface-level diversity as part of their group identity (i.e., groups with positive attitudes toward diversity) a good match of group members’ deep-level characteristics can be more critical than a good match of surface-level characteristics. Furthermore, my findings indicate that beliefs about peer trustworthiness mediate the relationship between behavioral trust and its cognitive and affective antecedents. The belief dependence of behavioral trust therefore renders the management of beliefs and perceptions in diverse groups important. Results from the second essay suggest that emphasizing a common group identity, deemphasizing national identities, and decreasing perceived diversity can help to foster positive beliefs about peer trustworthiness. Optimistic beliefs, in turn, will increase trust and cooperation and hence improve the performance of diverse groups.
The third essay responded to calls for more research on the specific factors that cause cooperative group norms to emerge in heterogeneous groups. A longitudinal study examined the impact of social identities and social capital on the evolution and enforcement of cooperative norms over time. My results indicate that in diverse groups cooperative group norms strengthen and the degree to which they are enforced intensifies in later stages of group interaction and that the evolution of cooperative norms is a result of the interaction between strongly reciprocal and selfish group members. Furthermore, my findings indicate that a salient collective group identity and trust-based social capital can lead to group norms emphasizing cooperation, while salient national identities are detrimental to a group's emphasis on interdependence and cooperation. I also found that actual and perceived value diversity had an impact on the strengths of generalized norms of cooperation. Though exploratory, this research should be a good starting point for future research on the effects of competing social identities, social capital, and actual and perceived value diversity on the evolution of cooperation norms.

Finally, the fourth essay explained how diversity training can help to overcome the negative effects of diversity on trust and cooperation. The framework presented in this essay helps to put diversity training on more solid theoretical and empirical grounds by more adequately addressing sources of diversity tensions and by reestablishing the link between cause and effect. The proposed approach can inform the design and implementation of diversity trainings in universities or corporations by determining which identity groups are on average most discriminated and mistrusted by their colleagues. Furthermore, this approach can help to distinguish between stereotype-based and prejudice-based discrimination, to determine to what extent existing stereotypes on average hold true, and to identify the most adequate diversity training methods to address these problems.

6.2 Summary of Managerial Implications
The present dissertation offers a number of implications for practitioners trying to manage diversity in groups effectively. First, it is important to recognize that trust and cooperation among employees is integral to organizational success and fundamental for effective group functioning. Given an increased reliance on team-based work
arrangements in organizations (Allred et al., 1996; Lawler, 1998), companies are faced with the fundamental problem of deciding whether to emphasize cooperation or competition among the members of diverse work groups. It has been argued that competition stimulates group members to outperform each other and hence promotes efficiency and innovation (cf. Beersma et al., 2003). However, increasing technological complexity and global competition force companies to improve internal coordination by encouraging group members to work collaboratively (e.g., Townsend et al., 1998).

Second, diversity effects rely to a large extent on perceptions. Indeed, developing and maintaining employees’ trust and cooperation may be difficult, in part because managers have not fully appreciated the importance of managing people's beliefs and perceptions in the trust development process. My research shows that the decision to trust and cooperate depends on subjects' beliefs about peer trustworthiness. Beliefs in turn are determined by the degree of perceived diversity and the salience of competing social identities. While actual diversity remains constant over time, the level of perceived diversity can be actively managed by organizations. Offering diversity training programs may help to reduce the negative impact of perceived surface- and deep-level diversity on the trust development process. For an excellent discussion of instructional and experiential diversity training methods see Avery and Thomas (2004). Furthermore, composing diverse groups of likeminded people with similar attitudes, values, and personalities will reduce perceived deep-level diversity and may foster high levels of cooperation and trust without comprehensive training efforts.

Third, a salient collective identity increases trust and cooperation in diverse groups. The principal of functional antagonism as well as the results of my research imply that the negative effects of social identities that divide members of diverse groups such as national or ethnic identities can be reduced by fostering a high level of collective group identification. Consequently, it is important that managers activate group members’ collective identity by supporting and recognizing the group, by allocating members' full-time to the group (e.g., Scott, 1997), by setting collective goals among group members and by creating the right mix of task and goal interdependence (e.g., Van der Vegt et al., 2003), and by installing powerful and influential group leaders (Scott 1997).
Finally, it is also important to recognize that cooperative group norms mediate the relationship between group composition and group outcomes. Results of my research indicate that emphasizing cooperative group norms and facilitating team-self management and peer-based control is a feasible strategy for counteracting the potentially negative effects of diversity. My study shows that cooperative group norms can be strengthened in diverse groups by fostering a collective group identity while deemphasizing social identities that divide group members (i.e., national identities), by developing and maintaining group members’ social trust, and by taking the effects of perceived and actual value diversity into account. The present research, however, also suggests that managers have to be patient in expecting good results because the learning process underlying the evolution of cooperative norms takes time in heterogeneous groups. Team-self management and peer-based control, on the other hand, can be facilitated by a strong collective group identity (Towry, 2003), by establishing peer-based control instead of supervisor-based control (Dumaine, 1990), by using team-based compensation schemes (DeMatteo et al., 1998) and lateral control regimes (Lazega, 2000).

6.3 Limitations

Experimental studies are important for unobtrusively measuring people's nonconscious responses to members of different social categories (Williams, 2001). While field evidence on the evolution of trust and cooperation in heterogeneous groups is indispensable, laboratory studies can help to distinguish between the different antecedents shaping the development of trust and cooperation, which is generally difficult in the field because too many uncontrolled factors simultaneously affect the results. Furthermore, while field studies rely on self-, peer-, or supervisor reports of behavior, lab studies unobtrusively measure subjects’ actual behavior. One of the most important strengths of laboratory studies is therefore that they minimize many potentially confounding effects emanating from self-presentation and/or social desirability motivations and hence increase internal validity by reducing noise and distractions.
Conclusions

The experimental nature of my studies leads, however, to several research limitations. These limitations consist of issues regarding the statistical power, the internal validity, and the external validity of the underlying studies. The first limitation is that I had only access to two highly multinational MBA classes and am unfortunately not able to collect additional data of the same quality. Sixty-seven MBA students participated in my studies at three different times over the course of six months. A larger sample size would certainly have increased the power of the statistical tests. However, I believe that I have an interesting multinational data set (the participants represented 22 nationalities) and that the unique contribution of my study resides in capturing the dynamic effects of group heterogeneity over time. For these dynamic analyses over time, my data set contains 201 observations which provide enough statistical power to detect interesting and significant results. Finding the results that I did is encouraging in light of the small sample size, and suggests the possibility of potentially stronger results in a larger sample. Second, despite the fact that I conducted experimental studies with a high level of control, there are some factors that may have decreased the level of internal validity of my research. First, in each session the subjects participated in three consecutive game experiments. As you can see from the experimental instructions in appendix A, I took great care to explain to the subjects that these three games were independent of each other and that the decisions they made in one game had no influence on the outcomes of the following games. Still, I cannot rule out that spillover effects occurred between the three games. Second, I cannot rule out that the subjects' answers in the questionnaires were affected by their experiences from the preceding game experiments. The survey instruments were always administered at the end of the game experiments and may thus have suffered from an order effect. Finally, turning to the issue of generalizability, it is important to note that the laboratory nature of the task necessarily limits the direct generalizability of the findings to more complex organizational settings. But the nature of my hypotheses and the invasiveness of the underlying longitudinal research process and its accompanying demands restricted me to a student sample. It is important to emphasize that the aim of my research was to test predictions from theory; consequently, generalizability was not my ultimate goal. Still, I attempted to address the lack of external validity by drawing the participants for my study from an MBA program that is highly selective, only admitting candidates with substantial work experience. I also believe that the team-based compensation scheme under which the students operated in my experiments
approximates the kinds of performance pressures and stakes that people face in real work group settings. Furthermore, research has shown a high degree of generalizability from laboratory research results to field settings (cf. Anderson, Lindsay, & Bushman, 1999). Nevertheless, while complementing survey research by controlled experiments allows for superior investigation of group processes (Weingart, 1997), field studies are an important complement to any laboratory research. Cook and Campbell (1979) conclude accordingly that external validity is not a characteristic of a single study but of a stream of research.
References


References


References


Appendix A: Instructions for the game experiments
Dear MBA student, welcome to this interactive group exercise. The purpose of this exercise is to help you to gain a better understanding of group dynamics and group behavior. The results of this exercise will be used for demonstration purposes only, there will be no grading for this exercise. This exercise is therefore not an examination. Rather, it will give you the opportunity to earn some good money.

If you read the following instructions carefully, you can, depending on your decisions in the exercise, earn some good money. It is therefore very important that you read these instructions with care.

The instructions which we have distributed to you are solely for your private information. It is strictly prohibited to communicate with the other participants during the exercise. If you violate this rule, we shall have to exclude you from all payments. Should you have any questions please ask us. You can ask questions at any time during the exercise, but only in private. That means, if you have a question, please raise your hand and we will come to your place to answer your question.

**General Procedures**

You will successively participate in three independent exercises. The decisions you make in one exercise will have no influence on the outcomes or payoffs of the following exercises. Your decisions in the first exercise will therefore not influence outcomes or payoffs of the second or third exercise and vice versa.

In each of the three exercises, the participants will be randomly divided into groups of four members. You will therefore be in a group with 3 other participants. The people sitting right next to you are most probably not in your group. The composition of the groups will change by random after each exercise. In each period, your group will therefore consist of different participants.

Nobody will know who is in which group. Neither before, nor after the exercise, will you learn which people are/were in your group.

Since group compositions are randomly reshuffled after each exercise, the decisions you made in the first exercise will be unknown to your group mates in the second exercise. The same holds for the third exercise.

**Anonymity**

This exercise will be conducted under full anonymity. During and after the exercise your identity in the exercise will remain undisclosed. Neither participants, nor the facilitators, can associate certain decisions with certain people. This exercise is therefore not an examination. You will not be able to earn good grades here, but good money.
In order to achieve full anonymity, the exercise is conducted in a computer lab and you will identify yourself by means of a code.

Since we are interested in demonstrating effects over time, we will conduct the following exercise three times within the next six-month period. In order to be able to compare a participant’s behavior in the first exercise (early September), the second exercise (early December) and the third exercise (end of February), we have to assign each participant a unique code.

To guarantee anonymity, the code will be compiled of information, which are only known to you, but unknown to us. To make sure that you will not forget this code within the next six months, it is compiled of always evident information.

The code is compiled as follows:
- First letter of your mother’s first name
- Last letter of your mother’s first name
- Birthday of your mother (only the day)
- Birth month of your mother (only the month)
- Birthday of your father (only the day)
- Birth month of your father (only the month)

At the beginning of each exercise you will identify yourself by this code.
Please make sure, that you will not forget this code within the next six months!

**Payment Procedures**

During the exercise, we shall not speak of Francs but rather of points. During the exercise, your entire earnings will be calculated in points. At the end of the exercise the total amount of points you have earned will be paid to you in cash and will be converted to Francs at the following rate:

\[
1 \text{ point} = 0.50 \text{ CHF} \\
\approx 0.30 \text{ €} \\
\approx 0.40 \text{ US$}
\]

You will successively participate in three independent exercises. The results and profits of all three exercises will be shown on a final computer screen after all exercises have been finished.

To ensure anonymity and confidentiality during payment of your earnings, we will apply the following procedure:
- After the exercise, the actual payment will be carried out in a separate room.
- Participants will enter the separate room one by one receiving their payments in private, unobserved by the other participants.
- Participants will receive their payments in a readily prepared and closed envelope, labeled with their personal identification code.
- After mentioning their personal identification code, participants will receive their respective envelope.
The decision situation

First we introduce you to the decision situation. At the end of the description of the decision situation, you will find control questions that help you to understand the decision situation.

In this exercise, you will be a member of a group consisting of 4 people. Each group member has to decide on the allocation of 20 points. You can either put these 20 points into your private account or you can invest them fully or partially into a project. Each point you do not invest into the project will automatically remain in your private account.

Your income from the private account

For each point you put into your private account, you will earn one point. For example, if you put 20 points into your private account (and therefore do not invest into the project), you get exactly 20 points out of your private account. If you put 6 points into your private account, your income will be 6 points out of your private account. Nobody except you earns something from your private account.

Your income from the project

From the amount you invested into the project, each group member will earn similarly. On the other hand, you will also get a payoff out of the investments of the other group members. The income for each group member will be determined as follows:

\[
\text{Income from the project} = \text{sum of all contributions} \times 0.4
\]

If, for example, the sum of all contributions to the project is 60 points, then you and the other members of your group get \(60 \times 0.4 = 24\) points each out of the project. If four members of the group contribute totally 10 points to the project, you and the other members of your group get \(10 \times 0.4 = 4\) points each.

Total income

Your total income in points is the sum of your income from your private account and the income from the project:

\[
\begin{align*}
\text{Income from your private account} &= 20 - \text{contribution to the project} \\
+ \text{Income from the project} &= 0.4 \times \text{sum of all contributions to the project} \\
= \text{Total income}
\end{align*}
\]
Control questions:

Please answer the following control questions. They will help you to gain an understanding of the calculation of your income that varies with your decision about how you distribute your 20 points. The decisions and numbers in the following examples are randomly chosen. They are not a suggestion or hint on how to decide in the actual exercise. Please answer all the questions and write down your calculations. If you have questions, please raise your hand. Feel free to use your own or the provided calculator at any time throughout the exercise.

1. Each group member has 20 points. Assume that none of the four group members (including you) contributes anything to the project.
   a) What will your total income be?  
   
   b) What will the total income of each of the other group members be?  

2. Each group member has 20 points. You invest 20 points into the project. From the other three members of the group each one contributes 20 points to the project.
   a) What will your total income be?  
   
   b) What will the total income of each of the other group members be?  

3. Each group member has 20 points. The other 3 members contribute in total 30 points to the project.
   a) What will your total income be, if you have – in addition to the 30 points – invested 0 points into the project?
      Your Income  

   b) What will your total income be, if you have – in addition to the 30 points – invested 8 points into the project?
      Your Income  

   c) What will your total income be, if you have – in addition to the 30 points – invested 15 points into the project?
      Your Income  

4. Each group member has 20 points at his or her disposal. Assume that you invest 8 points into the project.
   a) What will your total income be, if the other group members –in addition to your 8 points– together contribute 7 points to the project?
      Your Income  

   b) What will your total income be, if the other group members –in addition to your 8 points– together contribute 12 points to the project?
      Your Income  

   c) What will your total income be, if the other group members –in addition to your 8 points– together contribute 22 points to the project?
      Your Income

Please raise your hand after you have solved all examples. We will come to your place and check your results.
Please do not proceed reading until we ask you to do so !!!
Exercise 2

We will now conduct the second exercise. In this exercise, you will be again a member of a group consisting of 4 people. However, the composition of your group changed. The members of your new group do not know about your decision from the last exercise. Furthermore, your decision from the first exercise is not relevant for this exercise and your decisions in this exercise will not be relevant for the previous or next exercise.

As in the previous exercise, you have an endowment of 20 points available. However, this time you must make two decisions. The first decision is identical to the decision you made in the exercise that you have already completed. In the first decision, you must make a decision about how many of the 20 points from your endowment you want to contribute to a project (and also how many you will put into your private account). The income in the first step will be calculated in the same way as it was calculated in the previous exercise. For each point you put into your private account you will earn one point. For each point that you contribute to the project, you and all other members of the group will earn 0.4 points. Each point that another member contributes to the project, raises your income by 0.4 points.

\[
\text{Income from the project} = \text{sum of all contributions} \times 0.4
\]

Your total income is the sum of your income from your private account and the income from the project.

**What is different about the new exercise?**

New is a second stage and a third stage, that take place after you made your first decision.

**The second stage:**

In the second stage, you may, through assigning deduction points, reduce the income of one group member of another group (not your group). You can also leave the income of this participant untouched. You will not know who this participant is and she/he will not know who you are. In addition, another member of another group may also reduce your income if she/he wishes to. The participant who may assign deduction points to you is not the same participant that you may assign deduction points to (see graph next page).

Neither before, nor after the exercise, will you learn which people are/were in your group. You will never know the person that you may assign deductions to. You will never know the person that may assign deduction points to you. In the same way, the other participants...
will never know the person they may assign deductions to and will never know the person that may assign deduction points to them.

The exact procedure of assigning deduction points will be described below in greater detail. Next, we will describe the income consequences that will follow from the assigning of deduction points.

**How is your income calculated at the second stage?**

If you assign deduction points to the other participant, the income of this participant will be reduced by *three times* the amount of assigned deduction points. For example, if you assign one deduction point to the other participant, the facilitator of the exercise will reduce his income by 3 points. If you assign 2.5 deduction points to the other participant, his income will be reduced by 7.5 points. If you assign 9 deduction points, his income will be reduced by 27 points, etc. You may assign deduction points in steps of 0.5, that means the minimum amount of deduction points you can assign is 0.5, which would reduce the income of the other participant by 1.5 points. You may also assign 1; 1.5; 2; 2.5 etc. deduction points. However, you may assign a *maximum amount of 10 deduction points*. If you choose to assign no deduction points, the other participant’s income will not be affected.

If you assign deduction points, you will also face costs. For each assigned deduction point, you will face a cost of *one point*. For example, if you assign 3 deduction points, you will face costs of 3 points. If you assign 5.5 deduction points, you will face costs of 5.5 points. If you assign 10 deduction points, you will face costs of 10 points, etc. If you assign no deduction points, you will, of course, face no costs.

For the second stage, you receive an extra endowment of *10 points* for your free disposal (in addition to the 20 points endowment of the first stage). You can put these 10 points into your private account and increase your income, or you can use them to assign up to ten deduction points. You can put any number between 0 and 10 points (in steps of 0.5) into your private account and you can assign any number between 0 and 10 (in steps of 0.5) as deduction points.
Your total income in points after the second stage will be calculated according to the following formula:

\[
\text{Total income in points from the 1\textsuperscript{st} stage} \\
+ \text{10 points extra endowment for the 2\textsuperscript{nd} stage} \\
- 3 \times \text{the amount of deduction points received from another participant} \\
- \text{the amount of deduction points you assigned to another participant} \\
= \text{Total income in points after the 2\textsuperscript{nd} stage}
\]

Your total income in points at the end of the second stage thus has four components: (1) Your income from the first stage. (2) The extra endowment of 10 points for the second stage. (3) A subtraction of the tripled amount of deduction points received from another participant. (4) A subtraction of the costs that you have incurred through assigning deduction points.

**How do you make your decision at the second stage?**

You may, through assigning deduction points, reduce the income of one group member of another group. Let’s call this individual Person X. Since you do not know Person X’s decision from the first stage, you will fill in a table where you indicate how many deduction points you want to assign to Person X for each possible contribution to the project of Person X. This will be immediately clear to you if you take a look at the following table. This table will be presented to you in the exercise:

![Table showing deduction points by contribution level](image)

The numbers are the possible first stage contributions of Person X to the project of his group (0-20 points). You simply have to insert how many deduction points you want to assign into each entry field – conditional on the indicated possible contributions of Person X. **You must make an entry into each entry field.** For example, you will have to indicate how many deduction points you want to assign if Person X contributes 0, 1, 2, 3 points, etc. You can insert numbers from 0-10 in steps of 0.5, therefore 0; 0.5; 1; 1.5; 2; 2.5 … up to a maximum of 10 in each entry field. You can assign up to 10 deduction points for each of the 21 hypothetical contributions left of the entry fields. **Only one of the 21 entries will be**
relevant and executed by the facilitator, depending on the actual first stage decision of Person X. Once you have made an entry in each entry field, click “OK”.

**The third stage:**

In the third stage, we ask you to make some **estimates about your MBA fellow students.** A table similar to the one above will be presented to you:

In stage 2, the other MBA students also filled in a table indicating how many deduction points they want to assign - conditional on the indicated possible contributions of one group member of another group. Your task now is to **estimate** the amount of deduction points assigned on average (rounded in steps of 0.5) by **all OTHER participants** in stage 2 for contributions to the project shown to the left of the respective entry field.

The numbers are the possible contributions to the project (0-20 points). You simply must insert into each entry field how many deduction points you expect all other participants to assign on average for the respective contribution shown to the left of the field. **You must make an entry into each entry field.** For example, you will have to estimate how many deduction points all other participants assigned on average for contributions of 0, 1, 2, 3 points, etc. You can insert numbers from 0-10 in steps of 0.5, therefore 0; 0.5; 1; 1.5; 2; 2.5 … up to a maximum of 10 in each entry field.

You will be paid for the accuracy of your estimates. For every time your estimate is exactly right (that is, if your estimate is exactly the same as the actual average amount of deductions points assigned by all other participants), you will get 3 points in addition to your other income from the exercise. For every time your estimate deviates by 0.5 points from the correct result, you will get 2 additional points. A deviation by 1 point still earns you 1 additional point. For every time your estimate deviates by 1.5 or more points from the correct result, you will not get any additional points.

**How is your income calculated after the third stage?**

Your final income in points after the third stage will be calculated according to the following formula:
Your final income in points at the end of this exercise thus has five components: (1) Your income from the first stage. (2) The extra endowment of 10 points for the second stage. (3) A subtraction of the tripled amount of deduction points received from another participant. (4) A subtraction of the costs that you have incurred through assigning deduction points. (5) The income from your right estimates.

In case the income reduction resulting from the received deduction points leads to a negative final income after the 3rd stage, the final income will be set to ZERO.

Please notice the following:
If the amount of deduction points received by a participant leads to a negative final income, the deduction points of the affected participant will be deducted by the facilitator only until her/his final income after the 3rd stage is reduced to zero. The facilitator will waive the remaining amount of deduction points. Independent of this, one must completely bear the costs of deduction points that one assigns to other members.

Control questions:
Please answer the following control questions, they will help you to gain an understanding of the calculation of your income. The decisions and numbers in the following examples are randomly chosen, they are not a suggestion or hint on how to decide in the actual exercise. Please answer all the questions and write down your calculations. If you have questions, please raise your hand.

1. The following table from the second stage is filled in with hypothetical values:

<table>
<thead>
<tr>
<th>Deduction points ASSIGNED by you:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>13</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>OK</td>
<td></td>
</tr>
</tbody>
</table>

Total income in points from the 1st stage
plus 10 points extra endowment for the 2nd stage
minus 3 times the amount of deduction points received from another participant
minus the amount of deduction points you assigned to another participant

= Final income in points after the 3rd stage
Appendices

Remember, for each assigned deduction point, one will face a cost of 1 point. If one assigns deduction points to another participant the income of this participant will be reduced by 3 times the amount of assigned deduction points.

Assume participant Y, who can assign deduction points to participant X, filled in this table. According to the table above:

a) what are the costs for participant Y, if participant X contributed in the first stage 19 points to the project of his group?

b) how many points will be deducted from participant X’s income accordingly?

c) what are the costs for participant Y, if participant X contributed in the first stage 0 points to the project of his group?

d) how many points will be deducted from participant X’s income accordingly?

e) what are the costs for participant Y, if participant X contributed in the first stage 8 points to the project of his group?

f) how many points will be deducted from participant X’s income accordingly?

2. The following table from the third stage is filled in with hypothetical values:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>14</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>14</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>15</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.5</td>
<td>10</td>
<td>0</td>
<td>16</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>11</td>
<td>9.5</td>
<td>17</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.5</td>
<td>12</td>
<td>6</td>
<td>18</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>13</td>
<td>1</td>
<td>20</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remember, your task in the third stage is to estimate the amount of deduction points assigned on average (rounded in steps of 0.5) by all OTHER participants in stage 2 for contributions to the project shown to the left of the respective entry field. If your estimate is exactly right, you get 3 points. If your estimate deviates by 0.5 points from the correct result, you get 2 additional points. If your estimate deviates by 1 point, you get 1 additional point. If your estimate deviates by more points than 1 you will not get any additional points.

Assume YOU filled in the table above. According to the table above:

a) how many points would you earn for your hypothetical estimation in the table above, if all other participants assigned on average 0 deduction points for a contribution of 10 points to the project?
b) how many points would you earn for your hypothetical estimation in the table above, if all other participants assigned on average 3.5 deduction points for a contribution of 5 points to the project?

c) how many points would you earn for your hypothetical estimation in the table above, if all other participants assigned on average 5.5 deduction points for a contribution of 5 points to the project?

d) how many points would you earn for your hypothetical estimation in the table above, if all other participants assigned on average 2.5 deduction points for a contribution of 16 points to the project?

e) how many points would you earn for your hypothetical estimation in the table above, if all other participants assigned on average 3.5 deduction points for a contribution of 16 points to the project?

3. In the first stage you invest 20 points to the project. The other 3 members contribute in total 40 points to the project.
   a) What will your total income from the 1st stage be?

In the second stage, you get 10 points extra endowment. You use them to assign 5 deduction points to one group member of another group. At the same time you get 3 deduction points assigned from one group member of another group.
   b) What will your total income after the 2nd stage be?

In the third stage you earn 12 points from right estimates
   c) What will your final income at the end of this exercise be?

4. Is the person you may assign deduction points to a member of your group of four?

5. Is the first stage contribution to the project of the person you may assign deduction points to relevant for your first stage income?

6. Is the person you may assign deduction points to the same person who may assign deduction points to you?

7. Is YOUR first stage contribution to the project relevant for the first stage income of the person who may assign deduction points to you?

8. In what steps can you assign deduction points?

Please raise your hand after you have solved all examples. We will come to your place and check your results.
Please do not proceed reading until we ask you to do so !!!
Exercise 3

We will now conduct the third and last exercise. In this exercise, you will be again a member of a group consisting of 4 people. However, the composition of your group changed. The members of your new group do not know about your decisions from the last exercises. Furthermore, your decisions from the first and second exercise are not relevant for this exercise and your decisions in this exercise will not be relevant for the previous exercises.

The basic decision situation in the third exercise is identical to the decision situation in the previous exercises. You have an endowment of 20 points available and you must make a decision about how many of the 20 points from your endowment you want to contribute to a project (and also how many you will put into your private account). The income will be calculated in the same way as it was calculated in the previous exercises. For each point you put into your private account you will earn one point. For each point that you contribute to the project you, and all other members of the group, will earn 0.4 points. Each point that another member contributes to the project, raises your income by 0.4 points.

Income from the project = sum of all contributions × 0.4

Your total income is the sum of your income from your private account and the income from the project.

What is different about the new exercise?

In this exercise each participant has to make two types of decisions. In the following we will call them "unconditional contribution" and "contribution table".

With the unconditional contribution to the project you have to decide how many of the 20 points you want to invest into the project (similar to the first exercise). You will indicate your unconditional contribution in the already known computer screen:
After you have determined your unconditional contribution your second task is to fill in a contribution table. In the contribution table you have to indicate for each possible average contribution of the other three group members (rounded to the next integer) how many points **YOU want to contribute** to the project. You can condition your contribution on the contribution of the other group members. This will be immediately clear to you if you take a look at the following table. In the exercise, this table will be presented to you:

![Contribution Table](image)

The numbers are this time the possible (rounded) average contributions of the other three group members to the project. You simply have to insert into each entry field how many points you want to contribute to the project – conditional on the indicated average contribution of the others. **You have to make an entry into each entry field.** For example, you will have to indicate how much you contribute to the project if the other three contribute on average 0 points to the project, how much you contribute if the other three contribute on average 1, 2, or 3 points etc. In each entry field you can insert all integer numbers from 0 to 20.

After all participants of the exercise have made an unconditional contribution and have filled in their contribution table, in each group a random mechanism will select a group member. **For the randomly determined subject only the contribution table will be the payoff-relevant decision.** For the other three group members that are not selected by the random mechanism, only the unconditional contribution will be the payoff-relevant decision. When you make your unconditional contribution and when you fill in the contribution table you of course do not know whether you will be selected by the random mechanism. You will therefore have to think carefully about both types of decisions because **both can become relevant** for you. Two examples should make this clear.
EXAMPLE 1:
Assume that you have been selected by the random mechanism. This implies that your relevant decision will be your contribution table. For the other three group members the unconditional contribution is the relevant decision. Assume they have made unconditional contributions of 0, 2, and 4 points. The average contribution of these three group members, therefore, is 2 points. If you have indicated in your contribution table that you will contribute 1 point if the others contribute 2 points on average, then the total contribution to the project is given by 0+2+4+1 = 7 points. All group members, therefore, earn 0.4×7 = 2.8 points from the project plus their respective income from the private account. If you have instead indicated in your contribution table that you will contribute 19 points if the others contribute two points on average, then the total contribution of the group to the project is given by 0+2+4+19 = 25. All group members therefore earn 0.4×25 = 10 points from the project plus their respective income from the private account.

EXAMPLE 2:
Assume that you have not been selected by the random mechanism which implies that for you and two other group members the unconditional contribution is taken as the payoff-relevant decision. Assume your unconditional contribution is 16 points and those of the other two group members are 18 and 20 points. The average unconditional contribution of you and the two other group members, therefore, is 18 points. If the group member who has been selected by the random mechanism indicates in her contribution table that she will contribute 1 point if the other three group members contribute on average 18 points, then the total contribution of the group to the project is given by 16+18+20+1 = 55 points. All group members will therefore earn 0.4×55 = 22 points from the project plus their respective income from the private account. If instead the randomly selected group member indicates in her contribution table that she contributes 19 if the others contribute on average 18 points, then the total contribution of that group to the project is 16+18+20+19 = 73 points. All group members will therefore earn 0.4×73 = 29.2 points from the project plus their respective income from the private account.

The Random Mechanism:
The random selection of the participants will be implemented as follows. Each group member is assigned a group-member number between 1 and 4. The computer will randomly select one participant. This participant will, after all participants have made their unconditional contribution and have filled out their contribution table, throw a 4-sided die. The number that shows up will be entered into the computer. If the selected participant throws the membership number that has been assigned to you, then for you your contribution table will be relevant and for the other group members the unconditional contribution will be the payoff-relevant decision. Otherwise, your unconditional contribution is the relevant decision.
The Estimation:

After you made the unconditional contribution and filled out the contribution table we ask you again to make some estimates about your MBA fellow students. The other participants also made a decision about their unconditional contribution. Your task is to estimate the average unconditional contribution to the project (rounded to an integer) of all OTHER participants (not just the members of your group).

You will be paid for the accuracy of your estimates. If your estimate is exactly right (that is, if your estimate is exactly the same as the actual average unconditional contribution of all other participants), you will get 3 points in addition to your other income from the exercise. If your estimate deviates by one point from the correct result, you will get 2 additional points, a deviation by 2 points still earns you 1 additional point. If your estimate deviates by 3 or more points from the correct result, you will not get any additional points.

How is your income calculated in the third exercise?

Your total income in points is the sum of your income from your private account and the income from the project plus your income from right estimates:

\[
\text{Income from your private account} = 20 - \text{contribution to the project}
\]
\[
+ \text{Income from the project} = 0.4 \times \text{sum of all contributions to the project}
\]
\[
+ \text{Income from your right estimates}
\]

= Total income

Control questions:

Please answer the following control questions. The decisions and numbers in the following examples are randomly chosen, they are not a suggestion or hint on how to decide in the actual exercise. Please answer all the questions and write down your calculations. If you have questions, please raise your hand.

The following contribution table is filled in with hypothetical values:
Appendices

Assume that you have been selected by the random mechanism. This implies that your relevant decision will be your contribution table. For the other three group members the unconditional contribution is the relevant decision.

1. Assume YOU filled in the table above and the other three group members made unconditional contributions of 10, 12, and 14 points.
   a) What will be your contribution according to the table above?
   b) What will be the total contribution to the project of your group accordingly?

2. Assume YOU filled in the table above and the other three group members made unconditional contributions of 4, 8, and 18 points.
   a) What will be your contribution according to the table above?
   b) What will be the total contribution to the project of your group accordingly?

Assume that you have not been selected by the random mechanism which implies that for you and two other group members the unconditional contribution is taken as the payoff-relevant decision.

3. Assume your unconditional contribution is 6 points and those of the other two group members are 8 and 10 points.
   a) What will be the contribution of the fourth group member according to the table above?
   b) What will be the total contribution of your group to the project accordingly?

4. Assume your unconditional contribution is 0 points and those of the other two group members are 4 and 5 points.
   a) What will be the contribution of the fourth group member according to the table above?
   b) What will be the total contribution of your group to the project accordingly?

5. In each entry field of the contribution table you can insert all integer numbers from 0 to ………..?

Please raise your hand after you have solved all examples.
We will come to your place and check your results.

This will be the last exercise.
Next we ask you to fill out a questionnaire before you receive your payments.
Appendix B: The Questionnaire
Instructions

The following questionnaire is an important part of the interactive group exercise. The results of this questionnaire will be used to interpret the results of the exercise. The questionnaire is therefore **not** an examination. There are no ‘right’ or ‘wrong’ answers for the following questions and you don’t need to be an expert to answer the questions appropriately. You can fulfill the purpose of the questionnaire best by answering the questions as truthfully as possible.

The following questions contain several statements which could be used to describe you. Please read each statement carefully and ask yourself in how far this statement applies to you or not and tag the answer which best expresses your view. If you change your mind after you have already made your tag, please delete your first answer clearly.

It is absolutely necessary that you find an answer to all the questions. Even if questions sound similar or if a question is difficult to answer, please always tag the answer which applies most to you.

To prevent other participants from influencing your answers we ask you not to communicate with other participants during this questionnaire session. Should you have any questions please ask us.

You will fill out this questionnaire anonymously. We only ask you to indicate the identification code you already used in the exercises. To ensure anonymity and confidentiality after you finished, you will put your questionnaire in an envelope, seal it and drop it in a box.

Please enter below your identification code from the last exercise:

- **First** letter first name Mother: [ ]
- **Last** letter first name Mother: [ ]
- Birthday Mother (only the **day**): [ ]
- Birth month Mother (only the **month**): [ ]
- Birthday Father (only the **day**): [ ]
- Birth month Father (only the **month**): [ ]

Please indicate your sex: [ ] Female [ ] Male
Do you have siblings?  
- [ ] Yes  
- [x] No

What was the size of the community in which you spent most of your life?  
- [ ] up to 2000 Inhabitants  
- [ ] 2000–10,000 Inhabitants  
- [ ] 10,000–100,000 Inhabitants  
- [ ] more than 100,000

How often do you go to church, mosque, temple or other religious services?  
- [ ] Never  
- [ ] Sometimes  
- [x] At least once a week

Do you participate in one of the following organizations as member, active member...?

<table>
<thead>
<tr>
<th>Sports Club</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
<tbody>
<tr>
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<td>[ ]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Culture: choir, orchestra, etc.</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Political party</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Lobbying/ Interest groups</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-profit organization</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
<tbody>
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<td>[ ]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other associations</th>
<th>Nothing</th>
<th>Member</th>
<th>Active Member</th>
<th>On the Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
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</tr>
</tbody>
</table>

Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?  
- [ ] Can’t be too careful  
- [ ] Depends  
- [x] Most people can be trusted

Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?  
- [ ] Would take advantage of you  
- [ ] Depends  
- [x] Would try to be fair

Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?  
- [ ] Just look out for themselves  
- [ ] Depends  
- [x] Try to be helpful

How often do you lend money to friends?  
- [ ] Once a year or less  
- [ ] Once a month  
- [ ] Once a week  
- [ ] More than once a week

How often do you lend personal possessions to friends?  
- [ ] Once a year or less  
- [ ] Once a month  
- [ ] Once a week  
- [ ] More than once a week

How often do you leave your door unlocked?  
- [ ] Never  
- [ ] Rarely  
- [ ] Sometimes  
- [ ] Often  
- [ ] Very often

“You can’t count on strangers anymore!”  
- [ ] More or less agree  
- [x] More or less disagree

“I am trustworthy!”  
- [ ] Disagree strongly  
- [ ] Disagree somewhat  
- [ ] Disagree slightly  
- [ ] Agree slightly  
- [ ] Agree somewhat  
- [ ] Agree strongly
We are all members of different social groups or social categories. One of the social categories one belongs to is *one's nation*. We now ask you to concentrate strictly on your belongingness to this nation while answering the next questions. Please read each statement carefully, and give your very personal answer by using the following scale from 1 to 7:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Disagree somewhat</td>
<td>Neutral</td>
<td>Agree somewhat</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a worthy member of the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I often regret that I belong to this nation</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Overall, my nation is considered good by others</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Overall, my nation has very little to do with how I feel about myself</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I feel I don’t have much to offer to the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In general, I’m glad to be a member of the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Most people consider my nation, on average, to be more ineffective than other nations</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The nation I belong to is an important reflection of who I am</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I am a cooperative participant in the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Overall, I often feel that the nation of which I am a member is not worthwhile</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In general, others respect the nation that I am a member of</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The nation I belong to is unimportant to my sense of what kind of person I am</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I often feel I’m a useless member of the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I feel good about the nation I belong to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In general, others think that the nation I am a member of is unworthy</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>In general, belonging to this nation is an important part of my self-image</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>
We would like to learn a little bit more about your career preferences and orientations. We now ask you to concentrate on your professional career while answering the next questions. Please indicate the importance of each of the following statements for your professional career on a scale from 1 (of no importance) to 5 (centrally important).

<table>
<thead>
<tr>
<th>Of no importance</th>
<th>Centrally important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

- The process of supervising, influencing, leading, and controlling people at all levels is
- The chance to do things my own way and not to be constrained by the rules of an organization is
- An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is
- Working on problems that are almost insoluble is
- Remaining in my specialized area as opposed to being promoted out of my area of expertise is
- To be in charge of a whole organization is
- A career that is free from organization restrictions is
- An organization that will give me long-run stability is
- Using my skills to make the world a better place to live and work in is
- Developing a career that permits me to continue to pursue my own life-style is
- Building a new business enterprise is
- Remaining in my area of expertise throughout my career is
- To rise to a high position in general management is
- Remaining in one geographical area rather than moving because of a promotion is
- Being able to use my skills and talents in the service of an important cause is
Please keep concentrating on your professional career and indicate the extent to which you think that each of the following statements is true of YOU on a scale from 1 (not at all true) to 5 (completely true).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>I am always on the lookout for ideas that would permit me to start and build my own enterprise</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>It is more important for me to remain in my present geographical location than to receive a promotion or new job assignment in another location</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>A career is worthwhile only if it enables me to lead my life in my own way</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>I will accept a management position only if it is in my area of expertise</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>I do not want to be constrained by either an organization or the business world</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>I want a career in which I can be committed and devoted to an important cause</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>I feel successful only if I am constantly challenged by a tough problem or a competitive situation</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
</tr>
<tr>
<td>Choosing and maintaining a certain life-style is more important than is career success</td>
<td>☐ ☐ ☐ ☐ ☐</td>
<td></td>
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<tr>
<td>I have always wanted to start and build up a business of my own</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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</tbody>
</table>
Below are 18 values listed in alphabetical order. Please indicate their importance to YOU, as guiding principles in your career on a scale from 1 (not at all) to 7 (to a great extent).

<table>
<thead>
<tr>
<th>Value</th>
<th>Not at all</th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<th>7</th>
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<tbody>
<tr>
<td>A Comfortable Life (a prosperous life)</td>
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<tr>
<td>An Exciting Life (a stimulating, active life)</td>
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<tr>
<td>A Sense of Accomplishment (a lasting contribution)</td>
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<tr>
<td>A World at Peace (free of war and conflict)</td>
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<tr>
<td>A World of Beauty (beauty of nature and the arts)</td>
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<tr>
<td>Equality (brotherhood and equal opportunity for all)</td>
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<tr>
<td>Family Security (taking care of loved ones)</td>
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<tr>
<td>Freedom (independence and free choice)</td>
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<tr>
<td>Happiness (contentedness)</td>
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<tr>
<td>Inner Harmony (freedom from inner conflict)</td>
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<tr>
<td>Mature Love (sexual and spiritual intimacy)</td>
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<tr>
<td>National Security (protection from attack)</td>
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<tr>
<td>Pleasure (an enjoyable, leisurely life)</td>
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<tr>
<td>Salvation (saved, eternal life)</td>
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<tr>
<td>Self-Respect (self-esteem)</td>
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<tr>
<td>Social Recognition (respect and admiration)</td>
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<tr>
<td>True Friendship (close companionship)</td>
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<td></td>
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<tr>
<td>Wisdom (a mature understanding of life)</td>
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</tbody>
</table>
Here are a number of personality traits that may or may not apply to YOU. Please indicate the extent to which you agree or disagree with each statement by using the following scale from 1 to 7. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree strongly</td>
<td>Disagree moderately</td>
<td>Disagree a little</td>
<td>Neither agree nor disagree</td>
<td>Agree a little</td>
<td>Agree moderately</td>
<td>Agree strongly</td>
</tr>
</tbody>
</table>

I see myself as **extraverted, enthusiastic.**

I see myself as **critical, quarrelsome.**

I see myself as **dependable, self-disciplined.**

I see myself as **anxious, easily upset.**

I see myself as **open to new experiences, complex.**

I see myself as **reserved, quiet.**

I see myself as **sympathetic, warm.**

I see myself as **disorganized, careless.**

I see myself as **calm, emotionally stable.**

I see myself as **conventional, uncreative.**

1 2 3 4 5 6 7
We are all members of different social groups or social categories. One of the social groups you and your fellow students belong to is this **MBA Class**. We now ask you to concentrate strictly on your belongingness to this MBA Class while answering the next questions. Please read each statement carefully, and give your very personal answer by using the following scale from 1 to 7:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Disagree somewhat</td>
<td>Neutral</td>
<td>Agree somewhat</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a worthy member of the MBA Class I belong to</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I often regret that I belong to this MBA Class</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Overall, my MBA Class is considered good by others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall, my membership in this MBA Class has very little to do with how I feel about myself</td>
<td></td>
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</tr>
<tr>
<td>I feel I don’t have much to offer to the MBA Class I belong to</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>In general, I’m glad to be a member of the MBA Class I belong to</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Most people consider my MBA Class, on average, to be more ineffective than other MBA Classes</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>The MBA Class I belong to is an important reflection of who I am</td>
<td></td>
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</tr>
<tr>
<td>I am a cooperative participant in the MBA Class I belong to</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Overall, I often feel that the MBA Class of which I am a member is not worthwhile</td>
<td></td>
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</tr>
<tr>
<td>In general, others respect the MBA Class that I am a member of</td>
<td></td>
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<tr>
<td>The MBA Class I belong to is unimportant to my sense of what kind of person I am</td>
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</tr>
<tr>
<td>I often feel I’m a useless member of the MBA Class I belong to</td>
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<tr>
<td>I feel good about the MBA Class I belong to</td>
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<td></td>
</tr>
<tr>
<td>In general, others think that the MBA Class I am a member of is unworthy</td>
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</tr>
<tr>
<td>In general, belonging to this MBA Class is an important part of my self-image</td>
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</tr>
</tbody>
</table>
Please indicate below how much you think your fellow students of this MBA Class are on average (1) "Very different" to (5) "Very similar" to you in terms of the listed attributes.

<table>
<thead>
<tr>
<th></th>
<th>Very different</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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  (e.g. extraverted, critical, anxious, quiet etc.)
| Career Orientations/ Preferences |            |   |   |   |   |   |              |
| Personal Values              |                |   |   |   |   |   |              |
  (e.g. freedom, true friendship, wisdom etc.)
| Priorities in Life           |                |   |   |   |   |   |              |
  (e.g. career, lifestyle, family, religion etc.)
| Ambition                     |                |   |   |   |   |   |              |
  (general ambition in life and career)
| Satisfaction with the MBA programme |            |   |   |   |   |   |              |
| Commitment to the MBA programme |              |   |   |   |   |   |              |

THANK YOU!

Before you finish this questionnaire, please check whether
- you answered all questions
- you indicated your identification code on page one
- you indicated your gender on page one

Please now put the questionnaire in the envelope and seal it.
Appendix C: Standard Trust Questions Used in the Survey

- **GSS trust**: "Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?" The answer range was: 1: Most people can be trusted; 2: can’t be too careful; 1.5: depends.

- **GSS fair**: "Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?" The answer range was: 1: Would take advantage of you; 2: would try to be fair; 1.5: depends.

- **GSS help**: "Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?" The answer range was: 1: Try to be helpful; 2: just look out for themselves; 1.5: depends.

I calculated the GSS index as the normalized sum of de-meaned, normalized, and resigned GSS trust, GSS fair, and GSS help.

Measure of trustworthiness used in the survey:
- "I am trustworthy!" The answer range was: 1: Disagree strongly; 2: Disagree somewhat; 3: Disagree slightly; 4: Agree slightly; 5: Agree somewhat; 6: Agree strongly
Appendix D: Questions Used in the Survey to Elicit Perceived Surface- and Deep-Level Diversity

Please indicate how much you think your fellow students of this MBA Class are on average (1) "Very different" to (5) "Very similar" to you in terms of the listed attributes.

- Age
- Nationality
- Race/Ethnicity
- Marital Status
- Personality (e.g. extraverted, critical, anxious, quiet etc.)
- Career Orientations/ Preferences
- Personal Values (e.g. freedom, true friendship, wisdom etc.)
- Satisfaction with the MBA programme
- Commitment to the MBA programme
Appendix E: Questions used in the survey to assess the subjects' managerial career orientation:

We would like to learn a little bit more about your career preferences and orientations. We now ask you to concentrate on your professional career while answering the next questions. Please indicate the importance of each of the following statements for your professional career on a scale from 1 (of no importance) to 5 (centrally important).

- The process of supervising, influencing, leading, and controlling people at all levels is...
- To be in charge of a whole organization is...
- To rise to a high position in general management is...
Curriculum Vitae
Stefan Volk

ACADEMIC POSITIONS
2005 – 2008 Marie Curie Research Fellow in the EU-financed research project "Management of National Diversity at the Individual, Group, and Societal Level", Research Institute for International Management, University of St. Gallen, Switzerland

EDUCATION
2005 – 2008 Dr.oec. in International Management and Organizational Psychology, University of St.Gallen, Switzerland
1998 – 2005 Diplom-Kaufmann, Humboldt Universität zu Berlin, Germany
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2007 – 2008 Lecturer for International Management, University of Applied Sciences Eisenstadt, Austria
2005 Associate consultant, Simon-Kucher and Partners, Germany
2001 – 2002 Intern for Thai-German economic relations, Embassy of the Federal Republic of Germany, Thailand

LANGUAGES
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