# Broadening Team Composition Research by Conceptualizing Team Diversity as a Cross-Level Moderating Variable

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# 1. Abstract

A major challenge facing managers in current organizations is an increasingly diverse workforce (Jehn, Lindred, & Rupert, 2008). Diversity, "a characteristic of a social grouping that reflects the degree to which there are objective or subjective differences between people within the group" (Van Knippenberg & Schippers, 2007, p. 519), refers to an almost infinite number of dimensions of differences between group members, ranging from differences in age to nationality, from religious background to personality, from work skills to emotions (Van Knippenberg, De Dreu, & Homan, 2004).

Until recently, the diversity field had been dominated by the *main effects* approach and thus mainly examined whether diversity has negative or positive effects on team outcomes. Typically, researchers draw on two seemingly contradictory theoretical perspectives to answer this question (see Williams & O'Reilly, 1998). The "value in diversity" perspective (Cox, Lobel, & Mcleod, 1991) proposes that diversity may improve team functioning due to an increased variety of knowledge, expertise, and opinions. An opposing, pessimistic perspective posits that diversity may result in social divisions and negative intra-group processes, which may detract from team functioning (Mannix & Neale, 2005). Despite the intuitive sense that both approaches make, two decades of research has resulted in highly inconsistent findings and corroborated the conclusion that the main effects approach is unable to account for the effects of diversity adequately (Bowers, Pharmer, & Salas, 2000). Consequently, researchers have recently begun to explore the question of whether, and how, the perspectives on the effects of diversity can be reconciled and integrated (Van Knippenberg et al., 2004). Prominent

attempts to answer this question mainly rely on contingency models (e.g., Wegge, 2003), proposing that whether diversity results in negative or positive outcomes depends upon several moderators. The research agenda set by such models informs the major part of research efforts in the field. Indeed, the contingency approach has proved useful for the purpose of integrating past contradicting findings and advancing knowledge of the moderators and mediators underlying the effects of diversity.

However, despite these notable theoretical developments, current research is still limited in its ability to capture the rich and wide-ranging influence of diversity in the workplace. This dissertation identifies two main sources for this weakness. First, the majority of diversity research regards diversity as an isolated phenomenon that occurs only on a single organizational level. Cross-level influences of diversity, however, are largely ignored. Second, despite the richness that the contingency approach has added to the study of diversity, it has not changed the fundamental goal guiding this field: examining the relationship between diversity and work outcomes. I shall argue that diversity research has so far overlooked other aspects of the influence of diversity and that it can benefit from turning into new and unexplored avenues. In particular, diversity research may benefit from examining team diversity in roles other than the independent variable, and especially explore the influence of diversity as a context (i.e., moderating) variable. Thus, in an attempt to overcome these two limitations, the overarching aim of this dissertation is to extend previous work by reassessing the role of diversity. In particular, this dissertation illustrates the empirical and theoretical usefulness of conceptualizing diversity as a cross-level moderator and explores the ways in which team diversity sets the context and influences work phenomena across organizational levels.

Study 1 explored the cross-level relationship between organizational tenure and employee performance in a prospective design. It was found that employee tenure, team leader tenure, and team tenure diversity exert positive effects on employee performance. Additional finding, a three-way interaction between employee tenure, team tenure diversity, and team leader tenure on employee performance, suggests that the positive effect of employee tenure on performance is weaker when either team tenure diversity or team leader tenure or both are high. The hypotheses were tested using multi-level modeling and an objective measure of employee performance with a sample of 1767 employees and 256 leaders in intact working teams of a large financial services firm. The findings suggest that team diversity grants organizational tenure its meaning, thereby determining to what extent the benefits associated with organizational tenure will unfold.

Study 2 further examined the empirical and theoretical usefulness of conceptualizing team diversity as a cross-level moderator. Particularly, the relationship between gender diversity in teams and individual-level health symptoms of men and women was examined in two consecutive years in 220 natural work teams (N 1st year = 4538; N 2nd year=5182). In an attempt to account for inconsistencies in the literature regarding the relationship between gender and health symptoms, I examined this relationship from a multilevel perspective. As expected, it was found that individual-level gender was not related to health symptoms but that team gender diversity determined this relationship. Specifically, while there were no individual-level differences between men and women in health symptoms, it was found that women report more health symptoms as the proportion of female employees in the team increased. In contrast, men's self-

reported health symptoms remained invariant with team gender diversity changes. These findings were found stable across two measurement points, over two years.

Finally, Study 3 examined the role that subjective team diversity plays in facilitating affective linkages (i.e., the convergence of affect among team members over time) within teams. The results of Study A (170 employees in 33 Israeli teams) provide evidence that affective linkages among team members were moderated by perceived team diversity such that the linkages were stronger in teams with lower perceived diversity. Study B (304 employees in 61 German teams) replicated the findings of Study A and extended them by including an additional moderator, team identification. Using hierarchical linear modeling, it was found that team identification moderated the influence of perceived diversity on affective linkages.

The most striking contribution that all three studies offer is a strong support for the usefulness of conceptualizing diversity as a cross-level moderator. Particularly, in Study 1 team tenure diversity determined whether and to what extent the positive effects of organizational tenure on individual performance might be realized. In Study 2, gender diversity determined the relationship between individual gender and health. Finally, in Study 3, perceived diversity influenced the strength of affective linkages in teams. The three studies are also consistent in illustrating the *theoretical* usefulness of conceptualizing team diversity as a context variable. To be exact, the current approach integrates the micro domain's focus on individuals with the macro domain's focus on groups. The result is a richer portrait of organizational life—one that acknowledges the influence of the team context on individuals' actions and perceptions. In sum, the findings demonstrate that viewing team diversity as a moderator broadens the focus of

diversity research, illuminates new roles of team diversity, draws a richer and more complex portrait of other work phenomena, and opens new horizons for diversity research.

## 2. German Summary

Eine der größten Herausforderungen, mit der Manager heutzutage in Organisationen konfrontiert sind, ist die zunehmend heterogene Zusammensetzung der Mitarbeiter (Jehn et al., 2008). Diversität ist definiert als „a characteristic of a social grouping that reflects the degree to which there are objective or subjective differences between people within the group " (Van Knippenberg & Schippers, 2007, p. 519) und bezieht sich auf eine praktisch unendliche Anzahl an Dimensionen von Unterschieden zwischen Gruppenmitgliedern wie beispielsweise demographische Unterschiede, Unterschiede in Wertvorstellungen, Persönlichkeitsunterschiede oder Unterschiede in Fertigkeiten und Erfahrungen (Van Knippenberg et al., 2004).

Bis vor kurzem wurde das Feld der Diversitätsforschung von dem *Haupteffekteansatz* dominiert. Dementsprechend wurde meist untersucht, ob sich Diversität positiv oder negativ auf teambezogene Ergebnisgrößen auswirkt. Typischerweise nehmen Forscher hierbei Bezug auf zwei scheinbar gegensätzliche theoretische Perspektiven (siehe Williams & O'Reilly, 1998): Die "value in diversity"-Perspektive (Cox et al., 1991) postuliert, dass Diversität die Leistung von Teams infolge eines größeren Spektrums an Wissen, Expertise und Meinungen verbessert. Die gegensätzliche, pessimistische Perspektive behauptet hingegen, dass Diversität zu sozialen Spaltungen und negativen Intra-Gruppenprozessen führen kann, welche die Leistung eines Teams beeinträchtigen können (Mannix & Neale, 2005). Obwohl beide Ansätze intuitiv Sinn machen, führten zwei Jahrzehnte an Forschung zu höchst widersprüchlichen Ergebnissen und verstärkten die Schlussfolgerung, dass der

Haupteffekteansatz nicht in adäquater Weise den Einfluss von Diversität zu erklären vermag (Bowers et al., 2000). Folglich begannen Forscher vor kurzem die Frage zu untersuchen, ob und wie diese beiden Perspektiven zu den Auswirkungen von Diversität miteinander vereinbart und integriert werden können (Van Knippenberg et al., 2004). Bekannte Ansätze zur Beantwortung dieser Frage beziehen sich meist auf Kontingenzmodelle (z.B. das Categorization-Elaboration-Modell, Van Knippenberg et al., 2004), welche postulieren, dass verschiedene Moderatoren bestimmen, ob Diversität positive oder negative Auswirkungen hat. Das Forschungsprogramm dieser Ansätze liegt den meisten Forschungsbemühungen in diesem Bereich zugrunde. Tatsächlich hat sich der Kontingenzansatz als nützlich für die Integration von ehemals widersprüchlichen Befunden und dem Auffinden von neuen Erkenntnissen zu den Moderatoren und Mediatoren erwiesen, die den Auswirkungen von Diversität zugrundeliegen.

Trotz dieser wichtigen theoretischen Entwicklungen ist die gegenwärtige Forschung allerdings in ihrer Fähigkeit eingeschränkt, den umfassenden und weitreichenden Einfluss von Diversität am Arbeitsplatz zu erfassen. Die vorliegende Dissertation identifiziert zwei Hauptursachen für diesen Schwachpunkt. Erstens: Die Mehrheit der Diversitätsforschung betrachtet Diversität als ein isoliertes Phänomen, welches lediglich auf einer einzelnen Organisationsebene auftritt. Ebenenübergreifende (Cross-level) Einflüsse von Diversität werden jedoch weitestgehend ignoriert. Zweitens: Trotz der Vielfalt, die der Kontingenzansatz der Befundlage in der Diversitätsforschung hinzugefügt hat, hat sich das zugrundeliegende und richtungsweisende Ziel in diesem Forschungsbereich, nämlich die Untersuchung der Beziehung zwischen Diversität und arbeitsbezogenen Ergebnisgrößen, nicht verändert. Ich argumentiere, dass die

Diversitätsforschung bisher andere, wichtige Aspekte des Einflusses von Diversität übersehen hat und von dem Einschlagen in neue und unerforschte Wege profitieren kann. Die Diversitätsforschung kann durch die Untersuchung von Teamdiversität in einer anderen Funktion als die der unabhängigen Variablen vorangetrieben werden, wie beispielsweise der Betrachtung des Einflusses von Diversität als Kontext- bzw. Moderatorvariable. Um diese Einschränkungen zu überwinden, besteht das übergeordnete Ziel dieser Dissertation darin, frühere Arbeiten durch eine Neubewertung der Bedeutung von Diversität zu erweitern. Die vorliegende Dissertation wird insbesondere den empirischen und theoretischen Nutzen der Konzeptualisierung von Diversität als „Cross-level"-Moderator aufzeigen sowie untersuchen, wie Teamdiversität den Kontext der Arbeit bilden und Arbeitsphänomene über verschiedene Organisationsebenen hinweg beeinflussen kann.

Studie 1 untersucht die „Cross-level"-Beziehung zwischen der Organisationszugehörigkeitsdauer und Mitarbeiterleistung in einem prospektiven Design. Es wurde festgestellt, dass die Zugehörigkeitsdauer des Mitarbeiters in der Organisation, die Zugehörigkeitsdauer des Vorgesetzten in der Organisation und die Diversität der einzelnen Zugehörigkeitsdauern des Teams positive Effekte auf die Leistung der Mitarbeiter ausüben. Darüber hinaus wurde eine Dreifachinteraktion zwischen der Zugehörigkeitsdauer des Mitarbeiters in der Organisation, des Vorgesetzten und der Diversität der Zugehörigkeitsdauer des Teams auf die Leistung der Mitarbeiter gefunden, die zeigt, dass der positive Effekt der Zugehörigkeitsdauer des Individuums in der Organisation auf die Leistung geringer ist, wenn entweder die Diversität der Zugehörigkeitsdauer im Team oder die Zugehörigkeitsdauer des Vorgesetzten oder beide

hoch ausgeprägt sind. Die Hypothesen wurden anhand von Mehrebenen-Modellen und der objektiven Messung der Mitarbeiterleistung an einer Stichprobe von 1767 Mitarbeitern und 256 Vorgesetzten in Arbeitsteams eines großen Finanzdienstleisters überprüft. Die Ergebnisse legen nahe, dass die Teamdiversität bedingt, ob und in welchem Umfang sich die möglichen Vorteile der Organisationszugehörigkeitsdauer entfalten.

Auch Studie 2 untersuchte den empirischen und theoretischen Nutzen der Konzeptualisierung von Teamdiversität als „Cross-level"-Moderator. Hier wurde die Beziehung zwischen Geschlechtsdiversität in Teams und gesundheitlichen Symptomen von Frauen und Männern auf individueller Ebene über zwei aufeinanderfolgende Jahre in 220 natürlichen Arbeitsteams (N = 1. Jahr 4538, N 2. Jahr = 5182) betrachtet. Unter Berücksichtigung der Inkonsistenzen in der Literatur bezüglich der Beziehung von Geschlecht und gesundheitlichen Symptomen untersuchte ich diese Beziehung aus einer Mehrebenenperspektive. Wie erwartet, beobachtete ich, dass auf individueller Ebene nicht das Geschlecht mit den gesundheitlichen Beschwerden in Zusammenhang stand, sondern dass die Geschlechtsdiversität des Teams diese Beziehung bestimmte. Obwohl es auf individueller Ebene keine Unterschiede in den gesundheitlichen Symptomen zwischen Männern und Frauen gab, berichteten Frauen mehr gesundheitliche Beschwerden, wenn sich der Anteil der weiblichen Beschäftigten im Team erhöhte. Im Gegensatz dazu blieben die seitens der Männer berichteten gesundheitlichen Symptome auch bei Veränderungen in der Geschlechterzusammensetzung des Teams stabil. Diese Ergebnisse wurden über beide Messpunkte im Zeitraum von zwei Jahren gefunden.

Schließlich prüfte Studie 3 die Bedeutung, die subjektiv wahrgenommene Teamdiversität für die Förderung von Stimmungsansteckung (mood linkages) innerhalb eines Teams hat („mood linkages“ beziehen sich auf die Übereinstimmung von Stimmungen zwischen den Teammitgliedern im Zeitverlauf). Die Ergebnisse von Studie A (170 Mitarbeiter in 33 israelischen Teams) erbrachten den Nachweis, dass „mood linkages“ von Teammitgliedern durch die subjektiv wahrgenommene Teamdiversität moderiert werden, wobei „mood linkages“ stärker ausgeprägt in Teams mit niedriger subjektiver Diversität waren. Studie B (304 Mitarbeiter in 61 deutschen Teams) konnte die Ergebnisse von Studie A replizieren und um den zusätzlichen Moderator der Team-Identifikation erweitern. Mit Hilfe von hierarchischer linearer Modellierung wurde festgestellt, dass die Team-Identifikation den Einfluss der subjektiven Diversität auf „mood linkages“ moderiert.

Der besondere Mehrwert aller drei Studien ist, dass diese den Nutzen einer Konzeptualisierung von Diversität als „Cross-level“-Moderator deutlich machen. Im Besonderen wurde in Studie 1 aufgezeigt, dass die Diversität der Teamzugehörigkeitsdauer bestimmt, ob und in welchem Umfang die positiven Auswirkungen der Organisationszugehörigkeitsdauer auf die individuelle Leistung entstehen können. In Studie 2 bestimmte die Geschlechtsdiversität die Beziehung zwischen individuellem Geschlecht und Gesundheit. Schließlich zeigte Studie 3, dass die subjektiv wahrgenommene Diversität die Ausprägung der „mood linkages“ in Teams bestimmt. Alle drei Studien zeigen auch den *theoretischen* Nutzen der Konzeptualisierung von Teamdiversität als Kontextvariable. Der hier vorgestellte Ansatz integriert eine Mikroperspektive (mit Fokus auf Individuen) mit einer Makroperspektive

(mit Fokus auf Gruppen). Das Ergebnis ist eine umfassende Abbildung der organisatorischen Lebenswelt, die den Einfluss des Teamkontextes auf die Handlungen und Wahrnehmungen eines Individuums berücksichtigt. Zusammenfassend zeigen die Ergebnisse, dass das Betrachten von Teamdiversität als Moderator den Fokus der Diversitätsforschung erweitert, neue Funktionen von Teamdiversität beleuchtet, eine umfassendere und komplexere Abbildung von weiteren Arbeitsphänomenen ermöglicht und neue Horizonte für die Diversitätsforschung eröffnet.

# 3. Introduction

## *3.1.* Defining and measuring diversity

*"Diversity may be seen as a characteristic of a social grouping that reflects the degree to which there are objective or subjective differences between people within the group." (Van Knippenberg & Schippers, 2007, p. 519)*

Diversity is a multi-dimensional and diffuse construct. In principle, work team diversity refers to an almost infinite number of dimensions of objective and subjective differences between members, ranging from differences in age to nationality, from religious background to personality, from work abilities to emotions (Van Knippenberg et al., 2004). Moreover, diversity may appear in numerous forms, reflecting various compositional patterns of differences within a team. For example, while the compositional structure of a team with maximal sex diversity is clear and obvious (i.e., 50% females and 50% males), the composition of a team with maximal age or personality diversity is less evident and may appear in multiple forms. It is due to this span of types, forms, and meaning that we shall adopt the following as a working definition that can be commonly applied in all three studies comprising this dissertations: "Diversity may be seen as a characteristic of a social grouping that reflects the degree to which there are objective or subjective differences between people within the group" (Van Knippenberg & Schippers, 2007, p. 519).

Three aspects of this definition should be noted. First, according to this definition, diversity may include both objective (i.e., compositional aspects) and subjective (i.e., perceived) differences. It is not presumed that group members are necessarily aware of

actual differences or that perceived differences are strongly related to actual differences. Second, diversity is a feature that can be looked at on different organizational levels, including teams, departments, executive boards, or the organization as a whole. Diversity at each of those levels may have unique implications to the workplace and may interact with diversity at every other level. Thus, it is crucial to bear in mind that the current work is focused on and limited to diversity at the team level. Third, defining diversity as a *characteristic* of a social unit hints to the idea that diversity is an enduring attribute of that unit. Indeed, the idea that diversity is a prominent and permanent quality of today's workplace guides us in claiming that there might be theoretical and practical benefits from examining diversity not only as a phenomenon in its own right, but also as a context that defines and influences other work and organizational phenomena.

Finally, it is important to note that while the definition above serves as a general framework that can be applied across different types of diversity, in each of the three studies comprising this dissertation, team diversity is also defined with reference to the specific type of differences measured. Specific definitions are necessary since each diversity form (e.g., tenure diversity, general perceived diversity) has to be measured and operationalized in accordance with its specific type. Harrisson and Klein (2007), discussing this topic in a recent influential paper, argued that it is necessary to recognize the unique meaning, maximum shape, and assumptions underlying each type of diversity. In particular, the authors distinguished between three types of diversity: separation (i.e., diverging positions, opinions, or values), variety (i.e., heterogeneity with respect to task-relevant categories that the group members belong to), and disparity (i.e., an unequal distribution of valued resources). As shown in Figure 1 below, each of these diversity

types reflect different patterns of differences and hence should be associated with unique measurement and operationalization. In sum, it is now accepted wisdom that there is no one "best" index to assess and describe diversity and, thus, that the operationalization of group diversity should correspond to the respective conceptualization of diversity.

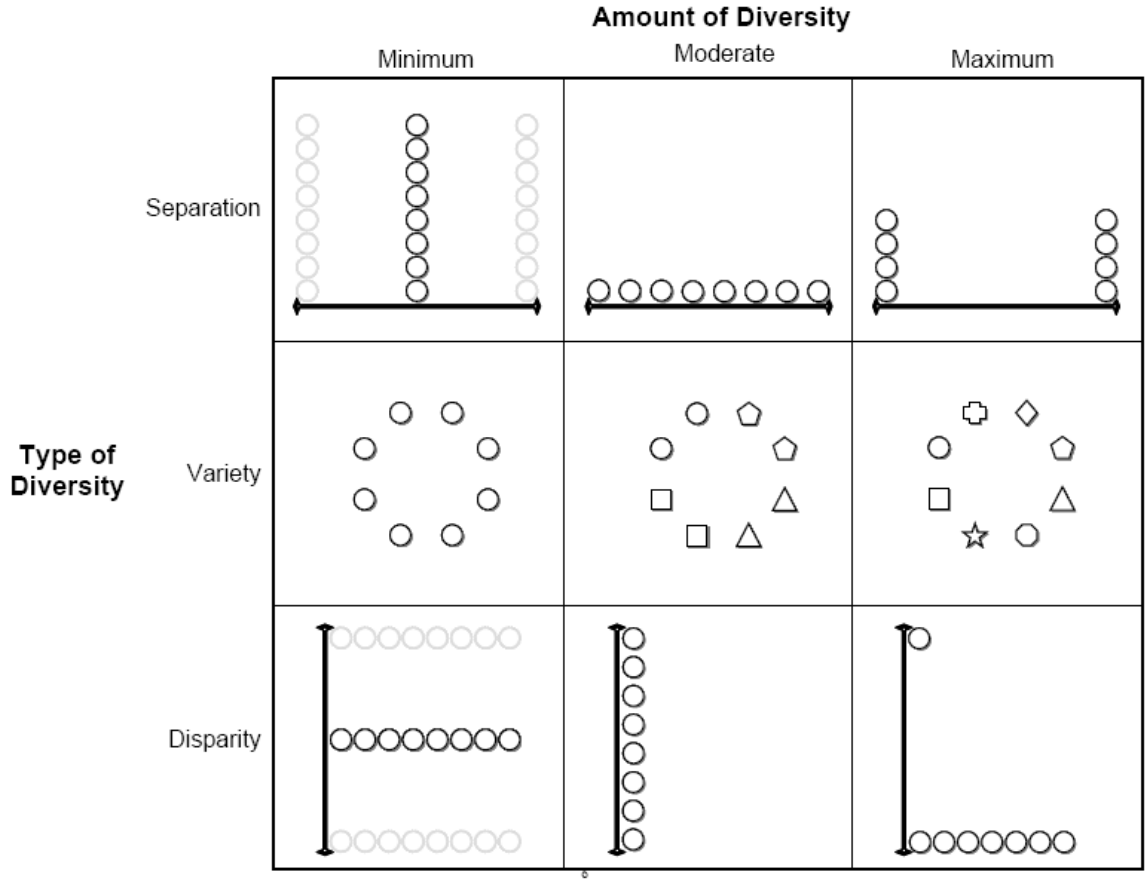


*Figure 1*. Pictorial representation of three within-unit diversity types (adapted from Harrison & Klein, 2007)

### 3.2. The importance of team diversity in the workplace

The remarkable growth in diversity research over the last decade is no coincidence (Chugh & Brief, 2008). Due to increased globalization, demographical

developments, changes in organizational structure, and the increasing complexity of jobs, diversity has come to play a central role in organizational life (Jehn et al., 2008).

The main reason that diversity has become a key concern to organizations is the fact that organizations have indeed become more diverse (Homan, Van Knippenberg, Van Kleef, & De Dreu, 2007; Triandis, Kurowski, & Gelfand, 1994). In recent decades organizations have continuously globalized their operations, resulting in increasing frequency with which employees interact with colleagues and customers from different countries, cultural background and ethnicities. Further, as a result of legal, social and economical shifts, workforce participation rates of women, minorities, and disabled people have dramatically grown. So much so that women currently comprise almost half the labor force in the U.S. and developed countries in Europe and have begun gaining majority status in several occupational sectors (Franco, 2007; Hardarson, 2006). Organizations are also becoming more age diverse. As employees work into late midlife, the number of older employees and the age diversity in work units is steadily increasing (Roth, Wegge, & Schmidt, 2007).

In addition to the influence of demographical trends, structural changes in the way organizations operate are also responsible for the growing importance of diversity. Organizations today face fast-paced change, mounting pressure to innovate, and heightened globalized competition, all of which contribute to growing levels of uncertainty (Lim & Ployhart, 2004). Many organizations cope with these demands by increasing their reliance on teams to generate the solutions required for sustained business success (Kozlowski & Bell, 2003). Especially when team members differ with respect to the information and expertise they bring to the table, teams may outperform

individuals in terms of the quality of the decisions they reach (Argote, Gruenfeld, & Naquin, 2000). Organizing work in teams provide organizations with the flexibility of operation and the variety of skills and knowledge that is needed for the completion of complex tasks and services. However, while teams may stimulate innovation and facilitate problem solving, they often come with the cost of accentuating demographical differences as well as dissimilarities in personality, values, and attitudes which may result in conflicts (Harrison, Price, & Bell, 1998; Jehn, Northcraft, & Neale, 1999; Milliken & Martins, 1996; Phillips, 2003; Williams & O'Reilly, 1998).

Finally, diversity plays a central role in organizational life because it has important implications for team functioning. Indeed, as Table 1 below illustrates, team diversity has a significant impact on several organizational outcomes such as performance (Kearney, Gebert, & Voelpel, 2009; Wegge, Roth, Neubach, Schmidt, & Kanfer, 2008), innovation (Kearney & Gebert, 2009), conflict (Pelled, Eisenhardt, & Xin, 1999), satisfaction, and health (Wegge et al., 2008). This non-exhaustive list of diversity research reveals two additional reasons for the remarkable growth in diversity research over the last decade. First, the term “team diversity” encompasses many different types of differences (e.g., age, gender, expertise) and forms of diversity (e.g., deep-level diversity, faultlines). Second, while some studies report positive main effects of diversity (Keller, 2001), some report negative main effects (Kirkman, Tesluk, & Rosen, 2004), and others report no evidence for significant main effects (Lovelace, Shapiro, & Weingart, 2001). In other words, another reason for the increasing amount of research on diversity is the richness and complexity of the concept of diversity and the divergence of findings in the field.

In sum, a major challenge facing organizations and managers is an increasingly diverse workforce. What conclusions can be drawn from the research on diversity about meeting this challenge? Is there, as some researchers suggest, a "value in diversity", or, as suggested by others, does diversity make group functioning more difficult? To address this question, we turn now to current theoretical perspectives on diversity.

Table 1
Summary of diversity research, 1998-2010 (adapted from Joshi & Roh, 2009)

| Studies | Diversity attributes | Outcome variables | Sample | Findings |
|---|---|---|---|---|
| Ancona & Caldwell (1992) | Function, tenure | Team performance | 45 teams | Partial support for direct effects |
| Balkundi, Kilduff, Barsness, & Michael (2007) | Ethnicity, gender, age | Team performance | 19 production teams | No direct effects |
| Baugh & Graen (1997) | Gender, race | Team effectiveness | 31 project teams | No direct effects |
| Cady & Valentine (1999) | Race, gender, age | Innovation | 50 teams | Partial support for direct effects |
| Campion, Medsker, & Higgs (1993) | Experience | Team effectiveness | 80 teams | Limited support for main effects |
| Campion, Papper, & Medsker (1996) | Experience | Team effectiveness | 60 teams | Limited support for direct effects |
| Chatman & Flynn (2001) | Race, gender, citizenship | Team Performance, satisfaction | 161 managers | Partial support for direct effects |
| Choi (2007) | Age, gender, tenure, function | Creativity | 188 teams | Partial support for direct effects |
| Choi, Price, & Vinokur (2003) | Age, gender, race, education | Job-search efficacy | 169 training groups | Partial support for directs effects |
| Colquitt, Noe, & Jackson (2002) | Ethnicity, gender, age | Procedural justice | 88 production teams | Support for the moderating effect of climate strength |
| Drach-Zahavy & Somech (2002) | Function, age education, tenure, gender, | Team support, team effectiveness | 48 administrative teams | Positive effects of gender and functional diversity; Negative effects of tenure diversity |
| Ely (2004) | Age, gender, race, tenure | Team performance | 486 bank branches | Negative relationship for tenure and age diversity |

| | | | | |
|---|---|---|---|---|
| Harrison, Price, Gavin, & Florey (2002) | Surface- and deep level differences | Team performance | 144 teams | Support for the moderating role of time |
| Hobman, Bordia, & Gallois (2004) | Perceived diversity | Group involvement | 1197 nurses | Support for the moderating role of openness to diversity |
| Homan, Hollenbeck, Humphrey, Van Knippenberg, Ilgen, & Van Kleef (2008) | Faulitnes | Team performance | 58 teams | Support for the moderating role of openness to experience and salience of intragroup differences |
| Homan, Van Knippenberg, Van Kleef, & De Dreu (2007) | Informational faultlines | Team Performance | 70 teams | Support for the moderating role of diversity beliefs |
| Jackson & Joshi (2004) | Gender, ethnicity, team tenure | Team performance | 365 sales teams | Support for the moderating role of demographic social context |
| Jehn & Bezrukova (2004) | Gender, race, age, tenure, function, | Team performance | 1528 teams | Partial supports for main and moderating effects |
| Jehn, Northcraft, & Neale (1999) | Social category, information | Team performance, employee morale | 92 work teams | Supports for the moderating role of task complexity and task interdependence |
| Kearney & Gebert (2009) | Age, education, nationality | Team performance, innovation | 62 R&D teams | Support for the moderating role of transformational leadership |
| Kearney, Gebert, & Voelpel (2009) | Nationality, age, gender, tenure, education | Team performance | 83 teams | Support for the moderating role of need for cognition |
| Kirkman, Tesluk, & Rosen (2004) | Race | Team empowerment and effectiveness | 111 work teams | Negative effects |
| Leonard, Levine, & Joshi (2004) | Race, gender, age | Team performance | 700 retail stores | No effect of gender and race; age diversity predicted lower sales |
| Lovelace, Shapiro, & Weingart (2001) | Function | Team performance | 43 development teams | No direct effects |
| Pearsall, Ellis, & Evans (2008) | Gender faultlines | Team creativity | 80 teams | Activated faultlines negatively affected creativity |

| | | | | |
|---|---|---|---|---|
| Pelled (1996) | Race, gender, company tenure | Team performance | 42 production teams | No direct effects |
| Pelled, Eisenhardt, & Xin (1999) | Gender, race, age | Conflict, performance | 45 teams | Main effects on conflict |
| Puck, Rygl, & Kittler (2006) | Ethnicity | Team performance | 20 teams | Limited support for direct effects |
| Reagans & Zuckerman (2001) | Company tenure | Team performance | 224 R&D teams | No direct effects |
| Richard (2000) | Race | Firm performance | 63 banks | Support for the moderating role of strategy |
| Richard, Barnett, Dwyer, & Chadwick (2004) | Race, gender | Performance | 153 management teams | Support for the moderating role innovativeness and risk taking |
| Schippers, Den Hartog, Koopman, & Wienk (2003) | Age, gender, education, tenure | Performance, satisfaction | 54 work teams | Support for the moderating role of outcomes interdependence and longevity |
| Van Der Vegt & Bunderson (2005) | Expertise | Team learning, team performance | 57 R&D teams | Support for the moderating role of team identification |
| Van Der Vegt & Van De Vliert (2005) | Perceived skill dissimilarity | Helping behavior | 20 teams | Support for the moderating role of task-interdependence |
| Van Dick, Van Knippenberg, Hägele, Guillaume, & Brodbbeck (2008) | Subjective diversity | Identification, desire to stay, information elaboration | Study 1:61 teams; Study 2: 43 teams | Support for the moderating role of diversity beliefs |
| Wegge, Roth, Neubach, Helmut-Schmidt, & Kanfer (2008) | Age, gender | Team performance, health | 222 teams | Support for the moderating role of team size and task complexity |
| Williams, Parker, & Turner (2007) | Surface- and deep-level | Within-team perspective taking | 208 individuals | Negative effects |

# 4. State of The Art: Theoretical Perspectives on Diversity

## 4.1. The Dualistic View of Diversity Research

Typically, researchers draw on two different theoretical positions to explain the effects of diversity (see Williams & O'Reilly, 1998). Both positions offer plausible but contradictory predictions, hence the dualistic view of diversity.

The "value in diversity" hypothesis (Cox et al., 1991) proposes that diversity may improve team functioning through an increased range of knowledge and expertise. This perspective proposes that when members with diverse opinions and background share and constructively debate their unique viewpoints, teams will be able to achieve more creative and innovative solutions than would have been possible with a homogenous team. This positive impact of diversity can be expected especially when the task can benefit from multiple perspectives and diverse knowledge. Thus, diversity may especially enhance group functioning in tasks that require innovation, creativity, and complex decision making (Bantel & Jackson, 1989).

An opposing, pessimistic hypothesis posits that diversity may result in social divisions and negative intra-group processes, such as dysfunctional forms of conflict, which may detract from team functioning (Mannix & Neale, 2005). This school of thought draws on the social categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) and similarity-attraction theory (Byrne, 1971). The starting point for the social categorization theory is the idea that individuals are assumed to have a desire to maintain a high level of self-esteem. This is often done through a process of social comparison with others. In making these comparisons, individuals first define themselves

through a process of self-categorization in which they classify themselves and others into social categories using salient characteristics. Similarities and differences between team members form the basis for categorizing self and others into groups, distinguishing between similar in-group members and dissimilar out-group members (Ely, 1994). As people tend to favor in-group members over out-group members, to trust in-group members more, and to be more willing to cooperate with them (Brewer & Brown, 1998; Tajfel & Turner, 1986) diversity thus may lead to cognitive biases, discrimination, and conflict.

The similarity-attraction paradigm yields predictions that are consistent with the social categorization theory. Particularly, this paradigm proposes that people are attracted to similar others (Byrne, 1971). Individuals who are similar may find the experience of interacting with each other easier, positively reinforcing and more desirable. This can lead individuals to identify more with team members that are more similar to themselves in terms of, for example, demographic characteristics or values. The result of such processes may be that work groups function more smoothly, and that group members are more satisfied with and attracted to the group when it is homogeneous rather than diverse.

The predictions drawn from the social categorization and similarity-attraction theories are corroborated by findings from numerous laboratory and field studies. The empirical findings from these studies are consistent in showing that dissimilarity often results in group processes and performance loss (Murnighan & Conlon, 1991), including less positive attitudes, higher turnover (Jehn et al., 1999), decreased group cohesion (O'Reilly, Caldwell, & Barnett, 1989) and lower performance (Murnighan & Conlon,

1991). However, at the same time, a large body of empirical research also provides support to the predictions drawn from the "value in diversity" approach. For example, some studies find an association of diversity with higher performance (Jehn et al., 1999), higher innovation and more creative problem solving (e.g., Bantel & Jackson, 1989). The inconsistent impact of team diversity has also been captured by several meta-analyses and reviews. In particular, while Williams and O'Reilly (1998) reported that demographic diversity is associated with weaker social integration, poorer communication, and lower levels of group effectiveness, background diversity was found to be associated with positive influence on team performance. Similarly, while a meta-analysis by Bowers, Pharmer and Salas (2000) reported that the combined effect sizes of 57 studies shows a small effect in favor of heterogeneous groups, and Horwitz and Horwitz (2007) found support for the positive impact of task-related diversity (i.e., diversity in ability and cognitive resources) on team performance, Van Dijk, Van Engen, and Van Knippenberg (submitted) found that team diversity resulted in both positive and negative outcomes.

In sum, evidence for the positive effects as well as for the negative effects of diversity is highly inconsistent (Bowers et al., 2000; Webber & Donahue, 2001; Williams & O'Reilly, 1998) and raises the question of whether, and how, the perspectives on the positive and the negative effects of diversity can be reconciled and integrated. Research attempts to answer this question has focused on (1) searching for higher-order structure in diversity research, (2) examining diversity from a contingency perspective, and (3) exploring diversity faultlines. The following three sections will review each of those research avenues.

## 4.2. Diversity Typologies

The inconsistent findings in the diversity literature have resulted in several attempts to introduce some higher-order structure in diversity research. One way in which researchers attempt to reconcile the different perspectives and findings on the positive and the negative effects of diversity is to classify diversity characteristics into different categories. In that way researchers hope to better understand and predict when diversity is beneficial or detrimental for team functioning.

Among the most prominent typologies is the dichotomous distinction between diversity on observable - or surface level - attributes and diversity on less visible - or deep level - attributes (Harrison et al., 1998; Pelled, 1996). Surface-level diversity encompasses demographic traits, such as gender, age, race, or nationality, which are readily-detectable by team members. Deep-level diversity encompasses forms of diversity that are not immediately visible to the naked eye, such as function, education, technical abilities, or attributes, and it is therefore assumed that they are more likely to be used as basis for social categorization. Further, when differences between people are visible, they are particularly likely to evoke responses that are due directly to biases, prejudices, or stereotypes (Williams & O'Reilly, 1998). Further, surface-level and deep-level diversity are suggested to also differ in regard to their temporal impact. It is suggested that, over time, increasing collaboration weakens the effects of surface-level diversity on team outcomes but strengthens those of deep-level diversity (Harrison, Price, Gavin, & Florey, 2002).

Another typology includes the distinction between task-related and task-unrelated diversity attributes (Jehn et al., 1999; Schneider & Northcraft, 1999). Some researchers

have proposed that task-related diversity, such as diversity in tenure, education, and functional background is more likely to have positive effects on team outcomes because it encompasses the possibility for increased pool of information in the team (Jehn et al., 1999). In contrast, diversity attributes that are less task-related, such as race or gender, are more likely to have negative impact on team functioning due to lacking this possibility.

Although such typologies make intuitive sense, they do not seem to be supported by the data (Van Knippenberg et al., 2004). For example, different studies resulted in different findings regarding the relationship between gender diversity and team performance. Whereas Jackson and Joshi (2004) found no direct relationship, and Wegge and his colleagues (2008) reported a positive one, Jehn and Bezrukova (2004) reported negative relationship between gender diversity and performance. An important conclusion to emerge from the current state of the art is that, contrary to what seems popular belief, no type or attribute of diversity is directly related to either positive or negative outcomes. Diversity thus appears to be a double-edged sword.

### 4.3. The Contingency Approach

As described above, the diversity field has been dominated for a long time by studies focusing on the main effects of diversity (Van Knippenberg & Schippers, 2007). Researchers tested the relationships between dimensions - or types - of diversity and outcomes without taking potentially moderating variables into account (Jackson & Joshi, 2004). Narrative reviews and meta-analyses alike seem to corroborate the conclusions that the main effects approach is unable to account for the effects of diversity adequately (Bowers et al., 2000; Webber & Donahue, 2001; Williams & O'Reilly, 1998). Therefore,

researchers recently begun abandoning the main effects approach and instead argue for models that are more complex and that consider contingencies in explaining the effects of diversity. As Wegge and Schmidt (2009) put it, "in evaluating the potential effect of diversity, it is critical which personal attributes, which team tasks, which task dimensions, and which dependent variables are examined". The main principles of this approach are summed up in the Categorization-Elaboration model (CEM, Van Knippenberg et al., 2004, see Figure 2).

### 4.3.1. The Categorization-Elaboration model (CEM)

While diversity researchers have typically studied the information/decision-making processes (i.e., value in diversity approach) and social categorization processes in isolation, the CEM combines their predictions. Accordingly, the model's first principle posits that each dimension of diversity may elicit both information/decision-making and social categorization processes. This, of course, rejects previous ideas suggesting that certain types of diversity are more likely to be associated with negative outcomes while others are more likely to be associated with positive outcomes (Pelled, 1996).

A second principle of the CEM assumes that diversity does not automatically lead to intergroup bias or to elaboration of task-relevant information within teams. Diversity research has often worked from a somewhat oversimplified conceptualization of social categorization processes. This has apparently led diversity research to largely ignore important contingencies of the relationship between diversity and social categorization and between social categorization and the negative consequences of categorization. Whether or not diversity results in categorization and intergroup bias or in elaboration of task-relevant information and perspectives depends upon several moderators. For

example, these moderators may include the type of task the team is engaged in, team members' motivation to process task-relevant information and perspectives, and members' attitudes about diversity.

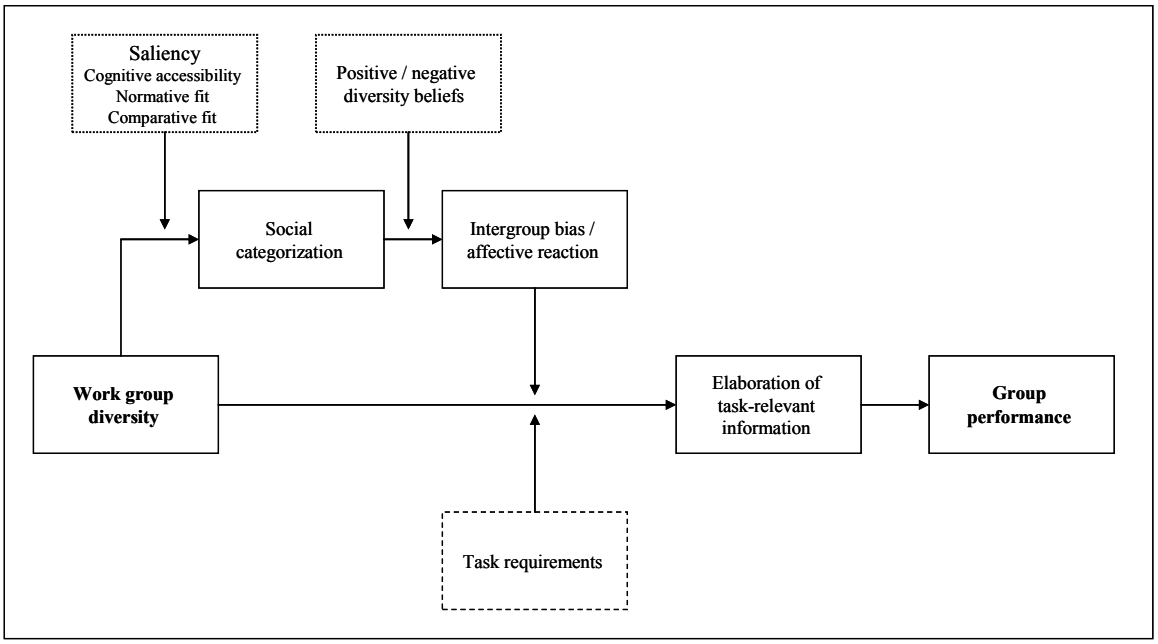


*Figure 2.* The categorization-elaboration model of work group diversity and group performance (adapted from Van Knippenberg et al., 2004, p. 1010)

The focus on moderators is important not only to identify when diversity may be expected to have positive or negative effects, but also because moderator effects observed may substantiate conclusions about the processes in operation. Attention to these processes is important, because another major impediment to the advancement of the field, according to this research approach, is a tendency to assume rather than assess mediating processes (Van Knippenberg et al., 2004). Often the occurrence of information/decision-making or social categorization processes is concluded from the observation of positive or negative effects of diversity on group functioning without evidence regarding the processes taking place during group interaction. The predicted

outcome is not necessarily evidence of the predicted process, however, and relying on outcomes to determine process runs the risk of resulting in misleading conclusions.

### 4.3.2. The ADIGU model

The principles underlying the contingency approach are reflected in the theoretical work of other researchers as well. Wegge and his colleagues (Wegge, 2003; Wegge & Schmidt, 2009), for instance, proposed a model describing the relationship between age diversity in work groups and group effectiveness. The authors propose that it is expected that age diversity in work groups will have negative effects on group performance, motivation and health of group members (see Figure 3). However, it is postulated in this model that, under favorable conditions, beneficial effects should be observed, too. Cognitive salience of age diversity and appreciation of age diversity (i.e., judgments regarding the value of age diversity in groups) are considered as potential moderating variables. Thus, similarly to the CEM, the ADIGU (Altersheterogenität von Arbeitsgruppen als Determinante von Innovation, Gruppenleistung und Gesundheit) model suggests two central contingencies for the influence of diversity: whether diversity is indeed observed by group members and whether members do or do not value the presence of diversity in their group. Moreover, the ADIGU model draws attention to the mediating influence of conflicts and to the need to differentiate between diversity in groups that engage in complex or routine tasks.

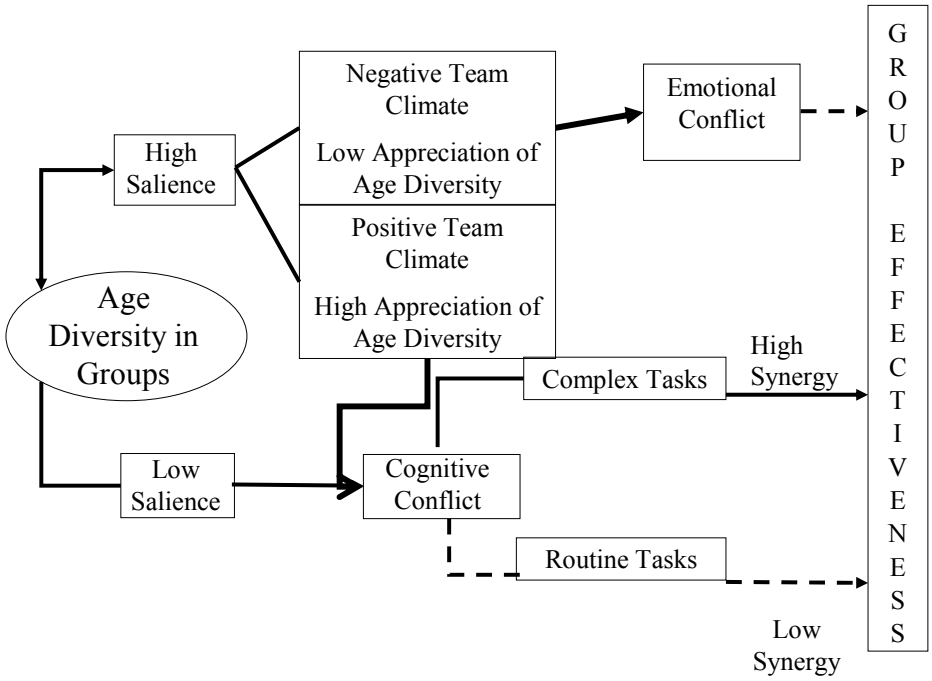


*Figure 3.* The ADIGU model (based on Wegge & Schmidt, 2009)

### 4.3.3. The contingency approach: Empirical findings

The research agenda set contingency models and the principles that guide them inform the major part of current research efforts in the field (Van Knippenberg & Schippers, 2007). Researchers are hence preoccupied with examining when (i.e., in the presence of what moderators) and how (i.e., through what mediators) different types of diversity either benefit or impede team functioning. For example, recent studies have reported that the negative effects of demographic diversity diminish over time (Harrison et al., 1998), and the positive effects of diversity are more likely to surface when there are high levels of outcome interdependence (Schippers, Den Hartog, Koopman, & Wienk, 2003), task interdependence (Jehn et al., 1999), and collective team identification (Van der Vegt & Bunderson, 2005b) and when tasks are complex rather than routine (Pelled et

al., 1999; Wegge et al., 2008). The search for moderating variables has also produced practical-oriented findings that assist fostering the utilization of the potential, but frequently untapped, benefits entailed by team diversity. For instance, Kearney and Gebert (2009) examined transformational leadership as a moderator of the relationship of age, nationality, and educational background diversity with team outcomes. They reported that when levels of transformational leadership were high, nationality and educational diversity were positively related to team leaders' longitudinal ratings of team performance. These relationships were nonsignificant when transformational leadership was low. The authors also reported that age diversity was not related to team performance when transformational leadership was high, and it was negatively related to team performance when transformational leadership was low.

The contingency approach has also motivated explicit examination of the underlying mechanisms linking diversity with team outcomes. This has resulted in uncovering several mediating variables. For example, Jehn et al. (1999) as well as Pelled et al. (1999) have identified intra-team conflict as an important mediator of the diversity–team outcomes relationship. Other researchers have found evidence for the mediating role of team learning (Van der Vegt & Bunderson, 2005b) and team reflexivity (Schippers et al., 2003). In addition, several studies (e.g., Homan et al., 2007; Kearney & Gebert, 2009; Van Dick, Van Knippenberg, Hägele, Guillaume, & Brodbeck, 2008; Van Knippenberg & Schippers, 2007) have emphasized the central role that elaboration of task-relevant information plays in accounting for the positive or negative effects of diversity. The role of elaboration is explained by the idea that although the broader range of task-relevant resources and perspectives that diversity affords constitutes a potential benefit, active

steps, including the constructive elaboration on the input provided by others, must be taken to ensure that teams make use of this variety (Van der Vegt & Bunderson, 2005a).

The research agenda set by contingency models has therefore proved useful for the purpose of integrating past contradicting findings and advancing knowledge of the processes underlying the effects of diversity. In the current research we intend to build on these findings.

### 4.4. Faultline Research

In addition to the examination of diversity typologies and the contingency approach, researchers have also attempted to reconcile and integrate the perspectives on the positive and negative effects of diversity by conducting research on diversity faultlines. By tradition, diversity research has focused on the effects of different dimensions of diversity in isolation, not taking into account the possibility that the effects of a dimension of diversity may be dependent on diversity on other dimensions. Research on the salience of social categorizations (Oakes, Haslam, & Turner, 1994) suggests that the relationship between different dimensions of diversity influences the likelihood that diversity elicits subcategorization processes. Some suggested, therefore, to explore the relationship between team diversity and team outcomes by conceptualizing work team diversity as an interaction of differences on multiple dimensions.

Lau and Murnighan (1998) coined the term “faultlines” to refer to combinations of correlated dimensions of diversity that yield a clear basis for differentiation between subgroups. A team composition in which all the men are relatively old and all the women are relatively young, for example, is more likely to elicit subcategorization than is a composition in which gender and age are unrelated. The stronger the diversity faultline,

the more likely subcategorizations should be to arise, and the greater the chance of disruptions of group functioning. In support of this proposition (Li & Hambrick, 2005) found that a faultline index was negatively related to self-rated group performance, and Sawyer, Houlette, and Yeagley (2006) reported that faultline groups performed worse than homogeneous groups. However, this proposition is only partially supported as others observed that faultlines were associated with lower relational conflict, and higher satisfaction and psychological safety (e.g., Lau & Murnighan, (2005). Moreover, recent studies provided further support to the notion that the group faultlines are not reliably associated with negative outcomes (Van Dijk et al., submitted). For example, Jehn and Bezrukova (2010, see also; Meyer, Shemla, & Schermuly, in press) found that coalition formation, high levels of group conflict, and lower levels of satisfaction and group performance were found in groups with activated faultlines (i.e., members actually perceive subgroups based on the demographic characteristics) but not in groups with dormant faultlines (i.e., potential faultlines based on demographic characteristics).

In sum, the faultline and cross-categorization concepts have added value in terms of explaining diversity effects, but the relationship between faultlines and outcomes is not clear-cut. In part, this may reflect problems with the operationalization of faultlines (Van Knippenberg & Schippers, 2007). It might be worthwhile, for instance, to consider the possibility that there are asymmetries in the effects of faultlines that are not captured by current faultline measures. For example, a faultline between a male Caucasian minority and a female Asian majority might affect group functioning differently than a faultline between a male Caucasian majority and a female Asian minority.

## 5. The Current Research

As the literature review above reveals, the research on diversity has gone a long way in recent years. From focusing on main effects of diversity in its early days, the research has matured and is capable now of integrating different theoretical approaches, account for contradicting findings, better define, conceptualize and measure diversity, and is currently gathering mounting evidence on different moderating conditions and mediating processes. However, despite these notable developments, current research is still limited in its ability to capture the rich and wide-ranging influence of diversity in the workplace. This dissertation identifies two main sources for this weakness. First, the majority of diversity research regards diversity as an isolated phenomenon that occurs only on a single organizational level. Cross-level influences of diversity, however, are largely ignored. Second, despite the richness and complexity that current research practices have added to the study of diversity, the fundamental goal guiding this field has remained unchanged: examining the relationship between diversity and work outcomes. I shall argue that diversity research has so far overlooked other aspects of the influence of diversity and that it can benefit from turning into new and unexplored avenues. In particular, diversity research may benefit from examining team diversity in roles other than the independent variable, and especially explore the influence of diversity as a context (i.e., moderating) variable. Thus, the main task of this dissertation is to extend diversity research by reassessing the role of diversity.

## 5.1. Team diversity as a context variable

Team diversity has critical influence on individual and team phenomena beyond the question of its effect on certain outcomes. Diversity, in other words, is not only an independent variable, but also the context in which individuals, teams and organizations operate. Thus, this work intends to extend diversity research by exploring ways in which team diversity substantiates team context. Context is defined as the situational settings in which workplace phenomena occur. In other words, context serves as "situational opportunities for and countervailing constraints against organizational behavior" (Johns, 2006, p. 387). Drawing on this perspective and considering the importance of diversity in today's workplace, the current work aims to illustrate the usefulness of conceptualizing team diversity as team-bound constraints and opportunities that may shape, determine, enhance or minimize workplace phenomena on the individual and the team level.

Team diversity can set the context in numerous ways, depending, among other things, on the specific type of diversity and the respective work phenomenon. For instance, diversity can influence the norms and standards of conduct in teams. Consider, for example, the influence of gender or cultural diversity on workplace norms. It is likely that teams comprised of one gender will hold different norms in regard to what is considered appropriate behavior and communication compared with teams comprised of both men and women (Holmes & Schnurr, 2006; Mastekaasa, 2005). Similarly, it is likely that cultural diversity will determine the extent to which distance between organizational hierarchies will be respected. Thus, one way in which team diversity may set context is by influencing employees' perception of what is allowed or banned, what is warranted or rejected, what is appropriate or improper. Team diversity may also set the context by

providing a frame of reference against which the meaning of individual and team behavior and characteristics is drawn. For example, as Study 1 illustrates, the impact of organizational tenure on employee performance depends on team tenure diversity. Thus, team diversity grants meaning to individual abilities, skills, and experiences by determining whether X years of organizational tenure is considered a little or a lot. Finally, team diversity may also set the context by influencing team processes and inter-individual relationships. For example, intergroup bias resulting from diversity may set the level of trust among team members and the extent to which team members are open to communication from others (Van Knippenberg, 1999).

## 5.2. Analytical and theoretical basis

Our perspective is based on the principles of the multilevel analysis approach. The basic idea of multilevel analysis is to think of the lowest-level units (smallest and most numerous) as organized into a hierarchy of successively higher-level units (House, Rousseau, & Thomas-Hunt, 1995). For example, students are nested within classes, classes are nested within schools, schools are nested within school districts, and school districts are nested within states. Such a perspective can be used to describe outcomes for an individual student as a sum of effects for the individual student, for her/his class, for the school, for the district and for the state. Each of these effects can be regarded as one of an exchangeable collection of effects. In other words, multilevel analysis allows to study relationships and phenomena within a specified context (Klein, Dansereau, & Hall, 1994). For instance, our understanding of the relationship between the effort invested by a student and the student's final grade can be enriched if relevant context is taken into account.

In a similar vein, multilevel approach can also be beneficial in studying work behavior. Multilevel theories span the levels of organizational behavior and performance, typically describing some combination of individuals, dyads, teams, businesses, and industries. This approach begins to bridge the micro-macro divide, integrating the micro domain's focus on individuals with the macro domain's focus on groups, organizations, environment, and strategy. Hence, multilevel theory fosters much needed synthesis and synergy within the organizational sciences (House et al., 1995; Klein et al., 1994; Tosi, 1992). Such synthesis and synergy is missing, for example, in regard to the study of diversity. Team diversity is most often explored as a single-level phenomenon. Observing team diversity in a greater perspective, as a link in the organizational chain, may result in a deeper, richer portrait of organizational life—one that acknowledges the influence of the context on individuals' actions and perceptions. Hence, applying the multilevel perspective in diversity research may connect the dots, making explicit the links between team diversity and other organizational constructs previously unexplored. In particular, observing team diversity using the multilevel perspective of organizations will illuminate the context surrounding individual-level processes, clarifying precisely when and where such processes are likely to occur.

In sum, guided by the principles of the multilevel approach and driven by an acknowledgment of diversity as a crucial aspect of today's workplace, this dissertation aims to broaden the focus of diversity research. The current work is thus dedicated to illustrating how the conceptualization of diversity as cross-level moderating team context can draw a richer and more complex portrait of individual and team behaviors in the workplace.

## 5.3. Aims of the current research

The overarching aim of this dissertation is to *broaden the focus* of diversity research by conceptualizing diversity as an important contextual setting within which individuals and teams operate. While the traditional view of diversity as an independent variable and the current research approach share agreement that diversity is a phenomenon that defines and shapes today's organizations (Jackson, Joshi, & Erhardt, 2003b), they differ in at least two substantial ways. First, considering diversity as an organizational context rather than as an independent variable draws on the idea that diversity in the workplace in no longer a phenomenon that may or may not appear in an organization. Rather, diversity is a given; it is built-in in any organization and any workplace. This view is closely linked with the changing understanding of the concept of diversity itself (see, for example, Harrison & Klein, 2007). Whereas in the past diversity research mainly regarded diversity in terms of the extent to which objective differences appeared in teams (e.g., age diversity, gender diversity), increasing amount of research efforts are currently dedicated to other types of diversity, including some that do not depend on the existence of actual objective differences (e.g., general subjective diversity, Van Dick et al., 2008). In other words, as diversity is starting to be seen in multiple forms and ways beyond the narrow definition of objective diversity, it becomes clear that diversity is ubiquitously present in the workplace. Another aspect in which the two approaches to diversity differ is the emphasis they place on studying organizational phenomena within the natural organizational structure and the role they assign diversity within this structure. Viewing team diversity as a contextual, cross-level moderator fits its

position as a team level phenomenon within the multi-level hierarchies in which organizations are arranged.

On the basis of this general goal we pursue two specific aims. The first aim guiding this thesis is to *illustrate the empirical and theoretical usefulness* of the current approach. Viewing diversity as a context variable rather than only as an independent variable enables the examination of a vast variety of new questions and organizational phenomena. Thus, by assigning team diversity the role of a cross-level moderator I aim to illuminate phenomena on other organizational levels and to draw a richer portrait of individual behavior in the workplace.

The second aim of this work is to conceive team diversity as a contextual factor in order to *explore the mechanisms and processes* through which team diversity itself operates. The moderating influence of team diversity on individual level phenomena may provide indirect evidence regarding the processes underlying its work (Homan et al., 2008). In other words, by exploring the direction, nature, and type of influence that team diversity exerts over organizational phenomena, I hope to shed light on the mechanisms that drive the impact of team diversity.

## 5.4. Studies

Guided by the principles of the multilevel approach, I undertook the task of conducting three empirical studies that correspond with the two aims outlined above. In the following sections I introduce the studies and link them with the stated aims.

### 5.4.1. Study 1: Exploring the Cross-Level Effects of Organizational Tenure on Employee Performance

As proposed above, one way in which diversity may influence organizational phenomena is by granting them meaning and determining their impact. In Study 1 the authors explore this claim and examine whether team diversity influences the extent to which the benefits associated with organizational tenure will unfold. Specifically, the authors examine the cross-level influence of team organizational tenure diversity and leader organizational tenure on the relationship between individual organizational tenure and performance. The hypotheses were tested using multi-level modeling and an objective measure of employee performance with a sample of 1767 employees and 256 leaders in intact working teams of a large financial services firm. Guided by the major goals of this dissertation, in conducting Study 1 the authors strive to achieve two main objectives. First, by applying the cross-level perspective to team diversity the authors examine the viability and usefulness of the multilevel approach. Second, the authors theoretically scrutinize the ways in which team diversity determines the value of organizational tenure and its impact on performance.

### 5.4.2. Study 2: Men's and Women's Health Symptoms as a Function of Gender Composition in Work Teams: a Multilevel Examination

This study illustrates the empirical and theoretical usefulness of conceiving team diversity as a cross-level moderating variable by exploring how team gender diversity may shape individual-level relationships. Specifically, in an attempt to account for inconsistencies in the literature regarding the relationship between gender and health symptoms, the authors examine the moderating influence of team gender diversity on this relationship. The impact of gender diversity in teams on individual-level health symptoms of men and women is examined using repeated measures design over two years in 220 natural work teams (N 1$^{st}$ year = 4538; N 2$^{nd}$ year=5182).

### 5.4.3. Study 3: The moderating effect of perceived diversity and team identification on affective linkages in work teams.

This study examines team diversity as the context within which affective interactions among team members are formed and shaped. It is posited that the extent to which team members perceive diversity in their respective team can enhance as well as inhibit individuals' susceptibility to emotional contagion and team members' motivation to engage in mood comparison processes with one another. To examine the role that team diversity plays in facilitating the sharing of affect within the team, the authors study intact teams in different organizations in Israel (Study A, comprising 170 employees in 33 teams) and Germany (Study B, comprising 304 employees in 61 teams) using a repeated-measures design.

# 6. STUDY 1

## Exploring the Cross-Level Effects of Organizational Tenure on Employee Performance

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## 6.1. Introduction

Organizational tenure refers to the time spent in an organization (Quiñones, Ford & Teachout, 1995), and it is directly related to the acquisition of organization-specific knowledge, skills, and abilities (Tesluk & Jacobs, 1998). Although a large body of research provides evidence for a positive relationship between tenure and performance (Hunter & Hunter, 1984; McDaniel, Schmidt & Hunter, 1988; Quiñones et al., 1995), only a limited picture of this relationship has been portrayed. In particular, the approach taken by previous studies to clarify the nature of this relationship has been problematic for two reasons. First, as Rollag (2004) notes, previous studies typically regarded organizational tenure in terms of absolute time spent in an organization although organizational tenure derives its meaning from organization-specific perceptions that are socially constructed and thus relative (Zaheer, Albert & Zaheer, 1999). Second, previous studies have examined the relationship between organizational tenure and performance as a single-level phenomenon, at either the individual or the team level, without considering cross-level relationships. Hence, with the goal of overcoming these research impediments, the primary purpose of this study is to extend prior theory and empirical findings by investigating the relationship between employee organizational tenure and employee performance using a multilevel framework that permits the examination of cross-level influences among teams, team members, and team leaders. Specifically, we develop and test a conceptualization for understanding how organizational tenure, when considered as a complex and relative construct, differentially influences employees' performance in varying team contexts.

*Employee organizational tenure and performance*

When employees join an organization, they are 'shaped' by their new work and organizational environment. In the course of their organizational membership, employees come "to appreciate the values, abilities, expected behaviors, and social knowledge essential for assuming an organizational role and for participating as an organizational member" (Louis, 1980, pp. 229-230). With accumulating organizational tenure, employees assimilate to the organizational norms and get increasingly familiar with their role and the organizational culture and goals (Chatman, 1991; Louis, 1980; Louis, Posner, & Powell, 1983; Moser & Schmook, 2006). This process of increasing adjustment to the organization is, in turn, reciprocated by higher social acceptance, role clarity, and self-efficacy (Bauer, Bodner, Erdogan, Truxillo & Tucker, 2007). These interactions between organizations and individuals have been described by the Attraction-Selection-Attrition model (ASA model; Schneider, 1987). The ASA model asserts that employees' attraction to, selection by, and attrition from organizations leads to an increasingly uniform organizational workforce. As employees gain organizational tenure, they adjust their efforts according to the norms, performance criteria, and goals of the organization. Along these lines, those employees who better "fit" to an organization are likely to show higher performance because they have internalized the organizational culture and norms and match the organizational demands to a higher degree (Kristof-Brown, Zimmerman, & Johnson, 2005).

Importantly, although in the past studies have overlooked the differences between organizational and role or job tenure (Quiñones et al., 1995), emphasizing the conceptual distinctiveness of organizational tenure is essential. Specifically, while job or role tenure

may lead to an increase in *job or role-related* knowledge, skills, and abilities (KSAs; i.e., expertise in one's field, social networks in the industry, etc.), organizational tenure is uniquely associated with an increase in *organization-specific* KSAs (i.e., internalizing the organization's culture, norms, and goals, power and status increase, building up social networks within the organization and with important partners, etc.). For instance, whereas gaining job or role tenure may provide an employee with improved technical skills and familiarity with the field of expertise, gaining organizational tenure may encourage them to adapt to the organizational code of conduct, gain trust and reputation among organizational members, and build rapport with important colleagues. Acquiring such organization-specific resources is essential for employees' task performance because they assist employees in learning more efficient ways to perform their tasks, getting to know the individuals they need to collaborate with, or the obstacles to avoid when performing them (Humphrey, Morgeson & Mannor, 2009). Thus, organizational tenure can be theoretically conceptualized as a *proxy* for organization-related KSAs, including power and status, relevant social networks as well as important knowledge of the company's history, norms, culture, and goals (Nonaka, 1994; Tesluk & Jacobs, 1998).

Since organizational tenure is related to an increase in organization-specific KSAs, which, in turn, promote employee performance, one may expect a direct, positive relationship between employee organizational tenure and employee performance. This assertion has received considerable empirical evidence. For instance, in their meta-analysis Quiñones and colleagues (1995) found an estimated population mean correlation of .27 between employee tenure and performance (see also Hunter & Hunter, 1984; McDaniel et al., 1988). However, this positive relationship can be expected to be

dynamic (i.e., change over time; Hofmann, Jacobs & Barrata, 1993; Ployhart & Hakel, 1998; Sturman, 2007). In other words, the rate of acquiring more tenure-related resources is likely to be greater in employees who are in early, rather than advanced, stages of organizational membership. This may be so because when employees join an organization, they are presented with an entirely new organizational environment, including specific norms, expectations, and goals. Starting with hardly any or no organization-specific KSAs, employees learn more at these early stages of socialization and accumulate increasingly less organization-specific knowledge as time passes. Hence, the benefits of increasing organizational tenure for performance may unfold themselves to a greater extent for employees with low rather than high tenure (Ng & Feldman, 2010; Sturman, 2003). Building on the theory and the empirical evidence above, we expect that the relationship between employee organizational tenure and employee performance will follow the shape of a learning curve, with greater increases of performance at low levels than at high levels of organizational tenure.

*Hypothesis 1a.* Employee organizational tenure (level 1) will be positively related to employee performance (level 1).

*Hypothesis 1b.* The positive relationship between employee organizational tenure (level 1) and employee performance (level 1) will be curvilinear, such that the increase of performance will be stronger at low than at high levels of employee organizational tenure.

*Team tenure diversity and employee performance*

Given the hierarchical structure in organizational contexts, not only individual but also team characteristics have a significant impact on employee performance (e.g., Kozlowski & Ilgen, 2006; Peters & O'Connor, 1980). Interactive team processes that include team members' collaboration and support, task coordination, and sharing of knowledge and experiences result in unique team-level phenomena (Haslam, 2004; Wegge, 2004). Therefore, regarding teams not as a result of a mere additive function of individual characteristics but as a separate entity of analysis is appropriate and necessary. Against this background, it is important to consider not only the impact of employee organizational tenure but also the influence of the organizational tenure of the team. Of particular importance in this regard is the *diversity* of organizational tenure. While organizational tenure at the team may be measured using several indexes, including examination of the mean, minimum, or maximum, team diversity is most relevant to the current work because diversity of organizational tenure at the team level reflects the distribution of different backgrounds, familiarity with organizational KSAs, and work habits and attitudes.

Tenure diverse teams, in which team members possess different levels of organization-related KSAs, may provide individual team members with additional benefits beyond those awarded by their own tenure. First, organizational tenure diversity may impact employee performance because they are likely to have access to others' knowledge and resources. Team members with distinct, rich organization-specific resources can help members with fewer resources to learn to perform better (Klimoski & Mohammed, 1994). Second, employees in tenure diverse teams—especially in teams that

perform compensatory tasks in which members collaborate with each other (Barrick, Stewart, Neubert, & Mount, 1998)—are more likely to recognize and draw on each others' KSAs. Research on team transactive memory has shown that the ability to recognize and identify team members' expertise and specialized knowledge can enhance the performance of the team (Austin, 2003). By the same token, the ability to recognize other team members' organization-specific KSAs may eventually enhance employee performance.

Third, in tenure diverse teams members may be more willing to question the status quo since newcomers may be able to provide beneficial new and different perspectives on established procedures and knowledge (Michel & Hambrick, 1992). Finally, in tenure diverse teams members possess different organization-specific KSAs, different informational background, and different attitudes concerning decision making procedures which may enrich team discussion, enhance reflexivity on working habits and, consequently, increase the performance of individual team members (Rink & Ellemers, 2010). It thus follows that an increase in team tenure diversity may be positively and linearly related to an increase in employee performance. Importantly, by drawing from collective experiences and divergent perspectives in the team, team members may be able to formulate more creative and innovative ideas and solutions (Ancona & Caldwell, 1992; Bantel & Jackson, 1989; De Dreu & West, 2001). Indeed, past research has found evidence that team work may be positively associated with team knowledge and performance (Cooke & Kiekel, 2001) and that tenure diversity may enhance innovation and creativity (Bantel & Jackson, 1989; Katz, 1982). Thus, the following direct cross-level effect is predicted:

*Hypothesis 2.* Team organizational tenure diversity (level 2) will be positively related to employee performance (level 1).

*Leader tenure and employee performance*

Due to the central position they hold within the team and their influence on team members (Ellemers, De Gilder & Haslam, 2004; Haslam, 2004; van Knippenberg & Hogg, 2003; Wegge, 2004), leaders must also be taken into account when considering employee performance (Tesluk & Jacobs, 1998; Quinones et al., 1995). With increasing organizational tenure, leaders acquire organization-specific KSAs which include learning to act in accordance with their organization's culture, norms, and goals and building up essential social networks (Nonaka, 1994). As leaders gain organizational tenure, they may also acquire organization-specific KSAs which help them to select and train employees that are better suited for working in the organization, and to provide subordinates with feedback aimed at facilitating their performance (Liden, Stilwell & Ferris, 1996). Leaders' organizational tenure is also likely to be a pivotal source for managerial experiences and skills which may promote the recognition and implementation of best practices in the organization (Rulke, Zaheer & Anderson, 2000) and augment job knowledge and proficiency (Borman, Hanson, Oppler, Pulakos & White, 1993). Importantly, organizational tenure of a leader in a specific organization differs conceptually from general tenure in a leadership role. In particular, whereas the latter may instigate the acquisition of general, leadership-related KSAs (i.e., to know how to chair meetings, how to inspire followers, etc.), the former may instigate the acquisition of KSAs that are tied specifically to the organization. Thus, with accumulating

organizational tenure leaders internalize the organization's history, culture, norms, and goals and develop shared perspectives and supportive relationships with other organizational members (Haslam, Reicher, & Platow, 2011). Further, the act of leadership is to some extent unique in each organization, depending, among other determinants, on the organization-specific identity, tasks and resources, field of work, and followership styles (Haslam et al., 2011; Kelley, 1988).

Such organizational skills and resources are important as they help leaders to accomplish their organizational duties and to successfully lead their subordinates. Leaders assume tasks and responsibilities which are primarily directed towards guiding and supporting their subordinates and ultimately facilitating their contribution to the goals of the organization. Thus, leaders in advanced, rather than early, stages of organizational membership are likely to have acquired improved organization-specific KSAs and an understanding of the organizational norms, values and goals as well as the organizational environment. This, in turn, should help leaders to support their subordinates more effectively and to boost their performance. In fact, empirical findings have illustrated that subordinates who receive high rather than low levels of supervisor support show higher levels of extra-role as well as in-role performance (Rhoades & Eisenberger, 2002; Shanock & Eisenberger, 2006). These ideas have also been supported by empirical evidence that shows that leaders' organizational tenure is positively related to overall organizational and team performance (Goll & Rasheed, 2005; Gupta & Govindarajan, 1984). Therefore, as a proxy for important organization-specific resources, leaders' organizational tenure can be expected to be positively related to the performance of their subordinates.

However, the relationship between leaders' organizational tenure and employee performance is unlikely to be linear. Instead, the strength of this relationship is expected to weaken as leaders' organizational tenure increases (Sturman, 2007). This is likely to be so because leaders' rate of acquiring organization-specific KSAs associated with the ability to lead and facilitate the performance of subordinates is likely to be higher in early than in later stages of organizational membership. Put differently, since leaders with low organizational tenure are likely to learn a greater amount of new organization-specific KSAs compared with leaders who are already familiar with the organizational culture, norms, and goals and have acquired significant organization-related KSAs, further increases in organizational tenure is likely to add relatively less. Thus, the relationship between leaders' organizational tenure and employee performance is likely to be dynamic and follow the shape of a learning curve (Sturman, 2007). Hence, the following cross-level effects are predicted:

*Hypothesis 3a.* Team leader organizational tenure (level 2) will be positively related to employee performance (level 1).

*Hypothesis 3b.* The positive relationship between team leader organizational tenure (level 2) and employee performance (level 1) will be curvilinear, such that the increase in performance will be stronger at low than at high levels of leader organizational tenure.

*Employee tenure, team tenure diversity, leader tenure and employee performance*

An additional contention of the current analysis is that employee performance is not only influenced by the absolute level of employee tenure, team tenure diversity, or

leader tenure, but also by contextual factors which determine whether and to what extent their independent influences will unfold. Particularly, it is necessary to consider organizational tenure in *relative* terms, taking into account the team context. Specifically, the extent to which employees can benefit from their organizational tenure is likely to be determined by the team organizational tenure diversity. As employees gain organizational tenure they are able to obtain relatively less from tenure-related team resources because some aspects of these resources change only little over time (e.g., familiarity with norms, acquaintance with procedures and networks) and thus become less rewarding with time. Consequently, an employee with low, rather than high, tenure may benefit to a greater extent from collaborating with team members whose organizational tenure vary greatly. In this way, diversity in team members' organizational tenure and organization-specific KSAs may, to some degree, *compensate* for lacking personal organization-specific KSAs.

Similarly, the employee performance increase that is associated with increasing team leader organizational tenure is likely to be more pronounced either when an employee is relatively new to the organization or in teams with relatively low tenure diversity—for two reasons. First, in the initial organizational membership phase, an employee is likely to be in greater need for orientation and support provided by the leader, compared with an employee with high tenure. Thus, a relatively new employee may not only be in greater need for but also benefit to a higher degree from leaders' organization-related KSAs (de Vries, Roe & Taillieu, 2002) than a veteran employee who is likely to require less supervision and training. Second, the influence of leader tenure is likely to be less substantial in teams with high tenure diversity since such teams are already able to provide important resources to the individual member so that leaders are

likely to occupy a less central role in the team. As Humphrey et al. (2009) described: "certain team roles are most important for team performance and the characteristics of the role holders in the core of the team are more important for overall team performance" (p. 48). The centrality of a role in a team can be externally defined according to the extent to which they "(a) encounter more of the problems that need to be overcome in the team, (b) have a greater exposure to the tasks that the team is performing, and (c) are more central to the workflow of the team" (Humphrey et al., 2009, p. 50). In teams with high tenure diversity these are shared more evenly between the leader and team members who vary greatly in their tenure-related resources. In this way, team tenure diversity may act as a substitute for leadership (Keller, 2006; Kerr & Jermier, 1978). When team tenure diversity is high the leader is likely to occupy a less critical position within the team and thus to have a reduced impact on team members. In sum, these thoughts on the relative benefits of team tenure diversity and leader tenure for new organizational members lead us to expect that the leader and the team may compensate for the relative lack of tenure-related resources of each other.

While the performance of organizational novices may be boosted in a team with high tenure diversity and whose leader has high organizational tenure, the performance of veteran employees may be improved in a team with relatively low tenure diversity and whose team leader has low tenure since such conditions may emphasize the perception of that employee as being experienced and knowledgeable. As organizational tenure is related to an increase in organization-specific KSAs, an employee's high tenure may become a mark of status and an indication for general competence when working in a team with low tenure diversity supervised by a leader with low tenure (Ridgeway, 2003;

Ridgeway & Erickson, 2000). Such a position of status may lead to performance expectations by others and self, provide privileged access to resources and information and consequently influence one's performance (Driskell & Mullen, 1990; Ridgeway, 2003). Integrating these arguments on the relative benefits of employee tenure, team tenure diversity, and leader tenure, we can expect the leader and the team to substitute each other's tenure-related resources when individuals have low rather than high tenure. In other words, *relative* tenure may determine the extent to which employee performance can gain from increasing absolute organizational tenure, and we predict:

*Hypothesis 4.* Employee tenure, team tenure diversity and leader tenure will influence employee performance in a three-way interaction such that the increase in employee performance associated with rising employee tenure will be stronger at low rather than high levels of either team tenure diversity or leader organizational tenure.

## 6.2. Method

### 6.2.1. Sample and Procedure

To test these hypotheses we employed a prospective design, with independent and control variables being measured in 2004 and individual employee performance, the dependent variable, in 2005. The data were gathered from a major financial services consulting company in Germany. The total sample consisted of 1767 employees, 256 leaders and 256 stable, intact working teams. The company and the workers' union approved the researchers' request to conduct the current research. All employees participated voluntarily and the company provided the available information from the company's records. The majority of employees were consultants selling insurances and

other financial products directly to their private and small enterprise customers. Consultants within a team unit rely on and interact with each other such that they share one general secretary, the same software, deal with the same product information, and share a branch leader so that the teams resemble a pooled type of teams. Team members also get together once a week for formal as well as informal meetings and exchange of information. Although they interact with each other, team members make independent contributions to the team and their contributions are measured separately for each member. The teams are managed by team leaders whose responsibilities include supervising the professional development of their employees and conducting job interviews with new applicants. The team leaders are also responsible for the communication with the management within each branch as well as with the company's headquarters. Employee characteristics were as follows: Age ranged from 23 to 61 years, with an average of 36 years (*SD* = 6.02). Employee organizational tenure ranged from 0 to 24 years, with an average of 4.4 years (*SD* = 3.65), and approximately 14% of the employees were female. Team size ranged from 3 to 23 team members, with an average of 9 members (*SD* = 3.11). Leaders' age ranged from 28 to 55 years, with an average of 38 years (*SD* = 4.91) and organizational tenure ranged from 2 to 23 years, with an average of 8 years (*SD* = 3.55). Approximately 4% of the leaders were female.

### 6.2.2. Measures

*Organizational tenure*. Employee and leader organizational tenure were measured in terms of the number of years working in the company by the end of 2004. The standard deviation (SD) of tenure was measured for each team. Thus, employee tenure, leader

tenure, and team tenure SD reflect a time-based measure (i.e., a quantitative component) of organizational tenure (Tesluk & Jacobs, 1998).

*Performance.* Performance was objectively measured by assessing the accomplishment of a pre-determined numerical goal for acquiring new customers through existing ones. This measure reflects individual employee performance and a confound with team performance can be ruled out since (a) all consultants have unique customers and (b) customer relationships are coordinated within each team and district assuring that each customer is assigned to one consultant only. The company designed this measure deliberately in order to make the performance of all consultants comparable. For each consultant, the performance was measured in percentage, such that 100% is defined as the average of all consultants of the previous year. This objective measure does not only provide the benefit of allowing comparisons between employees, but it is also less prone to cognitive biases and more reliable than subjective performance measures, like supervisory, peer-, or self-evaluations (Bommer, Johnson, Rich, Podsakoff & MacKenzie, 1995; Feldman, 1981; Viswesvaran, Schmidt & Ones, 1996, 2005). It is important to note that as this organization is pursuing an expansion strategy that drives and directs its activities, the acquisition of new customers (a) is a critical aspect of employee performance and (b) it is used by the organization in its official performance appraisal of its employees.

*Control variables*. As presented in Table 2, employee age, team age SD, and mean team tenure correlated moderately with the corresponding tenure predictors. In addition, employee age was moderately correlated with employee performance. For these reasons, the respective age variables as well as mean team tenure were included as

control variables in all analyses. Additionally, since only 14% of employees were female and team size varied substantially from 3 to 24 team members, we included gender and team size as control variables.

### 6.2.3. Statistical Analysis Procedure

In order to test our hypotheses, we conducted hierarchical linear modeling (HLM) analyses, using HLM version 6 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). HLM explicitly accounts for the nested nature of the data and can simultaneously estimate the impact of factors at different levels of analysis on individual-level outcomes while maintaining the appropriate level of analysis for each predictor. We used random coefficient regression analyses that allowed for random variation at the individual and the team levels of analyses. Model 1 (one-way analysis of variance model) only included the dependent variable, employee performance, and analyzed the variance components within teams (level 1) and between teams (level 2). We tested Hypotheses 1a and 1b with Model 2 (a random coefficient regression model) which included employee tenure and employee tenure-squared (level-1 predictors) as well as employee age and gender (level-1 control variables). In Model 3 (intercepts-as-outcomes model), team tenure SD, leader tenure, and leader tenure squared (level-2 predictors) and team age SD, mean team tenure, leader age and team size (level-2 control variables), were added to the analysis in order to test Hypotheses 2, 3a, and 3b. Hypothesis 4 was tested with Model 4 (slopes-as-outcomes model) in which all interaction terms entered the analysis additionally, that is the 3-way interaction term between employee tenure, team tenure SD, and leader tenure as well as all three pairs of the 2-way interaction terms between them. Level-1 predictors were grand-mean centered in all models apart from Model 4 in which they were group-mean

centered ensuring an unbiased estimate of the within-group slope when analyzing cross-level interaction effects (Hofmann & Gavin, 1998; Raudenbush & Bryk, 2002). In order to avoid multicollinearity effects, level-2 predictors were Z-standardized before calculating cross-products (Aiken & West, 1991; Cohen, Cohen, West & Aiken, 2003; Raudenbush & Bryk, 2002).

## 6.3. Results

Table 2 displays means, standard deviations, and intercorrelations between variables at each level of analysis.

Table 2

*Descriptive statistics and intercorrelations*

| Variable | Mean | *SD* | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Level 1 | | | | | | | | |
| 1. Tenure | 4.43 | 3.65 | | | | | | |
| 2. Age | 36.46 | 6.02 | .47** | | | | | |
| 3. Gender [a] | 1.86 | 0.35 | -.03 | .09** | | | | |
| 4. Performance | 166.52 | 68.14 | .35** | .18** | .06* | | | |
| Level 2 | | | | | | | | |
| 1. Team tenure SD | 2.51 | 1.62 | | | | | | |
| 2. Team age SD | 4.68 | 2.20 | .28** | | | | | |
| 3. Team mean tenure | 3.95 | 2.04 | .73** | .16** | | | | |
| 4. Team leader tenure | 8.17 | 3.55 | .39** | .07 | .54** | | | |
| 5. Team leader age | 38.48 | 4.91 | .33** | .05 | .38** | .65** | | |
| 6. Team size | 8.98 | 3.11 | .23** | .07 | .25** | .19** | .19** | |

*Note.* For level 1 (employees), $n = 1767$; for level 2 (teams/team leaders), $n = 256$.

[a] Gender (1 = female, 2 = male). * $p < .05$. ** $p < .01$.

Table 3 presents the HLM results for Hypotheses 1a, 1b, 2, 3a, and 3b. Before testing the hypotheses, the *ICC1* was calculated from Model 1. An *ICC1* of .33 indicated that a substantial variance in employee performance could be accounted for by team-level

characteristics. In a second step, Hypotheses 1a and 1b were tested by defining Model 2, which only specified the level-1 predictors (i.e., employee tenure and employee tenure-squared) and the control variables (i.e., employee age and gender). The results support Hypotheses 1a and 1b. As shown in Figure 4, employee tenure ($\beta = 11.59$, $p < .01$) and employee tenure-squared ($\beta = -9.94$, $p < .01$) were each significantly related to employee performance, even when controlling for employee age and gender. This model yielded a variance reduction of .24 of the within-team variance (Raudenbush & Bryk, 2002).


*Figure 4*. The non-linear, dynamic relationship between employee tenure and employee performance

Table 3

*Hierarchical Linear Modeling results for Hypotheses 1a, 1b, 2, 3a, and 3b*

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| Variable | ß | *SE* | ß | *SE* | ß | *SE* |
| Level 1 | | | | | | |
| Intercept, $\gamma_{00}$ | 164.72** | 2.84 | 165.77** | 2.55 | 168.69** | 2.74 |
| Tenure, $\gamma_{10}$ | | | 11.59** | 0.79 | 11.32** | 0.83 |
| Tenure squared, $\gamma_{20}$ | | | -9.94** | 1.28 | -10.65** | 1.36 |
| Age, $\gamma_{30}$ | | | .07 | .39 | .04 | .30 |
| Gender [a], $\gamma_{40}$ | | | 12.79** | 3.37 | 12.61** | 3.37 |
| Level 2 | | | | | | |
| Team tenure SD, $\gamma_{01}$ | | | | | 16.95** | 3.46 |
| Team age SD, $\gamma_{02}$ | | | | | -7.72* | 2.92 |
| Team tenure mean, $\gamma_{03}$ | | | | | -9.10* | 3.72 |
| Leader tenure, $\gamma_{04}$ | | | | | 11.55* | 3.74 |
| Leader tenure squared, $\gamma_{05}$ | | | | | -3.77* | 1.19 |
| Leader age, $\gamma_{06}$ | | | | | -3.26 | 3.48 |
| Team size, $\gamma_{07}$ | | | | | -1.78 | 2.74 |
| Variance components | | | | | | |
| Level-1 residual variance, $\sigma^2$ | 3164.40 | | 2417.06 | | 2425.32 | |
| Level-2 residual variance, $\tau^2$ | 1535.23 | | 1147.36 | | 981.45 | |
| Level-1 slope variance, u | | | 20.83 | | 18.37 | |

ICC1 = $\tau^2/ (\tau^2 + \sigma^2)$ = 1535.23/(1535.23 + 3164.40) = .33
$R^2_{\text{Level 1}}$ [b] = (3164.40 - 2417.06) / 3164.40 = .24
$R^2_{\text{Level 2}}$ [b] = (1147.36 - 981.45) / 1147.36 = .15

*Note.* For level 1 (employees), $n$ = 1767; for level 2 (teams/team leaders), $n$ = 256.

[a] Gender (1 = female, 2 = male); [b] after Raudenbush & Bryk (2002).

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

Hypotheses 2, 3a, and 3b predicted that team tenure SD, leader tenure, and leader tenure-squared will have incremental effects in predicting employee performance over and above employee tenure. In order to test these hypotheses, Model 3 was specified by adding all level-2 predictors and level-2 control variables to the level-1 variables of Model 2. The HLM results confirm the hypotheses: As can be seen in Table 3 and Figure

5, team tenure SD (β = 16.95, $p < .01$), leader tenure (β = 11.5, $p < .05$), and leader tenure-squared (β = -3.75, $p < .05$) were each associated with employee performance, even when controlling for team age SD, mean team tenure, leader age, and team size at the team level. An analysis of variance reduction revealed that level-2 predictors accounted for substantial level-2 variance, that is, 15% of the between-team variance.

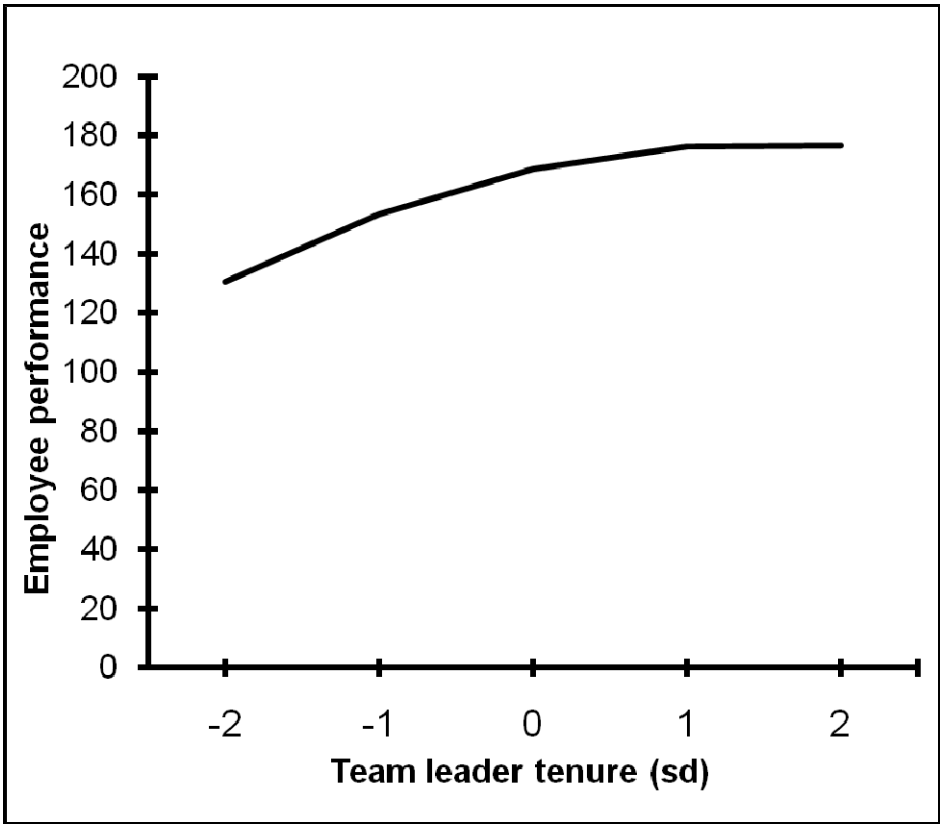


*Figure 5.* The non-linear, dynamic relationship between team leader tenure and employee performance.

Table 4 presents the HLM results for the predicted interaction effects. As shown in Model 4, the results are in line with Hypothesis 4—there was a significant cross-level interaction between employee tenure, team tenure SD, and leader tenure (β = 1.79, $p <$ .01) which is shown in Figure 6. The regression lines labeled as high and low team tenure

*SD* refer to the teams with a team tenure diversity of 1 S.D. above and 1 S.D. below the sample mean of team tenure SD. Likewise, high and low employee tenure and high and low leader tenure refer to 1 S.D above and below of sample mean of the respective variable. Drawing on Preacher, Curran, and Bauer's (2006) simple-slope method for cross-level 3-way interactions, we tested for the significance of each slope estimated in the prediction of performance. The simple-slope analysis revealed that under conditions of low team tenure diversity and low team leader tenure the effect of employee tenure on employee performance was the highest ($\beta = 20.23$, $p < .01$) as compared to the other three conditions. Nevertheless, when either team leader tenure or team tenure diversity or both were high, the slope was also significant. The graph also suggests that when team tenure diversity or leader tenure increases, the performance of low tenure employees benefits more than that of high tenure employee.

Table 4

*Hierarchical Linear Modeling results for Hypothesis 4*

| Variable | Model 4 | |
|---|---|---|
| | ß | *SE* |
| Level 1 | | |
| Intercept, $\gamma_{00}$ | 169.84** | 2.79 |
| Tenure [a], $\gamma_{10}$ | 12.59** | 0.83 |
| Tenure squared, $\gamma_{20}$ | -7.93** | 1.64 |
| Age, $\gamma_{30}$ | .04 | .31 |
| Gender [a], $\gamma_{40}$ | 11.80** | 3.42 |
| Level 2 | | |
| Team tenure SD, $\gamma_{01}$ | 13.68** | 3.69 |
| Team age SD, $\gamma_{02}$ | -7.10* | 3.02 |
| Leader tenure, $\gamma_{03}$ | 14.95** | 3.94 |
| Leader tenure squared, $\gamma_{04}$ | -5.14** | 1.37 |
| Leader age, $\gamma_{05}$ | -2.32 | 3.76 |
| Team size, $\gamma_{06}$ | -1.20 | 2.89 |
| Team Tenure SD x Leader Tenure, $\gamma_{07}$ | -2.53 | 1.86 |
| Cross-level | | |
| Tenure x Team Tenure SD, $\gamma_{11}$ | -3.22* | .90 |
| Tenure x Leader Tenure, $\gamma_{12}$ | -2.62* | .86 |
| Tenure x Team Tenure SD x Leader Tenure, $\gamma_{13}$ | 1.79** | .47 |
| Variance components | | |
| Level-1 residual variance, $\sigma^2$ | 2356.47 | |
| Level-2 residual variance, $\tau^2$ | 1142.79 | |
| Level-1 slope variance, u | 24.82 | |

*Note.* For level 1 (employees), $n = 1767$; for level 2 (teams/team leaders), $n = 256$; Level-1 predictors have been centered around the group mean (Hofmann & Gavin, 1998). [a] Gender (1 = female, 2 = male); [b] after Raudenbush & Bryk (2002). * $p < .05$. ** $p < .01$.

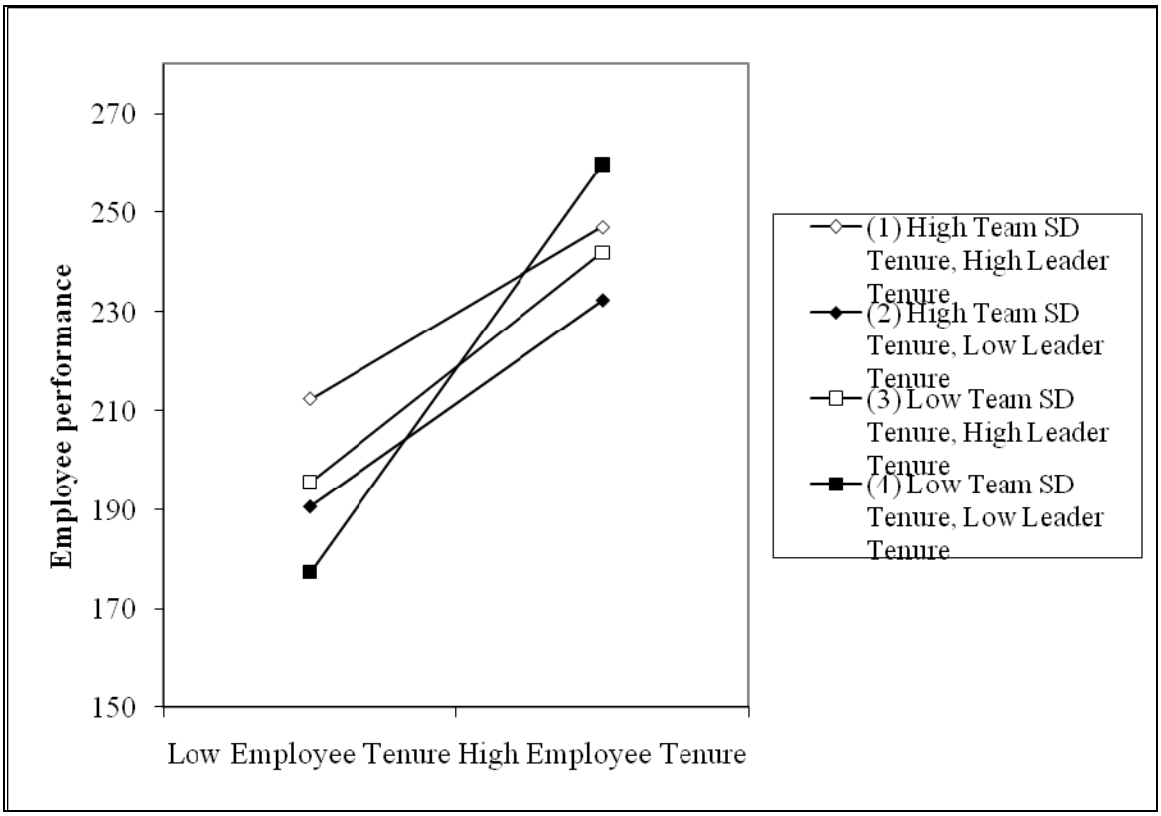


*Figure 6.* Cross-level interaction between employee tenure, team tenure diversity, and leader tenure

## 6.4. Discussion

The present study found support for the predicted and previously reported positive relationship between employee organizational tenure and employee performance (McDaniel et al., 1988; Quiñones et al., 1995). However, prior research had not adequately attended the need to examine tenure as a dynamic construct that comprises different levels of specification (Rollag, 2004; Tesluk & Jacobs, 1998). To address this research void, we sought to scrutinize, using a multilevel perspective, the relationships between organizational tenure of the employee and of the team leader, as well as team tenure diversity on the one hand and employee performance on the other. In this regard,

the importance of this study resides primarily in three major sets of findings. First, we found that organizational tenure variables at the team level, that is team tenure diversity and leader tenure, significantly benefited employee performance, beyond the benefits awarded by employee organizational tenure. Second, it was found that the relationships between employee organizational tenure and employee performance and between team leader organizational tenure and employee performance were dynamic such that their positive relationships decreased in strength over time. Third, cross-level analyses revealed that the realization and the extent of these positive effects depended upon the team context. Particularly, the findings suggest that employee tenure, team leader tenure, and team tenure diversity interacted in their relationship with employee performance such that the relationship between employee tenure and employee performance was strongest when both leader tenure and team tenure diversity were low rather than high. Furthermore, team tenure diversity as well as leader tenure seemed to compensate for each others' lack of resources when employees had low rather than high tenure.

Our findings are in line with our theorizing that tenure should be considered not only for its absolute value but also for its relative standing within the relevant organizational context (Ridgeway, 2001, 2003; Rollag, 2004). We argued and found that available team resources (i.e., a team's organizational tenure diversity) and team leader resources (i.e., a leader's organizational tenure) partially determined to which extent employees were able to benefit from their own resources. In other words, the results of this study demonstrate how the interaction of different organizational levels informs the background against which the meaning of organizational resources is formed. More

generally, our findings provide important evidence for the necessity and usefulness of multilevel examination of work and organizational phenomena.

An additional implication of our findings is that tenure at different organizational levels may interact to compensate for each others' lack of resources. Specifically, team tenure diversity and leader tenure may compensate for an employee's relative lack of tenure-related resources such that a team or a leader that has rich resources may provide crucial resources to an employee who is lacking such resources. Similarly, team tenure diversity and leader tenure may compensate for each other, suggesting that (a) increasing resources of the leader may attenuate a relative lack of resources in teams with low tenure diversity and (b) increasing team resources brought about by increasing team tenure diversity may make up for limited resources of the leader (Keller, 2006; Kerr & Jermier, 1978). Practical implications may be drawn with regard to team composition and staffing. For instance, our findings suggest that the performance of relatively new organizational members can benefit if they are placed in teams with high tenure diversity or whose leader has high rather than low tenure. Thus, the findings warn us from considering candidates on the basis of the absolute value of their qualifications, and encourage us to consider the context in which those qualifications are likely to be expressed to the fullest.

*Limitations and Future Directions*

Importantly, organizational tenure indicates the length of time that individuals have spent in an organization and it can be conceptualized as a *proxy* for organization-related KSAs, such as power and status, social networks and knowledge of the organization's history, norms, culture, and goals (Louis et al., 1983; Nonaka, 1994; Quiñones et al., 1995; Tesluk & Jacobs, 1998). It would be worthwhile to measure

directly such resources as employee organizational tenure increases (e.g., one might expect that power and status will increase more gradually than organization-related KSAs which, in contrast, may saturate earlier) and examine their separate as well as combined relationships with employee performance, thereby disentangling their relative importance. In addition, it would be valuable to measure simultaneously different types of tenure, such as organizational, team, task, or job tenure (Tesluk & Jacobs, 1998) and to contrast their respective influence on relevant (and potentially different) KSAs and performance. The value of the current investigation lies in its encompassing view of organizational tenure as a complex construct by exploring organizational tenure of the employee, the leader, and the team's tenure diversity in their relationships with employee tenure, and we encourage future researchers to adopt such a comprehensive approach and to investigate additional aspects and types of tenure.

The current study is limited in its analysis of the specific dynamics that may underlie the findings, since no underlying mechanisms have been directly measured. Therefore, studying immediate outcomes of organizational tenure, such as the acquisition of specific types of KSAs for solving tasks, organizational identification, commitment, satisfaction, role-clarity, self-efficacy, or social acceptance, would be valuable (Bauer et al., 2007; Ellemers et al., 2004; Tesluk & Jacobs, 1998). Furthermore, measuring the salience of organizational tenure, beliefs concerning its task-relevance, and the relationship between tenure and status beliefs would allow more elaborate account as well as more detailed view of the involved processes (Ridgeway, 2001, 2003). However, the lack of such mechanisms does not lessen the strength of our main conclusions, namely that examination of tenure in relative terms is necessary for providing this

construct with meaning, that organizational tenure of different entities can independently foster employees' performance, and that organizational tenure of one entity (i.e., team tenure diversity and leader tenure) may compensate for the relative lack of tenure of another.

Lastly, future research should examine additional variables which may influence the relationship between organizational tenure and performance, such as team size, job complexity, and turnover. For instance, in sizeable teams in which members regularly interact with each other, the tenure diversity may enhance the performance of an employee to a greater extent than in small teams in which the range of input and perspectives is restricted. It is also possible that employees performing complex, rather than routine, tasks may benefit to a greater extent from team tenure diversity (Wegge, Roth, Neubach, Schmidt & Kanfer, 2008). Similarly, high performers may be more likely to be promoted and therefore to gain organizational tenure (Schneider, 1987). In fact, turnover research has supported these relationships and found evidence for a negative relationship between organizational commitment and turnover as well as between performance and turnover (Griffeth, Hom, & Gaertner, 2000). The current analysis followed a prospective design and it cannot rule out the possibility of reversed causality between employee performance and tenure (cf. Sturman & Trevor, 2001; Williams & Livingstone, 1994). In order to investigate these theoretical possibilities researchers could harness the value of cross-lagged panel and time series designs (Sacco & Schmitt, 2005). Finally, a fuller multilevel examination of the effect of tenure on employee performance may include organizational-level features such as organizational culture (e.g., approach towards hierarchy), organizational change, size of organization (e.g., one year of tenure in

a growing business may have a different meaning than in a large, stable business), and the organizational use of socialization practices (e.g., mentoring or career networks).

In summary, by drawing on an extensive dataset with natural teams, the present study demonstrates the value of adopting a multilevel perspective for the examination of organizational tenure and its relationship with employee performance. The findings underscore incremental positive effects of employee organizational tenure, team tenure diversity, and leader organizational tenure with regard to employee performance. Furthermore, the findings imply that the relationships between organizational tenure of the employee as well as of the leader and employee performance are dynamic and attenuate as tenure increases. Importantly, the relationships between tenure on different organizational levels should not be perceived in an isolated way; instead, they have to be studied within a broader context, considering several organizational aspects simultaneously. Thereby, the present study contributes and adds to a multilevel theory of organizational tenure (Quiñones et al., 1995; Tesluk & Jacobs, 1998), and draws attention to the crucial role of the team and the leader in this context. In addition, it reveals the necessity of specifying not only direct cross-level effects, but also interaction effects across different levels of analysis. As was found in the current investigation, these interactions between the individual employee, the team, and the leader provide tenure with meaning which determines its influence on employee performance.

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# 7. Study 2

## Men's and Women's Health Symptoms as a Function of Gender Composition in Work Teams: A Multilevel Examination

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## 7.1. Introduction

Women currently comprise almost half the labor force in the U.S. and developed countries in Europe (Franco, 2007; Hardarson, 2006). As female workforce participation rates have grown over the last decades and women have begun gaining majority status in several occupational sectors, gender diversity has become a common feature of many teams. As a consequence, interest in the impact of gender and gender diversity in teams on overall team functioning (e.g., team performance, absenteeism) has increased (Jeaumotte, 2003; Mastekaasa, 2005; Williams & O'Reilly, 1998). Yet, relatively little is currently known about how this gender shift in the composition of work teams may affect male and female team members with respect to well-being and health. Providing empirical evidence on the relations between gender and health symptoms (i.e., physical and psychological problems) is particularly important because past research has revealed conflicting findings with respect to organizationally-relevant outcomes. For instance, whereas several authors (e.g., Guppy & Rick, 1996; Martocchio & O'Leary 1989) reported that men and women, on the whole, did not significantly differ in job stress symptoms, others have found evidence to support the claim that women experience higher levels of stress and decreased health status (e.g., Matud, 2004; McDonald & Korabik, 1991).

The approach taken by previous studies to clarify the nature of this relationship has been problematic for two reasons. First, As Gonzales-Moràles, Peiró, Rodrìguez, and Greenglass (2006) note (see also Gross, 1998; and Williams, Barefoot, & Shekelle, 1985), previous findings were typically obtained in teams comprised predominantly of males. An important question for the contemporary workplace pertains to whether gender

differences in job stress and health symptoms appear in female-dominant and gender-balanced teams that have become more common in the workplace. Second, previous studies have examined the relationship between gender and health as a single-level phenomenon, either at the individual or at the group level, without considering possible cross-level relationships between them. This latter issue is especially critical since gender, and to a large extent also health, are phenomena that attain their meaning from their surrounding context. The importance of the team and societal context for the understanding of gender and gender differences has been demonstrated by researchers starting in the 1970's. For instance, it has been shown that variables such as position in opportunity and power structures account for a large number of phenomena related to work behaviour that have been traditionally labelled sex differences (Kanter, 1977).

Hence, the primary purpose of this study is to extend prior theory and research by investigating the relationship between employee gender and health symptoms using a multi-level framework that permits examination of potential cross-level team and team member influences. Specifically, we investigate how features of the team structure may differentially shape health symptoms of male and female team members in the workplace. Based on this cross-level approach we empirically evaluate the hypothesis that gender composition of the work team significantly accounts for and moderates the individual-level relationship between team member gender and health symptoms.

*Occupational Health and Gender*

Occupational health refers broadly to the physical, mental and social well-being of individuals and groups in the workplace (Ryff, 1989; van Horn, Taris, Schaufeli, & Schreurs, 2004; Warr, 1994). Subjective health symptoms constitute one component of

this multi-faceted construct, providing a highly sensitive marker for actual health symptoms. Findings by Bailis, Segall, and Chipperfield (2003), for example, show that subjective measures of physical and psychological health, indexed by health complaints, are associated with various objective assessments of health. Similarly, Idler and Benyamini, (1997) found that health complaints were a indicator of future illness and mortality. Thus, identifying potential differences between men and women with respect to subjective health complaints has important practical implications for better understanding of gender differences in worker health.

As noted previously, past research investigating individual-level gender effects on broad measures of health symptoms has produced inconsistent results. Guppy and Rick (1996), for example, found no significant difference in the magnitude of job stress symptoms among men and women. In contrast, findings by Matud (2004) and Mastekaasa (2005) indicate that women experience higher levels of stress and lower health status than men. Other studies of gender differences and health have found that women experience more chronic stress than men (McDonough & Walter, 2001) and more gender-specific stressors, such as sexist discrimination (Klonoff, Landrine, & Campbell, 2000), and that women are more affected by the stress of those around them (Kessler & McLeod, 1984). Previous theorizing and research has also focused on gender differences in related variables that may mediate the observed gender-health relation. For example, Gijsbers van Wijk and Kolk (1997) and Hooftman, van der Beek, Bongers, and van Mechelen (2005) proposed that the influence of gender on health symptoms occurs because women are more likely to express health symptoms than men. Pearlin and Carmi (1978) suggested that the observed relation may occur because women use less efficient

coping strategies than men. Despite the intrinsic appeal of these explanations, such accounts neglect the potential role of "contextual variables" (e.g. group, organization, culture) on the observed gender-health relationship in the workplace.

*Occupational Health and Gender Diversity*

One feature of context that has received considerable attention to date pertains to the gender composition of the team and its effects on team members. However, thus far most research in this area has focused on gender composition in terms of *majority-minority relations*. For example, women, as minority members of the work group, are posited to experience unfavorable treatment by the majority. Kanter (1977) predicted that minority status might have adverse effects on individuals due to increased visibility and stereotyping. Similarly, Hunt and Emslie (1998) linked these processes to increased stress for the minority members and thereby to negative effects on health. These conceptualizations of majority-minority relations also suggest that when the group majority is female, females will experience fewer health symptoms than when females work in teams in which females represent the minority group. Consistent with this view, Blau (1977) further proposed that the relationship between members of two groups improves as the amount of interaction between them increases. That is, the fewer the number of women in the male-dominant group, the less likely males are to interact with the female minority members. Taken together, these findings imply that previously observed higher levels of adverse occupational health effects among women relative to men (typically in the context of male-dominant teams) should be *lower* when women work in more gender-balanced or female-dominant teams than when women work in teams comprised mostly of males.

However, it is important to note that the majority-minority relation explanation is generic in nature in that it assumes to apply equally to men and women. We propose that this explanation is incomplete for understanding team-level influences on health reports, since it fails to address a key factor influencing the gender-health relationship; namely, the *direction* of gender diversity (i.e. the experience of being in the majority or in the minority may be different for men and women). Although there is evidence to show that men and women react differently to being in the minority or the majority, and thus may have a unique influence on health symptoms (e.g., Chatman & O'Reilly, 2004; Williams & O'Reilly, 1998), prior research in the majority-minority tradition has rarely made such a distinction. Moreover, as Mastekaasa (2005) suggests, the prediction of team gender composition effects on work outcomes also requires consideration of the specific intra-group processes that take place. Specifically, in addition to considering majority-minority relations, it is also necessary to consider well-established gender differences in norms and attitudes. In other words, given the differences between men and women with regard to norms of communication, expressiveness, emotionality, and work-related attitudes, it is important to also examine the *unique* and *differentiated* effects that majority-minority relationships have on men's and women's health symptoms.

In the workplace, the gender composition of a team may importantly affect the salience, appropriateness, and adoption of gender-based norms (Homan et al., 2008), as well as team member attitudes toward experiencing, acknowledging, and expressing health symptoms. The ratio of women and men in the office, for example, may affect team norms with respect to the experience of vulnerable and expressive behaviors; behaviors that are often referred to in the literature as prototypically female (Holmes &

Schnurr, 2006). As such, the gender composition of the team may create different characteristics and standards of communication, interdependence, emotionality, conflict, and themes of conversations that, in turn, influence the ways in which women and men experience and conceive health symptoms.

In contrast to males, prototypical female behavioral norms have been described in the literature in terms of being nurturing, expressive, emotionally responsive, attentive (Doherty, Orimoto, Singelis, Hatfield & Hebb, 1995; Haviland & Malatesta, 1981; Tavris & Offir, 1984), interactive, and participative (Fenwick & Neal, 2001; Rosener, 1990). Similarly, women have often been described as more communicative and more empathetic than men, with such socially-constructed behaviors having been found to be more dominant particularly in women's interactions with other women (Tousignant, Brosseau, & Tremblay, 1987; Nathanson, 1977). Further, as Mastekaasa (2005) has shown, as the proportion of women in a team increases, the work team becomes more tolerant of such behaviors. Hence, female prototypical behavior is more likely to occur in female-dominated teams, since then it is more likely to go unmarked (Holmes & Schnurr, 2006). It is therefore reasonable to expect that women's experience and report of health and stress symptoms - behaviors that may be considered as vulnerable, emotional, and not prototypically professional - are likely to increase as the proportion of women in the team increases. This expectation relies also on the notion that women's health, as opposed to men's, is a context-dependent phenomenon or, as Stanton and Courtenay (2003) state:"…health is not located within the individual woman, but also in her surrounding context". Further support for this expectation is the finding that women are more aware of their illness and are likely to consult health services more often than men (Rae,

Stansfeld, Shipley, Head, Feeney & Marmot, 1995). Thus, compared to men, women - especially those in the permissive and expressive female-dominated workplaces - are more likely to experience, be aware of, and hence report health symptoms (Gijsbers van Wijk & Kolk, 1997; Hooftman et al., 2005).

In contrast to female team members, however, team gender composition is expected to have no significant influence on prototypical behaviors of men, such as competitiveness, lack of empathy, emotional detachment, inhibited expressiveness, and instrumentality (Bird, 2003). These behaviors are often ascribed to men as a group, and are believed to be essential for regular work success (Heilman, Kaplow, Amato & Stathatos, 1993). In particular, attitudes and values associated with professionalism and success at work are generally described as male-like (Bird, 2003). This correspondence, between workplace norms and male conduct, has been suggested by Acker (1990) to be the major force that maintains men's behaviors across varying gender compositions. Although the perpetuation of such gender stereotypical characteristics might also depend on situational factors (e.g., how threatening a situation is perceived, see Ryan & Haslam, 2007), Bird (2003) argues that for men, conforming to these workplace ideals is associated with enhanced status, acceptance, and support. Specifically, when in the majority, men are encouraged to maintain prototypical behavior and to display masculine posturing in order to avoid ridicule and isolation in predominantly male settings (Bird, 2003; Weiss, 1990). When males comprise the minority in a team, however, male-like behavior is also regarded as beneficial since it is attributed to enhanced leadership and authority, and to the maintenance of sense of masculinity (Simpson, 2004). A major review by Tolbert, Graham, and Andrews (1999) on the impact of gender diversity on a

range of outcomes in organizations supports this view by concluding that existing research indicates that it is women (rather than men) who are most strongly affected by changes in group gender composition. Therefore, it is expected that men maintain instrumental, male-like behaviors across different team gender compositions. When applied to health-related behaviors, maintaining prototypical male behavior entails that the appropriateness of experiencing, perceiving, being aware of, admitting, and reporting health symptoms is reduced.

To summarize, there is some evidence for a significant relationship between employee gender and health symptoms, with females reporting more health symptoms than males (e.g. Matud, 2004). But these findings do not necessary imply that women experience *always* more health symptoms then men and team gender composition may influence this relationship.

Other factors that may confound the relationship between employee gender and health symptoms include gender differences in working tasks or job level, since women often perform less well-designed jobs and hold a position of lower status in organizations (e.g. Lyness & Heilman, 2006). To avoid this confound, we examine team gender composition differences in a sample where there are neither task nor position differences between male and female employees, and we control for other factors (e.g., task complexity) that often correlate with both gender and health. At the individual level of analysis, we thus anticipate to obtain support for the null hypothesis, namely that team member gender will be unrelated to reported health symptoms. As Cashen and Geiger (2004) indicate, a theoretically justified null hypothesis may be advanced when there is a sufficiently large sample size and high degree of power. In the present study, results of

power analysis showed that the power of the test was 1 ($\beta$<.001), even when an effect size of .20 between the two groups was expected (see Cohen, 1992). Thus, we hypothesize that:

*Hypothesis 1.* Team members' gender (individual-level) will be unrelated to self-rated health symptoms (individual-level).

Based on the findings regarding effects of gender diversity in teams discussed above, we also predict that gender composition of the team will exert a differential effect on individual-level health symptoms of men and women. Specifically, we propose that increasing the proportion of women in the team will moderate the relationship between women and health symptoms, but not the relationship between men and health symptoms.

*Hypothesis 2.* Team gender composition (group-level) will moderate the relationship between employees' gender (individual-level) and self-rated health symptoms (individual-level), such that (a) women's health symptoms increase with increasing proportions of women in a team, but (b) men's health symptoms will remain uninfluenced by team gender composition changes.

## 7.2. Methods

To investigate these hypotheses, we used archival data from two consecutive years obtained from a large-scale field project conducted in Germany on stress and health (Neubach, Schmidt, Hollman, & Heuer, 2003). This database is uniquely suited for this study given the standardization of tasks across offices, the presence of both female- and male-majority work teams, and the multilevel structure of the data.

### 7.2.1. Sample and Procedure

Participants were recruited as part of a large-scale field project investigating stress and health. Volunteer participants from the accounting departments of federal tax offices distributed across the federal state of North-Rhine Westphalia, Germany completed a paper-and-pencil questionnaire. To test our hypotheses, we used data from questionnaires completed by tax officers in 2004 and 2005 (i.e., at two points in time, one year apart). Using a repeated-measures design provides assessment of the consistency of the effects over time. Each year, participants completed the questionnaire in small groups of up to 15 participants within one tax office at a time. Thus, individuals completed the survey individually in small groups comprised of officers from a variety of departments and groups, rather than just among members of their own work group. In the first year (Wave 1), a total of 4597 surveys were completed, yielding a sample of 3078 women and 1460 men working in 222 teams. Data from two teams, comprised of only two persons, were omitted from the analyses since the constitution of majority and minority groups in a team requires at least three individuals. In the first year, women comprised the numerical majority in 192 of the 220 teams (87%), with an average of 67% of the team comprised of female employees. As shown in Table 5a, teams consisted, on average, of approximately 20 employees per team (ranging from 4 to 53 members). Age was measured categorically by age cohort (1 $\leq$ 30 years; 2 = 31-40 years; 3 =41-50 years; 4 = 51-60 years; 5 $\geq$ 61 years), and the mean age of the participants fell within the 31-40 age-group category. In the second year (Wave 2), individuals were asked to complete the same questionnaire again. A total of 5182 surveys were completed in Wave 2. This sample consisted of 3580 women and 1602 men working in the same 220 teams that were surveyed in the first year. The growth in sample size reflects an increase in the number of

participants taking the survey, however the composition of the teams did not significantly change between the two waves of data collection. In the second year, women comprised the numerical majority in 194 of the 220 teams (88%), with an average of 68 % of the team comprised of female employees. As presented in Table 5b, the average number of employees per team was 23 (ranging from 4 to 58). No individual age data was collected in the second year.

Table 5a

*Descriptive Statistics and Correlation, 1st year*

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| Level 1 | | | | | | | |
| 1. Gender a | 1.68 | .46 | - | | | | |
| 2. Age (in categories) | 2.19 (ca. 30 to 40) | .98 | .02 | - | | | |
| 3. Health symptoms | 1.18 | .60 | -.00 | .15** | - | | |
| Level 2 | | | | | | | |
| 4. Percentage of females | 67.01 | 14.15 | - | | | | |
| 5. Team size | 20.63 | 9.68 | .12 | - | | | |
| Level 3 | | | | | | | |
| 6. City size | 300692.24 | 326900.10 | | | | | |

*Note.* For level 1 (employees), n = 4538; for level 2 (teams), n = 220; for level 3 (location), n=8.

[a] Gender (1 = male, 2 = female). $^{*}p < .05$. $^{**}p < .01$.

Table 5b

*Descriptive Statistics and Correlations, 2nd Year*

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| Level 1 | | | | | | | |
| 1. Gender a | 1.69 | .46 | - | | | | |
| 2. Health symptoms | 1.21 | .62 | -.01 | - | | | |
| Level 2 | | | | | | | |
| 3. Percentage of females | 68.47 | 13.22 | - | | | | |
| 4. Team size | 23.55 | 10.41 | .06 | - | | | |
| Level 3 | | | | | | | |
| 5. City size | 300692.24 | 326900.10 | | | | | |

*Note.* For level 1 (employees), n = 5182; for level 2 (teams), n = 220; for level 3 (location), n=8.

[a] Gender (1 = male, 2 = female).

$^{*}p < .05$. $^{**}p < .01$.

### 7.2.2. Measures

*Individual-level health symptoms*. Health symptoms were assessed during each wave of data collection using a 13-item self-report measure adapted from Zerssen's (1976) health measure (see Neubach et al., 2003). Respondents indicated the intensity of each listed symptom (e.g., weakness, irritability weariness, back pain, excessive need of sleep, pain in neck and shoulders) on a 4-point scale ranging from (0) "not at all" to (3) "strong". A total score for each individual was calculated by computing the average of the 13 item scores. The internal consistency reliability of this scale was high (.87).

*Team-level gender diversity*. In choosing a gender diversity index we followed recommendations by Harrison and Klein (2007), who argued that diversity research in general does not offer a "one best" index to assess and describe diversity and for the use of indices that are theoretically and practically grounded. In accord with our argument that it is necessary to look beyond minority-majority group dynamics and specify whether it is men or women who occupy the majority or minority, we used the standard deviation (SD) as the gender diversity index. We selected this measure, rather than the often-used Blau index (Blau, 1977), because the SD provides an index not only of the degree of diversity, but also of the *direction*. For example, in this female-dominant sample a low SD score reflects a higher proportion of female team members, whereas a high SD score reflects a lower proportion of females in the team.

*City-Size*. We controlled for city-size, a third-level variable that indicates the population size at the locality of each tax-office. Controlling for city size is important since it is an established indicator for access to health services and social support (Hoffman et al., 2002), and since the significance of geographical variation on health symptoms has been repeatedly observed (Jones, 1995). Findings by Ray and Ghosh (2007), comparing health outcomes across inhabitants of different sized cities in the US found a positive relationship between inhabitant health status and city size (after controlling for potential demographic and economic confounds, such as age and gender). In accord with these findings, tax offices were organized into eight different population size categories. As shown in Table 6, approximately half of the offices were located in cities with populations greater than 150,000 inhabitants.

Table 6

*Categories and Frequency of City-Size*

| City-size categories | No. of inhabitants | Percentage of tax-offices (1st year) | Percentage of tax-offices (2nd year) |
|---|---|---|---|
| 1 | 10,000 to 15,000 | 11.4 | 11.2 |
| 2 | 15,001 to 35,000 | 19.1 | 19.2 |
| 3 | 35,0001 to 75,000 | 12.7 | 12.9 |
| 4 | 75,001 to 150,000 | .9 | .9 |
| 5 | 150,001 to 250,000 | 15.0 | 15.2 |
| 6 | 250,001 to 350,000 | 6.4 | 6.3 |
| 7 | 350,001 to 550,000 | 27.3 | 27.0 |
| 8 | 550,001 to 950,000 | 7.3 | 7.2 |

*Other control variables.* We also controlled for individual-level task complexity. As described by Neubach et al. (2003), employees were engaged in routine task or complex decision making tasks. Employees engaged in routine tasks performed tax computations with an average income volume from regular work employment; employees engaged in complex task performance worked on tax computations consisting of other income types, such as income earned from house rentals or stock sales. The latter are more time consuming since additional laws and regulations must be taken into account. Because findings by Wegge, Roth, Neubach, Schmidt, and Kanfer (2008) also showed that team size moderated the relationship between gender and team performance, we also controlled for team size in all analyses. Finally, since age can be reasonably assumed to affect health, we also controlled for employee age in all Wave 1 data analyses.

### 7.2.3. Analyses Overview

Analyses were conducted using a multi-level model, consisting of constructs at both the individual-employee level and team-level of analysis, with a hierarchical structure such that the dependent variables were measured at the individual level, with individuals nested within teams, and teams, in turn, nested within cities. To evaluate our hypotheses we conducted hierarchical linear modeling analyses (HLM), using HLM version 6 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). HLM explicitly accounts for the nested nature of the data and can simultaneously estimate the impact of factors at different levels on individual-level outcomes while maintaining appropriate levels of analysis for the predictors. We used random coefficient regression analyses that allowed for random variation at the individual, team, and city levels of analyses.

At level 1 (individual-level) we entered employee gender as the predictor, employee health symptoms as the dependent variable, and employee age (obtained in Wave 1) as the control variable. At level 2 (team-level) we entered the moderator gender composition, along with the control variables team-size and task-complexity. At level 3 we entered city size as an additional control variable. We then calculated the Intra-Class-Correlation 1 (ICC1) to provide a measure of the proportion of variance between the teams relative to the total variance in individual health symptoms. The ICC1 was calculated with the following formula:

$$ICC1 = \tau^2 / (\tau^2 + \sigma^2)$$

where $\tau^2$ is the variance between the teams and $\sigma^2$ the variance within the teams. An ICC1 of .05 in both Wave 1 and Wave 2 indicated considerable variance in the individual health measure, that could be accounted for by team-level characteristics.

To test Hypothesis 1, we conducted a t-test (note that in Tables 7a- 7c we also reported the HLM results for this hypothesis - Model 1 -, in order to simplify the reading of the tables). Hypothesis 2 was tested in two different steps. In the first step we specified a model where gender was entered as a level-1 predictor and the health measure was entered as the dependent variable (Model 2 in Tables 7a, 7b, and 7c). In addition, the model also included gender diversity as a second-level moderator of the relationship between level-1 gender and health symptoms. In the second step we split the sample into men and women sub-samples in order to test the effect of gender diversity separately on female and male individuals**.** Thus, two models were specified. The first model (Model 3 in Tables 7a-7c), tested for the effect of gender diversity on men's health symptoms using the male sub-sample. In this model gender diversity served as the second-level predictor, and male's overall health as the outcome variable. A second parallel model (Model 4) was tested for female sub-sample. Age (level 1, in the 1$^{st}$ year), group size (level 2), task complexity (level 2), and city size (level 3) served as control variables in all models.

To examine the stability of the effects over time we also tested Hypothesis 2 longitudinally over the two waves of data collection. As shown in Table 7c (Models 2-4), team gender diversity measured at Year 1 was entered as a second-level moderator of the relationship between level-1 gender and health symptoms measured at Year 2.

## 7.3. Results

Means, standard deviations, and correlations at each level of analysis are presented in Tables 5a and 5b. The results of model tests are summarized in Tables 7a, 7b and 7c.

*Individual-level analyses of gender effects on health symptoms*

Hypothesis 1 addresses the individual-level relationship between employee gender and self-reported health symptoms. H1 posits no significant relationship between employee gender and self-reported health symptoms. Consistent with our theorizing, we hypothesized that significant relationships obtained in prior studies using male-dominant samples would not be observed when using a female-dominant sample comprised of male and female employees engaged in similar tasks, and when team membership is taken into account. As predicted, no significant differences were found at the individual level for health symptoms reported by men ($M$ = 1.17, $SD$ = .63) and women ($M$ = 1.18, $SD$ = .59), $t$ (4536) = .22, $p$ = .83. These results are inconsistent with findings of a gender – health relation by McDonald and Korabik (1991), but are consistent with findings by Guppy and Rick (1996), and provide further support for the notion that employee gender *per se* does not affect the magnitude of reported general health symptoms.

*Cross-level effects on health symptoms*

Hypothesis 2 was tested by defining models 2 to 4. As shown in Table 7a, the hypothesis that team gender composition would moderate the relationship between employee gender (individual-level) and self-rated health symptoms was supported ($\beta$ =-.20, $p < .001$). In the second step, we divided the dataset by gender and examined the cross-level effect of team gender diversity on male and female health symptoms. As predicted, even when controlling for the effect of city size, team size, and task complexity, women's health symptoms increased with higher proportions of females in the team ($\beta$ =.59, $p < .001$), but men's health symptoms were not significantly influenced by change in team gender composition ($\beta$=.02, n.s.)

It is also noteworthy that individual-level age (in Wave 1) was positively related to health symptoms for both male and female employees (see Table 7a). Surprisingly, however, the age-health relationship of male employees (ß = .24, p <.001) was noticeably stronger than the age-health relationship of female employees (ß = .08, p< .001).

Table 7a

*Hierarchical Linear Modeling Results for the Effect of Team Gender Composition on Team Member's Gender - Health Symptoms Relationship, 1st year*

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| Variable | β | SE | β | SE | β | SE | β | SE |
| Level 1 | | | | | | | | |
| Gender a, β20 | -.01 | .02 | .25** | .07 | | | | |
| Male, β20 | | | | | .02 | .02 | | |
| Female, β20 | | | | | | | .59*** | .13 |
| Age, β10 | .09*** | .01 | .08*** | .01 | .24*** | .05 | .08*** | .00 |
| Level 2 | | | | | | | | |
| Gender diversity, γ21 | | | -.20*** | .04 | -.11*** | .02 | -.48*** | .09 |
| Task complexity, γ01 | -.00* | .00 | -.00*** | .00 | -.00*** | .00 | -.00*** | .00 |
| Team size, γ02 | .00 | .00 | .00** | .00 | .00 | .00 | .00 | .00 |
| Level 3 | | | | | | | | |
| City size, γ001 | .02* | .00 | .02* | .00 | .01 | .00 | .01 | .01 |

*Note.* [a] *Gender (1 = male, 2 = female).* * *p < .05.* ** *p < .01.* *** *p < .001.*

*Model 1: n* level 1=4538.

*Model 2: n* level 1=4538*; n* level 2=220.

*Model 3 (male sub-sample): n* level 1=1460; *n* level 2=219.

*Model 4 (female sub-sample): n* level 1= 3078*; n* level 2=219.

### 7.3.1. Findings stability

Given the provocative findings, providing analysis of the stability of the results over time is especially valuable. The consistency of team gender composition across the two waves ($t$ (219) =.82, $p$ = .41), the stable positive relationship observed between team gender composition and individual level health symptoms in Wave 1 (β =.19, p < .05) and Wave 2 (β =.19, p < .05), and the relationship between team gender composition in Wave 1 and individual level health symptoms in the next year (Wave 2; β =.18, p < .05) permits further analysis of the stability of findings over time. It is important to note that while the composition of the teams is similar across the two data collections, there have been some personnel changes on the individual level. Thus, while the datasets do not allow for directly linking individuals in Wave 1 and Wave 2, they do enable linking teams in the first year with the same teams in the second year. However, this should not be seen as a limitation. Rather, the stability of the findings over time (see below), despite changes on the individual level, provides further indication that it is the gender composition of the team rather than the gender of individuals that determines the effect on health.

Using Wave 2 data, we retested the hypotheses. As predicted, H1 was supported; no significant differences were found at the individual level for health symptoms reported by men ($M$ = 1.20, $SD$ = .64) and women ($M$ = 1.21, $SD$ = .61), $t$ (5389) = 1.20, $p$ = .21. This finding is striking, given the personnel changes that have occurred on the individual level in the period between Wave 1 and Wave 2. Hypothesis 2 was tested by defining models 2 to 4. As shown in Table 7b, the hypothesis that team gender composition would moderate the relationship between employees' gender (individual-level) and health was also supported (β =-.18, p < .001). Partitioning the dataset by gender, we examined the separate cross-level effect of team gender diversity on male and female health symptoms.

Consistent with Wave 1 results and expectations, we found that men's health remained uninfluenced by team gender composition changes (β=-.01, n.s) whereas women's health symptoms increased with higher proportions of women in a team (β =.55, p < .001).

Table 7b

*Hierarchical Linear Modeling Results for the Effect of Team Gender Composition on Team Member's Gender - Health Symptoms Relationship, 2nd year*

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| Variable | β | SE | β | SE | β | SE | β | SE |
| Level 1 | | | | | | | | |
| Gender a, β20 | .00 | .01 | .26** | .08 | | | | |
| Male, β20 | | | | | -.01 | .12 | | |
| Female, β20 | | | | | | | .55*** | .16 |
| Level 2 | | | | | | | | |
| Gender diversity, γ21 | | | -.18*** | .04 | -.11*** | .13 | -.37*** | .09 |
| Task complexity, γ01 | -.06* | .02 | -.05*** | .02 | -.06*** | .02 | -.05*** | .02 |
| Team size, γ02 | -.00 | .00 | -.00 | .00 | -.00 | .00 | -.00 | .00 |
| Level 3 | | | | | | | | |
| City size, γ001 | .01* | .00 | .02* | .00 | .00 | .00 | .01 | .01 |

*Note.* [a] *Gender (1 = male, 2 = female).* * *p < .05.* ** *p < .01.* *** *p < .001.*
*Model 1: n* level 1=5182.
*Model 2: n* level 1=5182*; n* level 2=220.
*Model 3 (male sub-sample): n* level 1=1602; *n* level 2=220.
*Model 4 (female sub-sample): n* level 1= 3580*; n* level 2=220.

To further assess the stability of the findings and the strength of the effects we tested Hypothesis 2 longitudinally by testing a model in which team gender diversity in Wave 1 moderated the relationship between individual-level gender and health symptoms

in Wave 2. As shown in Table 7c, team gender composition (Year 1) moderated the relationship between employees' gender (individual-level) and self-rated health symptoms (β =-.16, p < .001). We also found that men's health symptoms remained uninfluenced by change in team gender composition (β=-.01, n.s), whereas women's health symptoms increased with higher proportions of women in a team (β =.52, p < .001). The stability of the pattern of findings over two measurement points taken one year apart strengthens our confidence in the findings.

Table 7c

*Hierarchical Linear Modeling Results for the Effect of Team Gender Composition in 1st Year on Team Member's Gender - Health Symptoms Relationship in 2nd Year*

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| Variable | β | SE | β | SE | β | SE | β | SE |
| Level 1 | | | | | | | | |
| Gender a, β20 | .00 | .01 | .26** | .10 | | | | |
| Male, β20 | | | | | -.01 | .09 | | |
| Female, β20 | | | | | | | .47*** | .17 |
| Level 2 | | | | | | | | |
| Gender diversity (2nd year), γ21 | | | -.16*** | .06 | -.09*** | .10 | -.31*** | .06 |
| Task complexity, γ01 | -.06* | .02 | -.03** | .03 | -.04*** | .00 | -.05*** | .02 |
| Team size, γ02 | -.00 | .00 | -.00 | .00 | -.00 | .00 | .00 | .00 |
| Level 3 | | | | | | | | |
| City size, γ001 | .01* | .00 | .02* | .00 | .00 | .00 | .00 | .00 |

*Note.* [a] *Gender (1 = male, 2 = female).* * *p < .05.* ** *p < .01.* *** *p < .001.*

*Model 1: n* level 1=5182.

*Model 2: n* level 1=5182*; n* level 2=220.

*Model 3 (male sub-sample): n* level 1=1602; *n* level 2=220.

*Model 4 (female sub-sample): n* level 1= 3580*; n* level 2=220.

## 7.4. Discussion

The findings obtained in this study shed new light on understanding prior inconsistencies in findings on the relationship between employee gender and self-reported health symptoms. Consistent with a growing body of research that show the importance of contextual variables on individual behavior (see Kanfer, Chen, and Pritchard, 2008), we found that the gender – health relation was significantly affected by the gender composition of the team in which the employee worked. Using a large archival dataset, we found that although female and male employees did not differ in self-reported health symptoms, female employees did report more health symptoms as their numerical dominance in a team increased. Male health symptoms, on the other hand, remained unchanged in the face of such variations in team gender composition. These results indicate that, contrary to expectations derived from majority-minority relation conceptualizations, the impact of team gender composition lies primarily in its effects on women and occurs as a function of female numerical dominance in the team.

Our finding that higher levels of self-reported health symptoms were reported by women working in female-dominant teams is intrinsically provocative, and could be interpreted at first glance as suggesting that female-dominant teams may exert a deleterious effect on women team members. Alternatively, it may just as well be argued that such teams do not exert a direct negative influence on female member health symptoms, but rather create a work context in which female team members are more aware of health symptoms and/or are less likely to inhibit the expression of health complaints, and so perhaps help females to identify and potentially address health symptoms earlier than male team members. However, the finding that subjective health

symptoms are a reliable predictor of objective health symptoms provides support to the former line of interpretation (Bailis et al., 2003). In other words, it is likely that increased self-reported health symptoms actually translate into observable health symptoms and ultimately affect important organizational outcomes, such as absenteeism (see, for example, Mastekasse, 2005).

The findings obtained also underscore the importance of using a multilevel framework to investigate gender differences in occupational health. By using this framework, we show that the context of work – in this case the gender composition of the team in which the employee works - has a significantly different impact on males than females with respect to health symptoms. This approach to the gender-occupational health relationship sheds light on why inconsistent findings have been obtained in past research (Matud, 2004; McDonald & Korabik, 1991). Specifically, the pattern of results obtained supports the view that when gender differences do occur they may well be a result not of direct gender effects, but rather as a consequence of how each gender experiences the work context (Ott, 1989).

Our results indicate that the effects of team composition on individual behavior is determined by more than majority or minority member status (e.g., Blau, 1977; Kanter, 1977). Rather, our results support the notion that the experience of being minority or majority within a team may critically differ for men and women. In the broader context of work, only female health symptom reports were significantly affected by team gender composition. As female participation in the workforce grows, work teams are likely to become more gender-balanced or even female dominant. Our results indicate that prior findings, based largely on investigations of team composition effects in male-dominated

teams (Gonzales-Morales et al., 2006), may provide an incomplete understanding of the team level forces affecting employee behaviors. Previous work in this area has focused largely on the attraction-similarity bias perspective and the application of social-categorization theory to provide explanations for the negative effects of team diversity (e.g., Van Knippenberg & Schippers, 2007). Our findings offer an alternative account and suggest that negative consequences of group diversity may also be a result of change in prototypical behaviors and norms.

Our results also have broader potential importance for understanding women's health. The finding that female employee level of health symptoms varies as a result of changing female proportion in the team suggests that women may be more sensitive to changes in group gender composition than men (e.g., Stanton & Courtenay, 2003; Tolbert et al., 1999). This is in line with other research findings that suggest women's health-related behaviors are a context-dependent phenomenon. Consistent with our finding that the age-health relationship of male employees (ß = .25, p <001) was noticeably stronger than the age-health relationship of female employees (ß = .08, p<001), it may be that female health reports are less likely then male's to be influenced by personal-biological processes (i.e. age) than by social-psychological processes set in motion by the gender composition of their work team. This is consistent with previous claims in the literature (e.g., Simpson, 2004) that male employees maintain male-like behaviors both in minority and in majority mainly due to the presumed association between typical male characteristics and the prevalent norms in the workplace. Additional explanations for this finding might be that men who work in female-dominated workplaces self-select themselves in ways that are related to health symptoms. Yet another possible account for

this finding is that men have generally less impetus for confessing and expressing their problems. In light of the rapidly growing gender diversity in previously male-dominated workplaces and teams, further research is urgently needed to better delineate the role of individual and team-level factors as they affect self-reports of health and health-related work outcomes.

*Limitations and future directions*

The sample used in this investigation is unusual in several ways that might be viewed as limiting the generalizability of our findings. The preponderance of work teams in which females are numerically dominant is not uncommon (for example, in personal services), but is still unusual in work environments that have been historically male-dominated (such as engineering). In male-dominated environments, female team members still often perform different tasks and jobs than their male team members. To our knowledge, this study is the first to use a large-scale sample in which gender diversity in a historically male-oriented workplace is achieved without concomitant gender-based differences in work roles. Although the unique set of sample characteristics in this study may temper the generalizability of our findings to current work settings, we believe this limitation is offset by the potential value of the findings for understanding the impact of work teams that are expected to appear with increasing frequency in the future.

Another important limitation of this study pertains to the sole use of self-report measures of health symptoms. Obviously, further research is needed to replicate our findings using objective measures of health and health-related work outcomes. Although other research findings consistently suggest that self-reported health symptoms are related to objective assessments of health conditions (e.g., Bailis et al., 2004; see

Pinquart, 2001) and work absence (e.g., Fried, Melamed, & Ben-David, 2002; Geurts, Buunk, & Schaufeli, 1994; Melamed, Luz, Najenson, Jucha, & Green, 1989), our data do not provide conclusive evidence for the effect of team gender diversity on women's health. However, consistent with the growing trend toward investigation of the determinants of subjective measures of health, we believe that self-reported health symptoms may capture psychological and attitudinal differences that are also important outcome measures in their own right.

The current study is also limited in its analysis of the specific dynamics that may underlie the findings, since no possible mechanisms for the observed effects were directly measured. Yet, several processes that are in line with the existing literature may be suggested to account for our findings and serve as a basis for future research. Recent studies, for example, hint for a possible link between gender composition, gender-based differences in coping strategies, and /or gender identity salience and overall health (Gonzales-Moråles, Peirø, Rodrîguez & Greenglass, 2006; Randel, 2002). Essentially, these studies suggest that men and women use different coping styles with different degrees of effectiveness, such that the increased health symptoms often attributed to women can be also accounted for by their inefficient use of coping mechanisms. The increased level of reported health symptoms, therefore, may reflect cathartic experiences in which female employees share and unburden their troubles as a way of dealing with stress. In other words, the increased awareness and expression of health symptoms is perhaps also a sign for improved coping mechanisms, stronger resistance to stress, and generally enhanced health state. Yet another interpretation of the findings may be that the higher levels of self-rated health symptoms in groups with higher proportions of

women is a consequence of empowered female employees who feel safer to protest, complain, and express their feelings, as their apparent presence (salience and identity) in the group increases (e.g. see Haslam, 2004 for a review on social protest and social identity). However, given that health symptoms in this study were reported anonymously, this interpretation is rather unlikely. Moreover, as emphasized earlier, the finding that subjective health symptoms are a reliable predictor of objective health symptoms provides support to our interpretation that it is likely that increased self-reported health symptoms actually translate into observable health symptoms.

Additional research is needed to examine whether the increase in reported health symptoms found in predominantly female groups reflects any changes in actual health symptoms or health-related behaviors, or rather a change in norms of expressiveness, openness or collective protest. Of course, only studies that assess these process variables allow a causal interpretation and we propose to conduct such studies. The current study, however, does provide preliminary indication for the stability of the results. Testing the hypotheses with data collected at two different points, one year apart, we find evidence that the pattern of findings holds over time. Importantly, we also find evidence that team gender diversity influences the relationship between individual-level gender and health symptoms longitudinally. As such evidence is rarely found in the literature and is especially difficult to obtain in the natural settings of dynamic organizations, it strengthens our confidence in the results.

*Conclusion*

We found that the gender composition of an employee's work team had a significant moderating effect on the relationship between individual-level gender and

self-rated health symptoms. Despite its limitations, the present study manages to depart from the traditional generalization of findings (based largely on male-samples) regarding women in the workplace, and provides empirical evidence for a gender-unique phenomenon. Most importantly, the obtained results showed that only women's individual-level health symptoms were sensitive to gender composition of the workplace. From a practical perspective, these findings suggest that there are important differences in the influence of gender composition on females and males that would go undetected if research continues to generalize from male samples to females, and overlooks the multilevel nature of gender-related behavior. Importantly, the significance of group composition for health-related behaviors and the practical relevance of this finding cannot be underestimated given the far-reaching consequences of health symptoms in organizations, and the strong trend toward a higher proportion of women in the workplace. From an organizational perspective, it remains to be seen if increasing the number of women in a work team is more of a blessing (e.g., better coping by increased awareness and acceptance of health symptoms) or a curse (e.g., development of actual sicknesses, absenteeism), and whether this phenomenon generalizes to other work contexts. Even so, the current study offers an account for the inconsistencies in the literature regarding the relationship between gender and health, and demonstrates the importance of adopting a multilevel perspective when addressing these issues.

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# 8. STUDY 3

## The Moderating Effect of Perceived Diversity and Team Identification on Affective Linkages in Work Teams.

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## 8.1. Introduction

Affective states, the broad range of feelings that individuals experience at work, have a decisive impact on many relevant organizational outcomes such as subjective and objective individual job performance (Barsade & Gibson, 2007), creativity (James, Brodersen, & Jacob, 2004), employee turnover (George & Jones, 1996) and health (Wegge, van Dick, Fisher, West, & Dawson, 2006), the quality of teamwork (Ashforth & Humphrey, 1995), and leadership effectiveness (Johnson, 2009; Sy, Cote, & Saavedra, 2005). One important determinant of affect is interactions with other organizational members. For example, Totterdell, Kellett, Teuchmann, and Briner (1998) reported that interacting with other team members influences an individual's affect and that such interactions lead to mood convergence within teams over time. Moreover, the degree to which individuals within the group[1] share positive affect was also found to predict conflict, cooperation, and performance in teams (Barsade, 2002). Therefore, scholars have recently begun to investigate the processes and underlying mechanisms through which team members' affect converge and the determinants that influence the strength of such affective linkages (Kelly & Barsade, 2001). A recent study showed, for example, that the extent to which the moods of team members covary is influenced by several individual characteristics. Ilies, Wagner and Morgeson (2007) found that affective linkages in work teams were stronger for those individuals with collectivistic tendencies and those high in susceptibility to emotional contagion (Hatfield, Cacioppo, & Rapson, 1994). Others have emphasized individual member characteristics such as being older (Totterdell et al., 1988) and more committed to the group, and having an interdependent

[1] We use the terms "teams" and "groups" interchangeably in this article.

self-construal focus (van Baaren, Maddux, Chartrand, de Bouter, & van Knippenberg, 2003).

Thus far, however, researchers have paid little attention to *team* factors as determinants of affective linkages (Brief & Weiss, 2002). This is surprising because team factors and characteristics often define and shape the context in which individual-level processes and experiences (e.g., affective experiences) are formed (Kozlowski & Bell, 2003). The current study seeks to investigate the role that *team diversity* plays in facilitating the sharing of affect within the team. Diversity is a prominent phenomenon in current workplaces and essential to the understanding of team work. Given the critical role that diversity plays in team processes and outcomes such as performance (Jackson, Joshi, & Erhardt, 2003; Kearney, Gebert, & Voelpel, 2009; Wegge, Roth, Neubach, Schmidt, & Kanfer, 2008), innovation (Kearney & Gebert, 2009), conflict (Pelled, Eisenhardt, & Xin, 1999), and health (Wegge et al., 2008), we believe it also has an important function in influencing affective linkages in teams.

To the best of our knowledge, this is the first study that investigates potential links between team diversity and affect sharing in work teams. Our study aims to make three important contributions to the respective literatures on affective linkages and team diversity. First, we seek to demonstrate the importance of team diversity as a team level characteristic determining affect sharing in teams. Second, we intend to help fill the research gap identified in the diversity literature (van Knippenberg & Schippers, 2007) regarding the affective consequences of team diversity. Specifically, we investigate the mechanisms through which team diversity influences affect sharing among team members by comparing the influence of both subjective and objective diversity on the

strength of affective linkages for positive and negative emotions. Third, we examine the role that team identification plays in offsetting potential negative influences of team diversity on affective linkages in teams. We studied two samples of intact teams in different organizations in Germany and in Israel using a repeated-measures design that allowed us to track variations in affect over time.

*Affective linkages*

Affective states are not limited to the experience of individuals but can also spread among team members (Hsee, Hatfield, Carlson, & Chemtob, 1990; Totterdell, 2000; Totterdell et al., 1998). For example, it was found that cricket players' affective states were linked to both average team member affective state and team members' retrospective judgments of the team's overall affect (Totterdell, 2000). In another study, nurses' and accountants' moods were found to vary with their respective work unit's moods, beyond affective reactions to work events (Totterdell et al., 1998).

How do people come to feel what others are feeling? One possibility is that external mechanisms including peripheral non-affective environment of the group might influence group dynamics (Kelly & Barsade, 2001). Consistent with Affective Events Theory (AET; Weiss, & Cropanzano, 1996), non-affective situational events such as performance outcomes, leadership style and available resources might create emotional reactions in a workgroup that lead to affective convergence. This is particularly likely in highly interdependent teams in which success and failure are shared by all members of the team (Kelly & Barsade 2001). Affective linkages among team members may also be due to a non-conscious process known as primitive emotional contagion, in which people

automatically mimic other people's expressive displays and hence experience similar emotions (Bernieri, Reznick, & Rosenthal, 1988; Gump & Kulik, 1997; Hatfield et al., 1994; Laird & Bresler, 1991).

Researchers have shown that within a group setting, affective linkages can also emerge through social comparison processes whereby emotional expressions of others are used as cues to what is normative or acceptable (Barsade, 2002; Kelly & Barsade, 2001). Festinger (1954) introduced social comparison theory positing that people have a basic need to have accurate appraisals of their situation and that, lacking an objective standard of reference, individuals will evaluate themselves in comparison with other people. Schachter (1959) extended this idea to the domain of emotions and claimed that "when discrepancies of emotional state exist, tendencies will arise to bring oneself into closer conformity with others…" (p. 129). Others' affect is thus used as a gauge for evaluating the intensity, nature, and appropriateness of one's own affective reactions.

These three possible mechanisms underlying affective linkages are not mutually exclusive. Rather, it seems likely that interpersonal affect induction is the result of conscious and non-conscious, external and internal processes and influences. Based on the large body of research supporting the emergence of affective linkages, we predict that, within teams, there exist affective linkages among the team members.

*Hypothesis 1*. The average affect of the team excluding the focal individual team member will be related to the affect of that focal team member across time, such that (a) the level of positive affect of the team will be directly associated with the focal individual's level of positive affect and (b) the negative affect of the team will be directly associated with the focal individual's level of negative affect.

*The moderating role of team diversity*

As discussed above, the strength of affective linkages is influenced by multiple determinants. In the current study, we examine the influence of team diversity. Diversity is often conceptualized as differences between individuals on any attribute that may lead to the perception that another person is different from oneself (van Knippenberg, De Dreu, & Homan, 2004). Diversity is relevant for affective linkages in teams because such linkages may depend on the relationship between the people involved (Totterdell et al., 1998). Hatfield et al. (1994) contended that affective linkages are a byproduct of the sensitivity of the perceivers to the affect of others and the expressivity of the affect carrier. Team diversity is likely to influence both ends of this process.

Social categorization is likely to be a central process whereby team diversity influences the sensitivity and willingness of individual team members to perceive other members' affect. Perceived salient differences lead to categorizations of the self and others into in-groups and out-groups. As individuals strive for positive differentiation between those categories of which they are a member (i.e., their in-groups) and other categories of which they are not a member (i.e., their out-groups), social identity theory predicts that individuals view and treat members of their own group more favorably and discriminate against members of the out-group (Tajfel & Turner, 1986; Williams & O'Reilly, 1998). This widespread process can determine the extent to which individuals are likely to mimic others' behaviors and use others' affect as a standard for comparison.

As Reynold and Platow (2003) argue, social influence and social comparison are more likely to occur among in-groupers. Individuals are more likely to behaviorally mimic and socially compare themselves to others with whom they feel connected and

interdependent because the affect of such others may be more diagnostic of the self-relevance of a situation (McIntosh, 2006). Similar others provide a more accurate and stable gauge for evaluating the intensity and appropriateness of one's own emotional state (Festinger, 1954; Schachter, 1959). Moreover, there is a strong drive to feel equal to members of the in-group to maintain affective and cognitive balance, reduce uncertainty, and gain cognitive clarity. In other words, social comparison among in-groupers can be thought of as an attempt to establish a common social reality. Prior research has provided evidence for this prediction. Recently, for example, Platow et al. (2005) found that participants laughed and smiled more, laughed longer and rated humorous material more favorably when they heard in-group laughter rather than out-group laughter. Similarly, Smoski and Bachorowski (2003) showed that people were more likely to laugh after hearing another person's laughs when that person was a friend rather than a stranger.

Similar patterns were found in regard to affective linkages through primitive emotional contagion. For example, McIntosh (2006) reported that observers who liked the emotional models mimicked cheek movements more than did those observers who did not like the emotional models. Thus, the extent to which individuals like and feel intimate with others influences the process of affect sharing.

Affective linkages can also be influenced by the normative context of the team (Hatfield et al., 1994). Expressions of individuals' affective states may constitute a crucial prerequisite for the occurrence of affect sharing (Walter & Bruch, 2008). Individual feelings that are not expressed cannot be detected by other group members and thus remain private. Specifically, the extent to which team members freely express their affect and whether or not group members are attentive and sensitive to each others'

expressions of affect is impacted by the quality of communication in the team, the extent to which members feel psychological safety, and whether team members empathize with and trust one another. Perceived diversity is an important determinant of these conditions because it may influence the shared belief that the team is safe for interpersonal risk-taking, thus fostering a climate of mutual respect, trust and caring for team members. For example, previous research reported that levels of trust and psychological safety are higher in homogeneous teams (van Knippenberg & Schippers, 2007), whereas diversity is associated with decreased psychological safety (Lau & Murnighan, 2005). Moreover, intergroup bias resulting from diversity may render individuals less open to communication from dissimilar others (van Knippenberg, 1999) and diminish trust in dissimilar persons (Chattopadhyay, 1999).

Hence, we assume that perceived diversity influences categorization processes in the team as well as trust, empathy and communication among team members. We posit that the extent to which team members perceive diversity in their respective teams can enhance as well as inhibit individuals' susceptibility to emotional contagion and team members' motivation to engage in affective comparison processes with one another. Thus, we propose:

*Hypothesis 2.* Perceived team diversity will moderate the strength of an individual's affective linkages to the other team members, such that individuals in teams with high perceived diversity will show weaker positive affective linkages and weaker negative affective linkages than do individuals in teams with lower perceived diversity.

*Perceived vs. Objective Team Diversity*

In practice, most diversity research has focused on demographic and informational differences such as objective age, gender, tenure, educational specialization and functional background (van Knippenberg, & Schippers, 2007). Although we acknowledge the importance of objective diversity to team processes and outcomes, we argue that subjective diversity (the general perception that team members are diverse) is of greater importance for affective linkages than is objective diversity for the following reasons.

First, prevalent definitions of diversity emphasize the subjective aspect of the phenomenon. For example, Williams and O'Reilly (1998, p. 81) defined diversity as "any attribute people use to tell themselves that another person is different". Second, past research has provided support for the effects of actual diversity being mediated by perceived diversity (Harrison, Price, Gavin, & Florey, 2002; Wayne & Liden, 1995). As Harrison and Klein (2007) suggested, perceived diversity may have more proximal explanatory power than does actual diversity**.** Third, in this study we are not interested in the objective or subjective presence of specific differences but rather in whether or not team members subjectively perceive their team to be diverse *in general.* Measuring objective levels of diversity (based on, for example, the team members' age or educational specialization) is problematic insofar as it presupposes that team members indeed perceive those compositional aspects to be salient. Thus, to ensure that diversity is in fact perceived and salient in the teams we studied, we asked team members about the extent to which their team is diverse on whatever differences are most pronounced in their specific team. This approach is further justified by the finding that the perception of

diversity (i.e., subjective diversity) is shared by team members even when no attributes of diversity are predefined (see for example Jehn & Bezrukova, 2010). Finally, research shows that despite a substantial relationship between subjective and objective diversity, it is often the former, not the latter, that is driving team processes and outcomes such as conflicts, burnout and identification (e.g., Ries, Diestel, Wegge, Schmidt, 2010). According to self-categorization theory (Tajfel & Turner, 1986), classifying someone as not belonging to the same social group as oneself leads to a potential devaluation of that individual. This bias is referred to as intergroup bias. Subjective diversity is synonymous with perceived differences on situationally salient social categories. Thus, subjective diversity – that is, the perceptions of salient differences within teams – is more likely to elicit categorization processes and intergroup bias than is objective diversity. A further major goal of this study is to examine this prediction:

*Hypothesis 3.* The strength of affective linkages within teams over time is moderated by the type of diversity, such that subjective diversity indicators (i.e., judgments regarding overall perceived differences within teams) have a stronger effect on the development of affective linkages than do objective indicators of diversity (i.e. age, tenure, and gender diversity).

# Study A

## 8.2. Method

### 8.2.1. Sample and procedure

The sample consisted of 170 employees in 33 Israeli consulting teams in a single organization. Teams were cross-functional and characterized by high task interdependence among members. Members had to interact on a daily basis and collaborate closely to meet team objectives. For all 33 teams we had data from at least 76% of the team members. Team size ranged from 3 to 13 members (M = 5.84, SD = 2.38), excluding team leaders. The mean age was 36.75 years (SD. = 7.41) for team members and 42.15 years (SD = 7.56) for team leaders. Females accounted for 25% of employees and 34% of leaders. The mean organizational tenure was 5.32 years (SD = 3.31). Each team leader was responsible for a single team. We collected data from employees and leaders at three points in time, spaced 2 weeks apart. To account for variations in affect, we assessed affective states of all team members at all three measuring times. At Time 1, team leaders were asked to rate their team's performance. Performance was measured at this time to control for its influence on individual and team affect. Team members were asked to rate the level of diversity in their team. Diversity was rated at both Time 1 and Time 3 to ensure that diversity is independent of affective variations. There were no significant differences between the two measuring times. In the questionnaires we used Hebrew translations of the original English items. We generated the Hebrew version by following Brislin's (1980) commonly used back-translation method.

### 8.2.2. Measures

*Affective states.* To measure affective states, we used the Positive and Negative Affective Schedule (PANAS, Watson & Clark, 1994), which presents team members with a list of 20 adjective descriptors of affect. Sample adjective descriptors from the positive scale are "interested", "enthusiastic", and "determined". Sample adjectives from the negative scale are "upset", "irritable", and "hostile". Team members were asked to indicate the extent to which the adjectives described their affective state at the moment. Responses were given on a scale ranging from 1=*very slightly or not at all* to 5=*extremely*. The average internal reliability of the affect scores across the three measurement times was .88 for positive affect and .86 for negative affect.

*Subjective diversity.* Following van Knippenberg et al.'s (2004) definition of diversity as "differences between individuals on any attribute that may lead to the perception that another person is different from self" (pp.1008), we adopted a non-specified and subjective operationalization of diversity. Thus, diversity was measured with a 4-item scale adapted from Jehn and Bezrukova, (2010). The response scale ranged from 1=*strongly disagree* to 5= *strongly agree.* Sample items are, "My team is diverse" and "My team members differ from one another". Diversity was measured at Time 1 (M=3.32, SD=.42) and Time 3 (M=3.28, SD=.40); since we found no significant differences, t(32)=1.05, n.s, we calculated a mean score across the two measurement times. The scale had an average Cronbach's alpha of .85 across the two measurement times. An average rwgj=.83 indicates a satisfactory interrater agreement that justifies aggregation of the construct to the team level and suggests that general subjective diversity perceptions are indeed shared among team members.

*Objective diversity.* We included three objective diversity measures: age (years), gender, and team tenure (years). All three demographic measures were collected via self-reports at Time 1. Gender diversity was operationalized using Blau's (1977) index of heterogeneity, while age and tenure diversity were operationalized using the standard deviation (SD).

*Controls.* We controlled for the effect of the team's task performance because such shared experience is likely to have similar effects on individual team members' affective and may thus explain affective linkages among team members (Ilies et al., 2007; Sy, Cote, & Saavedra, 2005; Totterdell, 2000; Totterdell et al., 1998). Task performance was measured at Time 1 using leader ratings of three performance criteria based on previous research (Ancona & Caldwell, 1992; see also Van der Vegt and Bunderson, 2005). The three established criteria were efficiency, quality, and overall achievement. Each team leader was asked to compare the performance of his or her team to the performance of teams that performed similar tasks. The response set for the 6 items ranged from 1, "*far below average*," to 6, "*far above average*". Cronbach's alpha for this scale was .85. In addition, we controlled for susceptibility to emotional contagion because this variable has been shown to strengthen the associations between an individual's affect and the affect of the other team members (Totterdell, 2000). The response set for the 15 items from Doherty's (1997) Emotional Contagion Scale ranged from 1, "*never*," to 5, "*always"*. Cronbach's alpha for this scale was .81.

## 8.3. Results

Table 8 presents the correlations among the variables. Given the nature of the research questions and the data (affective states nested within individuals and teams), as well as to address the hypothesized cross-level moderating effects, we used hierarchical linear modeling (HLM) for the data analyses. HLM explicitly accounts for the nested nature of the data and can simultaneously estimate the impact of factors at different levels of analysis on individual-level outcomes while maintaining the appropriate level of analysis for each predictor (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004).

First, we investigated the random variation of individual positive and negative affect to determine whether individuals' affect scores varied substantially within (across the three measurement times) as well as between people. We analyzed the null models of negative and positive affect. The covariance parameters for between-individual variation were .25 ($p<.001$) for negative and .27 ($p<.001$) for positive afect. These models also revealed that 25% of the total variance in negative and positive affect was due to within-individual variation. An average[2] ICC1 (across the three measurement times) of .72 for negative and .75 for positive affect indicated a substantial variance that can be accounted for by higher level variables. The averages for the measures of group-mean reliability (ICC2) were .94 for negative affect and .95 for positive affect. Following Ilies et al. (2007), we calculated the predictor, team affect score, for each individual on Level 1 by, first, centering the affect scores of each individual relative to the other individual's average score (across the three measurement times). Thus, for each individual we received scores that represent the departure of that individual's mood

[2] All six ICC1 values were statistically significant.

Table 8

*Means, Standard Deviations, and Correlations*

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intra-individual Level | | | | | | | | | | | | | |
| 1. Positive affect | 3.01 | .55 | - | | | | | | | | | | |
| 2. Negative affect | 1.68 | .47 | -.48** | - | | | | | | | | | |
| 3. Average team PA[1] | 3.05 | .25 | .36** | -.14 | - | | | | | | | | |
| 4. Average team NA[1] | 1.66 | .18 | -.18* | .31** | -.43** | - | | | | | | | |
| Individual Level | | | | | | | | | | | | | |
| 5. Age | 38.77 | 8.41 | | | | | - | | | | | | |
| 6. Gender | 1.25 | .43 | | | | | .09 | - | | | | | |
| 7. Susceptibility to emo. contagion | 5.03 | .91 | | | | | .12 | .15 | - | | | | |
| Team Level | | | | | | | | | | | | | |
| 8. Subjective team diversity | 3.44 | .69 | | | | | | | | - | | | |
| 9. Gender diversity | .22 | .19 | | | | | | | | .13 | - | | |
| 10. Age diversity | 6.98 | 3.19 | | | | | | | | -.05 | -.16 | - | |
| 11. Tenure diversity | 5.32 | 3.31 | | | | | | | | -.04 | -.10 | .54** | - |
| 12. Team performance | 4.76 | .54 | | | | | | | | .04 | -.15 | .21* | .26** |

*Note.* N Intra-individual level = 510. N Individual Level = 170. N Team Level = 33. $^{*}p < .05$. $^{**}p < .01$. PA= positive affect; NA= negative affect.

[1] Other team members' affect excluding individual's affect

Thus, for each individual we received scores that represent the departure of that individual's affect from the other team members' affect. Then, by calculating a mean value of these departure scores (i.e., mean of the team excluding the individual team member), we created Level-1 predictor scores that represent within-individual effects and thus controlled for between-individual and between-team differences. Team affect scores (i.e., departure scores of an individual's affect from the other team members' affect) thus constituted Level 1 in our three-level modeling framework. The individuak level of analysis (i.e., susceptibility to emotional contagion) constituted Level 2, and the team level of analysis (i.e., performance, team diversity) constituted Level 3.

We regressed each individual's affect (i.e., the outcome measure) on his or her team members' affect at Level 1 separately for positive and negative affect. As expected, we found that individuals' positive affect scores were predicted by the average positive affect of the other team members (standardized $\beta$ =.15, $p$<.01; see Model 1 in Table 9). Results also showed that individuals' negative affect scores were predicted by the average negative affect of the other team members (standardized $\beta$ =.08, $p$<.01; see Model 2 in Table 9. These results support Hypothesis 1.

Table 9

*Testing the Intraindividual and Cross-Level Interactions Effects on Positive and Negative Affect*

| | Model 1 (PA) | | Model 2 (NA) | | Model 3 (PA) | | Model 4 (NA) | |
|---|---|---|---|---|---|---|---|---|
| | β | t | β | T | β | t | β | t |
| Level 1 | | | | | | | | |
| Average team PA[1] | .15 | 11.56** | | | .15 | 16.30** | | |
| Average team NA[1] | | | .08 | 4.15** | | | .07 | 4.80** |
| Level 2 | | | | | | | | |
| Susceptibility to emo. contagion | .13 | 2.87* | .14 | 2.91* | .15 | 3.21* | .15 | 3.35* |
| Level 3 | | | | | | | | |
| Team performance | 0.09 | 1.08 | -.11 | -1.84 | .09 | 1.06 | -.15 | -2.00* |
| Subjective diversity | | | | | -.18 | -6.42* | -.07 | -.37* |

*Note.* N level 1= 510 data points; N level 2 = 170; N level 3 = 33. PA= positive affect; NA= negative affect. $^{*}p < .05$. $^{**}p < .01$;[1] Other team members' affect excluding individual's affect.

To test the prediction that perceived team diversity will moderate the strength of affective linkages, we used a similar level structure as that used to test Hypothesis 1, with the addition of team diversity at Level 3. Team diversity was used as a predictor of both the intercept and the slope from the Level 1 regressions. As shown in Table 9, Hypothesis 2 was supported for both positive (standardized β =-.18 $p<.05$; see Model 3) and negative affect (standardized β =-.07 $p<.05$; see Model 4). The interactions - illustrated graphically in Figure 7a and Figure 7b - suggest that, as predicted, positive and negative affective linkages were stronger in teams with low perceived diversity than in teams with high perceived diversity.

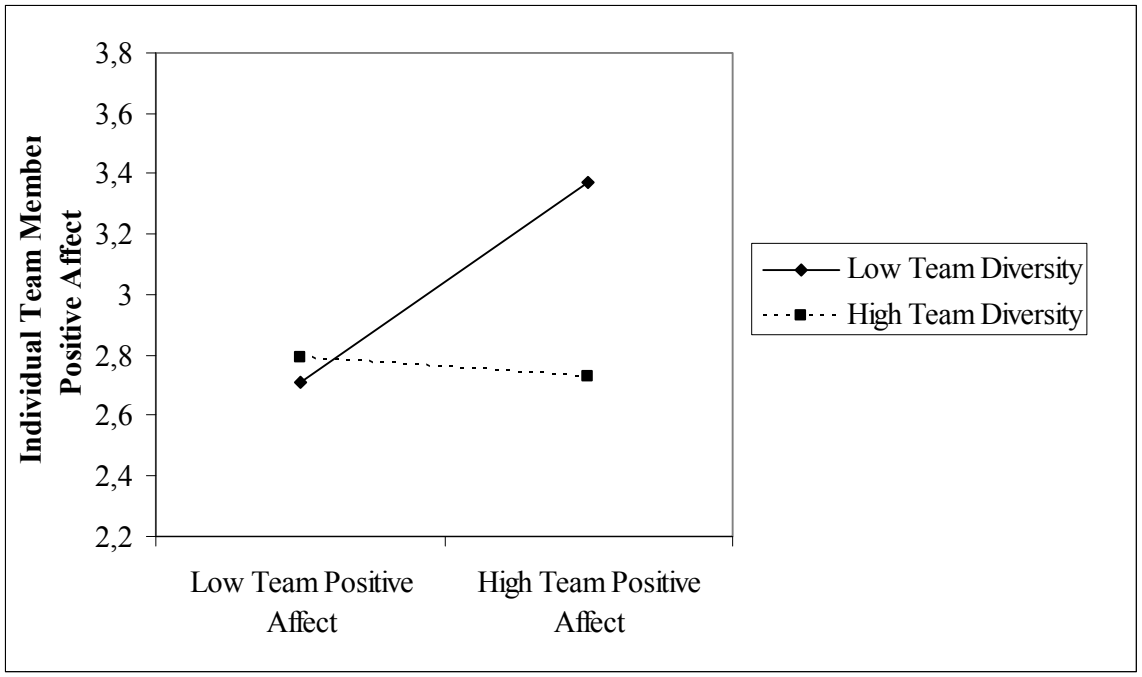


*Figure 7a*. The moderating role of team diversity on positive affective linkages in teams

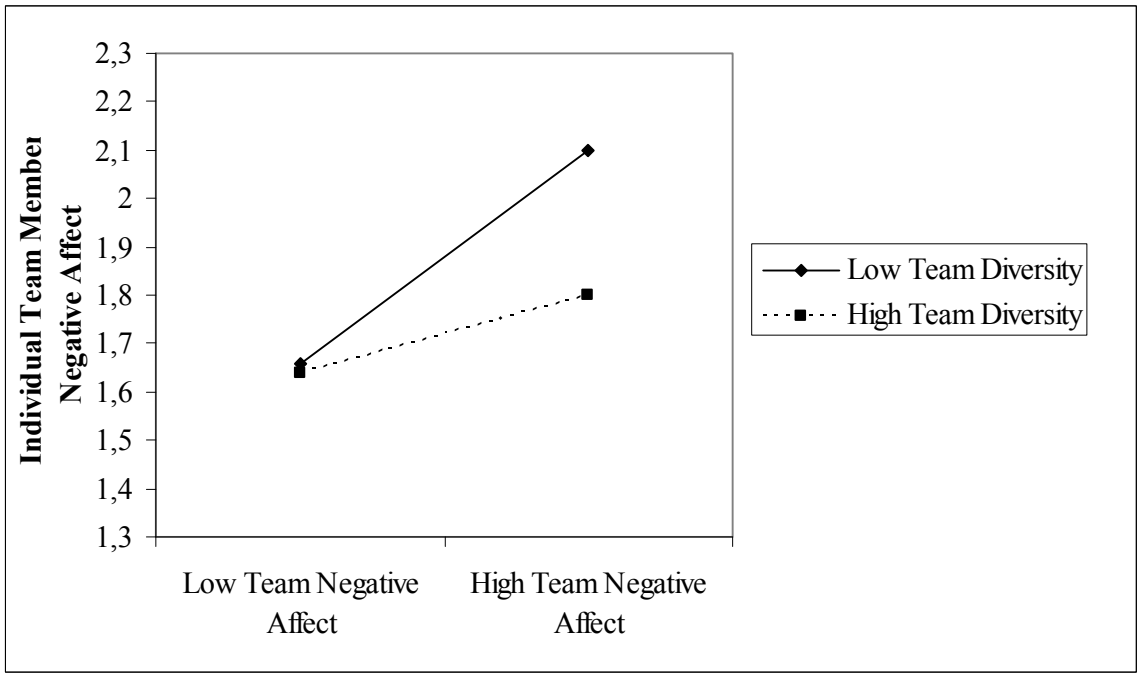


*Figure 7b*. The moderating role of team diversity on negative affective linkages in teams

In order to test our prediction that subjective team diversity has a stronger effect on affective linkages than does objective diversity (H3), we examined whether age,

gender, and tenure diversity, respectively, moderate the strength of affective linkages in teams. In contrast to perceived diversity, neither age diversity (negative affect: standardized β =.00, n.s.; positive affect: standardized β =.00, n.s.), gender diversity (negative affect: standardized β =.01, n.s.; positive affect: standardized β =.08, n.s ), nor tenure diversity (negative affect: standardized β =.01, n.s.; positive affect: standardized β =.01, n.s.) significantly moderated the relationships between team and individual affect.

### 8.3.1. Discussion

The results of this study lend support to our hypotheses. Consistent with previous research and H1, we found evidence that positive and negative affect are shared within teams. Consistent with H2, there is also evidence that subjective diversity moderates affective linkages. Moreover, in line with Hypothesis 3, it is *perceived* diversity and not *objective* diversity that influences affective linkages in teams. The latter finding supports the claim that perceived diversity may have more proximal explanatory power than does objective diversity (Harrison & Klein, 2007). Furthermore, since perceived diversity is more likely to elicit categorization processes and intergroup bias than is objective diversity, this finding suggests that the processes underlying the moderating influence of diversity are indeed associated with intra-group categorization.

Although these results support our predictions, we deemed it important to conduct a follow-up study to 1) examine the consistency of our results, 2) substantiate our conclusions about the underlying processes, and 3) examine a possible moderator of the inhibiting effect of perceived team diversity on the development of affective linkages in teams.

What team processes, attitudes, and states may offset this inhibiting influence of team diversity? More precisely, what team contexts may influence the motivation of members to categorize themselves more broadly or more narrowly at intermediate levels of inclusiveness as group members? As previous research suggested, team identification may be a key variable in this regard (Van der Vegt & Bunderson, 2005; Van Knippenberg et al., 2004). Team identification is defined as a personal, cognitive, emotional and behavioral bond between individual and team (Henry, Arrow, & Carini, 1999). It determines whether employees will be inclined to follow team norms and exert themselves on behalf of the team (e.g., Barreto & Ellemers, 2000; Wegge & Haslam, 2003).

Given that members may identify with multiple units of affiliation (Brewer 1995, Randel, 2002), we posit that team identification has a buffering effect on the moderating influence of perceived team diversity on the relationship between team and individual affect. In the case of high team identification, team members are driven to collaborate and adopt a constructive and cooperative working style that overcomes disruptive effects engendered by perceived differences and the resulting social categorization. When members perceive themselves to be sharing a common in-group identity, the salience of subgroups categories decreases and associated biases are minimized (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Gaertner & Dovidio, 2000). In other words, when members of one subgroup comprising members of a particular social category perceive themselves to share a group membership with members of another subgroup (and the overall workgroup indeed feels as one group), they are motivated to actively strive to reach agreements on contentious matters, coordinate their behaviors by identifying shared

beliefs, develop common mental models, and exchange information (Haslam and Ellemers 2005, Hogg and Terry 2000, Pratt 1998; van Knippenberg & van Schie, 2000). The former inter-subgroup boundaries become less salient, and instead, new, inclusive and overall team-based boundaries become important in the minds of members.

As described above, the results of Study A may be interpreted as suggesting that people are more likely to experience concordant affect with persons who belong to their in-groups. Thus, it is plausible that the influence of team identification on the likelihood that a member will categorize him- or herself primarily as a member of the overall team or of a sub-group is also likely to impact affective linkages and the willingness of members to express their affect and perceive others' affect. As Haslam (2001) suggests, members who identify with the group are more motivated to pick up signals from other members and are therefore more attentive to the other group members' feelings and behaviors. Social comparison processes may also be facilitated since group members who highly identify with the group tend to see fellow members as more similar to themselves and as more relevant sources of information (Van Knippenberg & Hogg, 2003). Moreover, affective convergence in teams with high identification is more likely because stronger identification leads group members to be more willing to conform to group norms, values and attitudes (Tanghe, Wisse, & van der Filer, 2010). Thus, the interaction between subjective team diversity and the extent to which members identify with the team will determine whether team members strive to maintain affective concordance with the members of the team or with members of the sub-group.

In this regard, it is also important to consider that linkages of positive and negative affect may have different team functions and thus react differently to the

interaction of team diversity and team identification. As previous research suggested (e.g., Shariff & Tracy, 2009), sharing positive and negative affect have different team functions in line with their social purpose. Negative affect sends avoidance-oriented messages by signifying threat and danger (Barsade & Gibson, 2007), messages that are most relevant when carried by in-groupers (Barsade, 2002; Kelly & Barsade, 2001). Since members in teams with high identification and low diversity are most likely to be perceived as in-groupers, negative affect is likely to be shared most strongly in teams with high identification and low diversity. Positive affect, on the other hand, typically sends approach-oriented messages that are associated with pleasantness, content, and safety, and which often result in enhanced group cohesiveness (Barsade & Gibson, 2007). Thus, in teams that strive to promote cohesiveness and cooperation (i.e., teams with high identification), sharing positive affect may be used as a tool to overcome perceived diversity. Specifically, in the case of teams with high identification, sharing positive affect may facilitate cooperation among members and the adoption of a working style that overcomes disruptive effects engendered by perceived differences and resulting social categorization. Therefore, positive affective linkages are likely to be especially strong among members in teams with high identification and high diversity. In sum, we suggest that the interaction of perceived team diversity and team identification will influence affective linkages in teams in the following ways:

*Hypothesis 4a.* Linkages of positive affect will be stronger as team identification and subjective diversity increase.

*Hypothesis 4b*. Linkages of negative affect will be stronger as team identification increases and subjective diversity decreases.

# Study B

## 8.4. Method

### 8.4.1. Sample and procedure

The sample consisted of 61 teams from two German organizations. These organizations are engaged in high-tech (27 teams) and research and development (R&D; 34 teams) industries. The sample comprised 304 individuals and 61 team leaders. For all 61 teams we had data from at least 65% of the members, with an average of 87%. Team size ranged from 3 to 14 members (M = 5.30, SD. = 2.54; excluding team leader). The mean age was 37.25 years (SD = 9.40) for team members and 42.22 years (SD = 8.21) for team leaders. Mean tenure was 4.28 years (SD = 3.10). Forty-eight percent of the team members and 70% of the team leaders were male, while 52% of the team members and 30% of the team leaders were female.

We collected data from two sources, team members and team leaders, and at three points in time, spaced 2 weeks apart. At each time we measured affective states of all team members. The moderator subjective team diversity was rated by team members and leaders at Time 1 and again at Time 3, four weeks later. Since there were no significant differences between the two diversity measurements we used a mean score in all analyses. Finally, team leaders were asked to rate their team's performance at Time 1.

Teams in both sampled organizations are characterized by high task interdependence among members. In all teams, members had to interact several times per week and collaborate closely to meet team objectives. In the questionnaires we used German translations of the original English items. We generated the German version by following Brislin's (1980) commonly used back-translation method.

### 8.4.2. Measures

*Affective state.* To measure affective states, we used the Positive and Negative Affective Schedule (Watson & Clark, 1994), as described in Study A. The average internal reliability of the affect scores across the three measurement times was .83 for positive affect and .80 for negative affect.

*Subjective diversity.* Diversity was rated with a 4-item scale developed after Jehn, and Bezrukova, (2010; see Study A). Data was obtained from team members and team leaders at both Time 1 (team members M=3.41, SD=.91; leaders M=3.42, SD=.53) and Time 3 (team members M=3.38, SD=.88; leaders M=3.39, SD=.55). We found no significant differences between Time 1 and Time 3 nor between leaders' and members' ratings, t(60)=1.24, n.s., and t(302)=.249, n.s., respectively. Thus, in our analyses we used diversity ratings that were averaged across teams and team members across the two times. The scale had a Cronbach's alpha of .82 across the two measurement times. An average rwgj=.79 indicates a satisfactory interrater agreement that justifies aggregation of the construct to the team level.

*Objective diversity*. Gender diversity was measured using Blau's (1977) index of heterogeneity, and age and team tenure diversity were measured using the standard deviation.

*Team identification*. Team identification is obtained by aggregating the individual-level construct of team identification (Gundlach, Zivnuska, & Stoner, 2006). Team identification was measured by the 12-item 7-point Likert-type inventory (7-*strongly agree*, to 1-*strongly disagree*) developed by Henry et al. (1999) (e.g., ''I think of this team as part of who I am''). Internal consistency reliability was .89.

*Controls.* As described in Study A**,** we controlled for the effect of team task performance and susceptibility to emotional contagion. Task performance was measured at Time 1 using team leader ratings. Cronbach's alpha for this scale was .81. Susceptibility to emotional contagion was measured at the individual level at Time 1 using Doherty's (1997) Emotional Contagion Scale. Cronbach's alpha for this scale was .79.

## 8.5. Results

Table 10 presents the correlations among the variables measured in this study. The null models of negative and positive affect were analyzed and the covariance parameters for between-individual variation were .26 ($p<.001$) for negative and .27 ($p<.001$) for positive affect. These models also revealed that 32% of the total variance in negative affect and 33% of the variance in positive affect was due to within-individual variation. The partitioning of the total variance of these variables into between and within team variances also allowed the calculation of intrateam-reliability (ICC1). An average[3] ICC1 (across the three measurement times) of .69 for negative and .68 for positive affect indicated a substantial variance that can be accounted for by higher level variables. The averages for the measures of group-mean reliability (ICC2) were .93 for negative affect and .92 for positive affect.

Hypothesis 1 was tested within a three-level modeling framework similar to that presented in Study A. To test Hypothesis 1, we regressed each individual's affect on his or her team members' affect at Level 1. We performed these analyses for both positive and negative affect while controlling for team task performance (Level 3) and

[3] All six ICC1 values were statistically significant.

susceptibility to emotional contagion (Level 2). Indeed, as shown in Models 5 and 6 (see Table 11), both control variables had an influence on individuals' positive and negative affect. As expected, we found that individuals' positive affect scores were predicted by the average positive affect of the other team members (standardized $\beta = .13$, $p<.01$; see Model 5). Results also show that individuals' negative affect scores were predicted by the average negative affect of the other team members (standardized $\beta = .11$, $p<.01$; see Model 6). These results support Hypothesis 1.

Table 10

*Means, Standard Deviations, and Correlations*

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intra-individual Level | | | | | | | | | | | | | | |
| 1. Positive affect | 3.15 | .60 | - | | | | | | | | | | | |
| 2. Negative affect | 1.87 | .59 | -.45** | - | | | | | | | | | | |
| 3. Average team[1] PA | 3.17 | .65 | .48** | .-.10 | - | | | | | | | | | |
| 4. Average team[1] NA | 1.86 | .63 | -.10 | .52** | -.30** | - | | | | | | | | |
| Individual Level | | | | | | | | | | | | | | |
| 5. Age | 36.25 | 9.92 | | | | | - | | | | | | | |
| 6. Gender | 1.53 | .50 | | | | | -.01 | - | | | | | | |
| 7. Susceptibility to emo. contagion | 5.01 | .89 | | | | | .10 | .10 | - | | | | | |
| Team Level | | | | | | | | | | | | | | |
| 8. Subjective diversity | 3.29 | .89 | | | | | | | | - | | | | |
| 9. Gender diversity | .26 | .15 | | | | | | | | -.03 | - | | | |
| 10. Age diversity | 6.35 | 3.85 | | | | | | | | .04 | -.25** | - | | |
| 11. Tenure diversity | 4.28 | 3.10 | | | | | | | | .04 | -.22** | .61** | - | |
| 12. Team identification | 4.47 | .70 | | | | | | | | -.25** | .11 | .08 | .04 | - |
| 13. Team performance | 4.32 | .74 | | | | | | | | .01 | .02 | .19* | .15* | .32** |

*Note.* N intra-individual level = 912. N individual level= 304. N team level = 61. Gender (1 = male, 2 = female). $^{*}p < .05$. $^{**}p < .01$. PA= positive affect; NA= negative affect. [1] Other team members' affect excluding individual's affect

Table 11

*Testing the Intraindividual and Cross-Level Interactions Effects on Positive and Negative Affect*

| | Model 5 (PA) | | Model 6 (NA) | | Model 7 (PA) | | Model 8 (NA) | | Model 9 (PA) | | Model 10 (NA) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | β | t | β | t | β | t | β | t | β | t | β | t |
| Level 1 | | | | | | | | | | | | |
| Team PA[1] | .13 | 8.19** | | | .12 | 8.15** | | | .11 | 71.71** | .11 | 34.58** |
| Team NA[1] | | | .11 | 27.86** | | | .13 | 32.12** | | | | |
| Level 2 | | | | | | | | | | | | |
| Susceptibility to emo. contagion | .07 | 2.10* | .08 | 2.21* | .02 | 1.12 | .06 | 1.92* | .04 | 1.59 | .09 | 2.35* |
| Level 3 | | | | | | | | | | | | |
| Team performance | .08 | 2.15* | -.06 | -1.51 | .08 | 2.14* | -.06 | -1.50 | .07 | 1.98* | -.04 | -1.08 |
| Subjective diversity | | | | | -.12 | -9.52* | -.11 | -30.03** | .07 | 10.01* | -.15 | -56.43* |
| Team identification | | | | | | | | | .20 | 94.87** | .25 | 76.01** |
| Subjective diversity X Team identification | | | | | | | | | .09 | 84.56** | .09 | 39.33* |

*Note.* N level 1= 912 data points; N level 2 = 304; N level 3 = 61. PA= positive affect; NA= negative affect.

$^{*}p < .05$. $^{**}p < .01$; [1] Other team members' affect excluding individual's affect

To test the prediction that team diversity will moderate the strength of the affective linkages we estimated three-level models in which we included team diversity as a predictor of both the intercept and the slope from the Level 1 regressions. As shown in Table 11, Hypothesis 2 was supported for both positive (standardized β = -.12 $p$<.05; see Model 7) and negative affect (standardized β = -.11 $p$<.05; see Model 8). Thus, as illustrated in Figures 8a and 8b, affective linkages were stronger in teams with low diversity compared to teams with high diversity. In support of Hypothesis 3, we found that neither age diversity (negative affect: standardized β =-.00, n.s.; positive affect: standardized β = -.00, n.s ), tenure diversity (negative affect: standardized β =.01, n.s.; positive affect: standardized β = -.00, n.s ), nor gender diversity (negative affect: standardized β =.00, n.s.; positive affect: standardized β = .00, n.s) significantly moderated the relationships between team and individual affect.

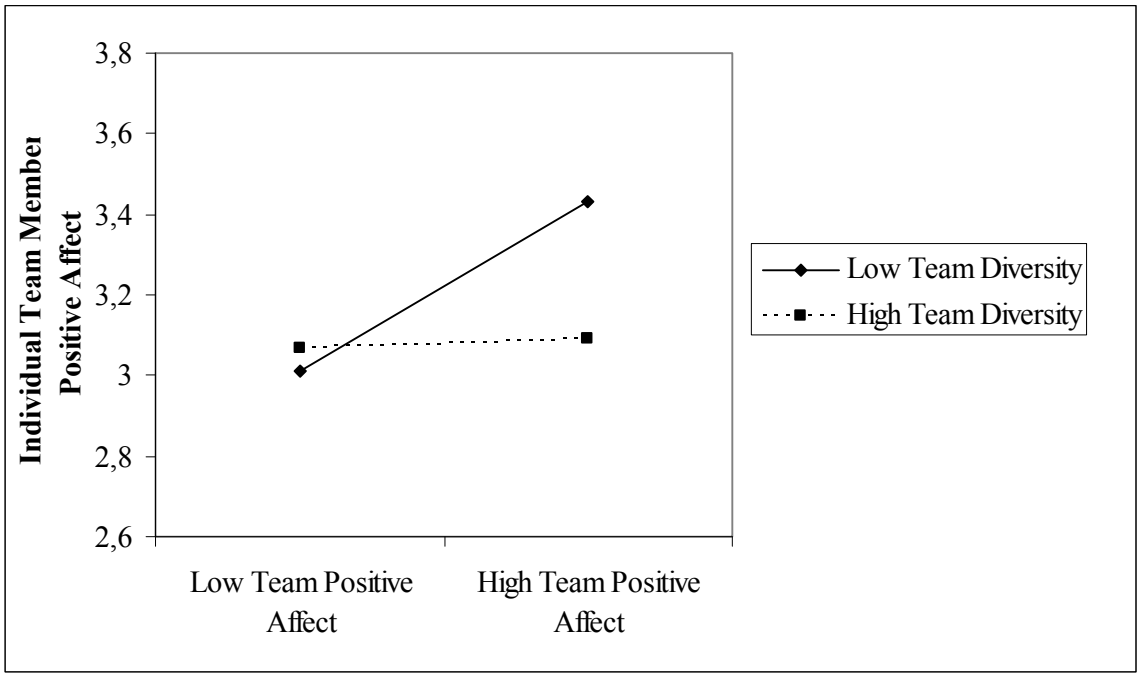


*Figure 8a.* The moderating role of team diversity on positive affective linkages within teams.

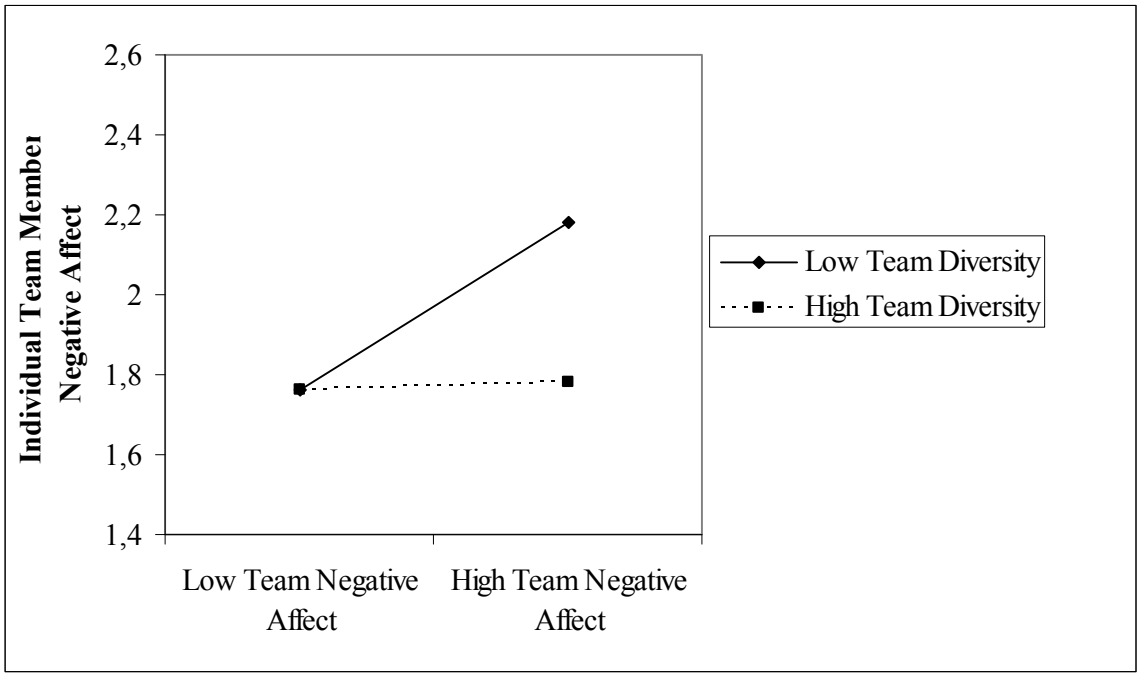


*Figure 8b.* The moderating role of team diversity on negative affective linkages within teams.

Finally, we tested the hypothesis (H4) that the interaction between team diversity and team identification will influence the linkages between team and individual affect. As shown in Model 9 (positive affect) and Model 10 (negative affect), we estimated a hierarchical model wherein the main predictor, team affect, was entered at Level 1. At Level 3, team diversity and team identification were used as predictors of both the intercept and the slope from the Level 1 regressions. The interaction term of team diversity and team identification and the control variable, team performance, were also included at Level 3. As predicted, we found that the interaction between subjective team diversity and team identification had a significant influence on both positive (standardized $\beta = .09$, $p<.05$) and negative affective linkages (standardized $\beta = .09$, $p<.05$). As illustrated in Figure 9a, stronger positive affective linkages were found in teams with high team identification that had high rather than low subjective team

diversity. The interactive effects of team diversity and team identification were different for negative affective linkages. As illustrated in Figure 9b, in this case we found stronger affective linkages in teams with high identification that had low rather than high team diversity.

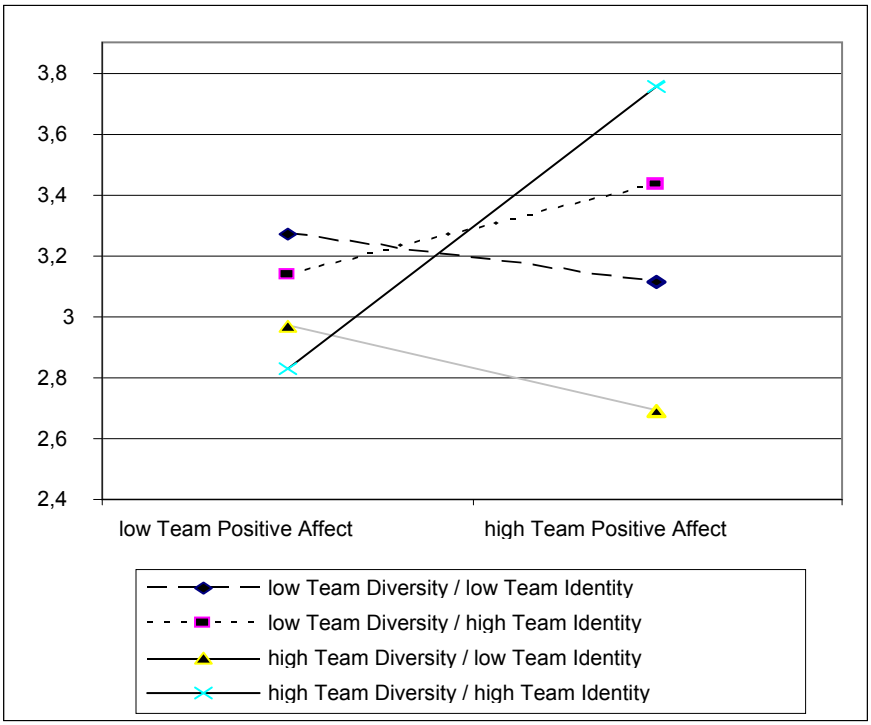


*Figure 9a.* The moderating role of the interaction of team diversity and team identity on positive affective linkages within teams.

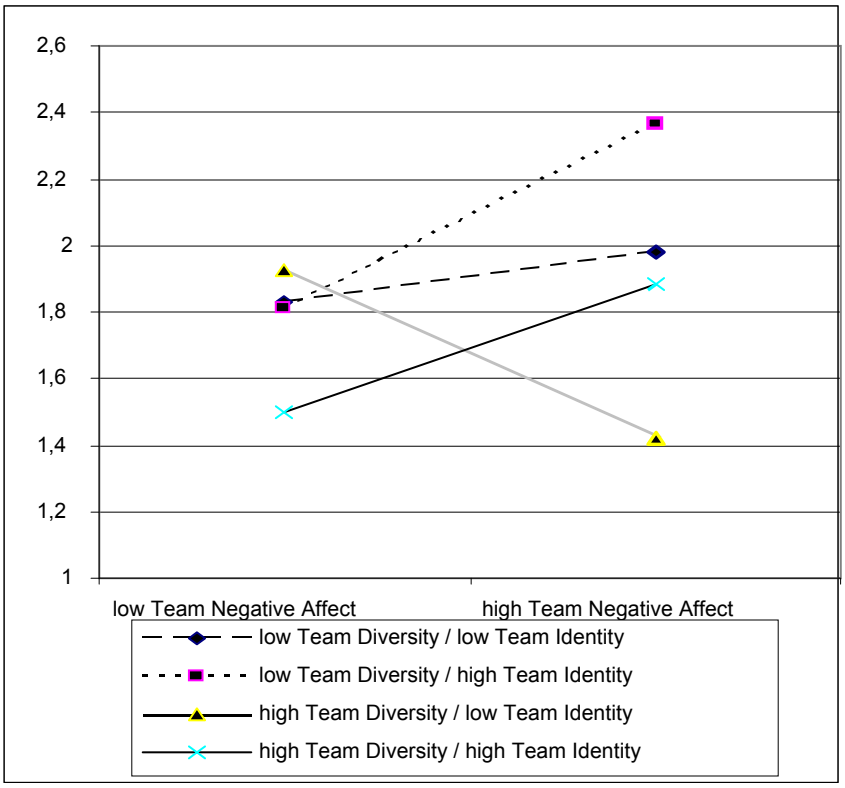


*Figure 9b*. The moderating role of the interaction of team diversity and team identity on negative affective linkages within teams.

## 8.6. Discussion

The pattern of results in this study is consistent with that observed in Study A. In line with H1, we found that positive and negative affect are shared within teams. It is important to note that these results were obtained in intra-individual analyses, which eliminates concerns that the results may be influenced by differences in baseline or dispositional affect. The results also supported H2, suggesting that perceived diversity moderates these affective linkages. Also in line with Study A, we found support for the hypothesis that it is *subjective* diversity and not *objective* diversity that influences

affective linkages in teams. Hence, using different organizations in another country, Study B replicates the findings of Study A and provides support for our main predictions.

Our prediction that the interaction of team diversity and team identification will influence affectoe linkages was also supported. The buffering effect of team identification on the inhibiting influence of subjective team diversity is based on the idea that when members perceive themselves to be sharing a common in-group identity, the salience of subgroups categories decreases and associated biases are minimized (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Gaertner & Dovidio, 2000). This finding is of theoretical and practical importance as it pertains to the fundamental goal of diversity research: identifying conditions, processes, and attitudes that offset the negative consequences of team diversity while tapping its benefits (Van Knippenerg & Schippers, 2007). Importantly, the interaction of team diversity and team identification differentially influenced linkages of positive and negative affect. Stronger positive affective linkages were found in teams with high team identification that had high rather than low subjective team diversity. Stronger negative affective linkages were found in teams with high identification that had low rather than high team diversity. These findings are consistent with our prediction that sharing positive and negative affect may have different team functions in line with their social purpose.

## 8.7. General discussion

As organizations increasingly rely on teams, there is a rising need to examine work phenomena at the team level (Kozlowski & Bell, 2003). In two studies, using different organizations in two different countries and cultures, we examined the influence of team characteristics on affective sharing within teams. The findings offer a consistent

picture and strong support for the existence of such linkages. We found that these linkages were stronger among members in teams with lower subjective team diversity than among members in teams with higher team diversity. Finally, we found that the influence of team diversity on affective linkages was moderated by the level of team identification and that positive and negative affective linkages were differentially influenced by the interactive effects of subjective team diversity and team identification.

In line with our stated goals, this study extends the extant literatures on affective linkages and team diversity, respectively, in several important ways. First, our findings broaden knowledge of the team characteristics that influence the extent to which affective states are shared. Previous research mainly focused on the influence of individual characteristics such as susceptibility to emotional contagion, collectivistic tendencies, and age. Besides adding to this list of influences and determinants, the present study is important in that it is the first to identify such variables at the team level. It is thus in line with the idea that affect and affect sharing are a collective property of the team (Bartel & Saavedra, 2000). In other words, affective linkages within teams may be motivated by team goals, result in team outcomes, and are influenced and determined by team processes and characteristics.

A second contribution of our study is the finding that it is *subjective* diversity rather than *objective* diversity that influences affective linkages in teams. In line with the idea that differences are more likely to have an effect when they are perceived, this finding supports the view that subjective diversity may have more proximal explanatory power than does objective diversity (Harrison et al., 2002). This lends credence to our argument that measuring objective levels of diversity is insufficient insofar as it

presupposes that team members indeed perceive those compositional aspects to be salient. Our findings indicate that researchers may be well advised not to narrow diversity down to its compositional, objective aspects, but to incorporate into their research measures of perceived diversity that are flexible enough to accommodate the specific social categories that group members employ to form impressions of others..

This finding is also important because it provides indirect evidence for the processes underlying the influence of diversity on affective linkages. Since subjective diversity is more likely to elicit categorization processes and intergroup bias than is objective diversity, our results suggest that the processes underlying the moderating influence of diversity are indeed associated with inter-group categorization. Further evidence for this process can be seen in the finding that the influence of team diversity on affective linkages depends on the level of team identification. A possible explanation for the buffering effect of team identification on the inhibiting influence of subjective team diversity is that when members perceive themselves to be sharing a common in-group identity, the salience of subgroups categories decreases and associated biases are minimized (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993; Gaertner & Dovidio, 2000). The former inter-subgroup boundaries become less salient, and instead, new, inclusive team-based boundaries become important in the minds of the team members.

The result that the influence of team diversity on affective linkages depends on the level of team identification has further implications. First, as affective linkages are closely linked to several team outcomes and processes (Barsade, 2002; Sy et al., 2005), facilitating affective linkages in teams is likely to decrease conflict among team members and to foster cooperation and performance. Second, this finding is germane to the

fundamental question of diversity research: how can we overcome the dangers of team diversity while tapping its potential? Theoretically, this finding is particularly valuable as the moderating effect of team identification adds to previous research that pertains to explain mixed evidence from previous studies on the effect of diversity (Van Knippenberg & Schippers, 2007). Indeed, this is in line with the proposition that threats and challenges to group identity are major factors determining the impact of diversity (Van der Vegt & Bunderson, 2005; Van Knippenberg et al., 2004).

The interaction of team diversity and team identification differentially influenced linkages of positive and negative affect. This is consistent with our prediction that sharing positive and negative affect may have different team functions in line with their social purpose: Negative affect signifies threat and danger and sends avoidance-oriented messages while positive affect sends approach-oriented messages by indicating safety and content. Extending the idea that affect is a collective property of the team and that they are functionally linked with team goals, our findings suggest that affective sharing can be seen as a means through which team members shape relationships, establish common social reality, and strive to reach team goals. In the case of teams with high identification, for example, sharing positive affect may facilitate cooperation among members and the adoption of a working style that overcomes disruptive effects engendered by perceived differences and resulting social categorization. In other words, in teams that strive to promote cohesiveness and cooperation, sharing affect may be used as a tool to manage diversity.

*Limitations and future directions*

We acknowledge several limitations of this study. First, our study was based on the simplifying assumption that each individual in a work team is equally influenced by the shared affect of the others in the team. In practice, the pattern of influence may be more complex. As Humphrey, Morgeson and Mannor (2009) demonstrated in a recent study, some individuals within the team may be considered as core role holders and have more impact on team processes and outcomes than others. Core role holders are those team members who work on more of the problems that need to be overcome by the team, have a greater exposure to the tasks that the team is performing, and are more central to the workflow of the team. Thus, some individuals may also be more influential than others in influencing their teammates' affect. Considering such team structures when examining affective linkages is likely to shed further light on the function that affective linkages serve in teams.

Second, as is the case in most other research that has investigated affect at work, we assessed affect at a broad level (i.e., positive and negative affect). As our findings suggest, it is plausible that team processes and emergent states may be influenced not only by team members' affect and affective sharing, but also by the communicative function of affect. Furthermore, it is also possible that the function and purpose of affective linkages depend on the specific affect that is being shared. Within the spectrum of positive or negative affect, discrete emotions (e.g., pride, joy, shame, fear) may serve different team functions. Hence, future research might benefit from examining the patterns, functions, and determinants of linkages of specific negative and positive emotions.

Third, as mentioned above, an important contribution of this study is the finding that *subjective* diversity, rather than *objective* diversity, influenced affective linkages. Since we focused only on age, tenure, and gender diversity as operationalizations of objective diversity, it is possible that other objective diversity attributes would have had a different impact on affective linkages. However, this limitation underscores a fundamental problem in studying objective diversity, namely that there is a great deal of arbitrariness in selecting the diversity attributes that researchers focus on. Most prior studies that investigated the effects of subjective diversity on group outcomes and processes (e.g., Cunningham, 2007; Harrison et al., 2002, Zellmer-Bruhn et al., 2008) employed fixed sets of categories, chosen by the researchers, for eliciting measures of perceived inter-group differences. These authors thus implicitly assumed that the chosen diversity attributes are the salient categories on which their participants make social comparisons. However, the heterogeneity of the surveyed constructs along with the often insufficient justification for why these particular attributes were studied and not others can be interpreted as a sign of arbitrariness in the operationalization of diversity perceptions. We therefore asked team members about the extent to which their team is diverse on whatever differences are most pronounced in their respective team, without referring to any specific diversity attribute. This approach is supported by recent findings (Oosterhof, van der Vegt, van de Vliert, Sanders, & Kiers, 2009) that suggest that the perception of diversity in teams depends on a wide array of factors that, while shared among team members, often vary between teams. Indeed, we find some support for our approach in the finding that, despite the lack of specified diversity attributes, general

subjective diversity perceptions were shared among team members (as suggested by the high interrater agreement values found in Study A and B).

Nevertheless, our results should not be interpreted as suggesting that objective diversity is of no importance. There is a large body of research on the impact and significance of objective diversity in work teams. However, while researchers have typically studied the effects of specific types of objective diversity, oftentimes little attention has been paid to the effects of subjective diversity, although the latter, as our results suggest, may have had much greater effects on team outcomes. We therefore believe that diversity research can greatly benefit from examining both types of diversity. Moreover, theory and practice could benefit from research that examines the relationship between objective and subjective diversity, investigates what types of objective diversity drive the perception of subjective diversity, and studies what moderates the relationship between specific types of objective diversity and subjective diversity.

*Conclusion*

In two studies conducted in different organizations in two different countries and cultures, we examined the influence of team characteristics on affect sharing within teams. Contributing to the affective linkages literature, we identified subjective diversity as a novel team-level factor that determines whether and to what extent affect is shared within teams. We found that team identification moderates this influence of diversity and differentially affects the sharing of positive and negative affect in diverse teams. Moreover, our results show that these effects are limited to subjectively perceived diversity, as opposed to objective diversity. This study contributes to the ongoing quest in

diversity research to better understand when and how the risks of diversity may be held in check while unlocking the potential that diversity entails.

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# 9. Discussion

## 9.1. Summary and Prospect

Guided by the principles of the multilevel approach and driven by the acknowledgment of diversity as a crucial aspect of today's workplace, the current work was dedicated to broadening the focus of diversity research and illustrating how the conceptualization of diversity as moderating team context may result in a richer portrait of individual and team behaviors in the workplace. In light of that, two chief aims were laid out. The first aim was to illustrate the empirical and theoretical usefulness of conceptualizing team diversity as a cross-level moderator. The second aim of this work was to use this novel conceptualization in order to explore the mechanisms and processes through which team diversity itself operates. These aims laid the ground for three empirical studies.

The final section of this doctoral dissertation will comprise several parts. First, the three studies will be summarized and integrated on the backdrop of the major aims of this dissertation. Second, a discussion of the theoretical implications of the findings will be outlined. Next, the practical implication of the findings for the management of diversity in work teams will be surveyed. Finally, a discussion of the limitations and strengths of the three studies, along with suggestions for future research will close this work.

## 9.2. Core Findings

At the heart of this dissertation work stands the notion that team diversity is a crucial aspect of organizational context that must be taken into account in the study of work phenomena. Three different studies examined the viability and theoretical usefulness of this approach and explored different ways in which team diversity influences individual-level phenomena. As shown in Figure 10, Study 1 explored the cross-level influence of organizational tenure on objective individual performance in a prospective design. Drawing on an extensive dataset from a large financial services firm, different facets of organizational tenure, at the individual and team level, were examined. Consistent with previous research (McDaniel, Schmidt, & Hunter, 1988; Quiñones, Ford, & Teachout, 1995), it was found that employee tenure, team leader tenure, and team organizational tenure diversity exerted positive effects on employee performance. In addition, a three-way interaction among employee tenure, team organizational tenure diversity, and team leader tenure on employee performance, suggests that the positive effect of employee tenure on performance is weaker when either team tenure diversity or team leader tenure or both are high. The findings suggest that team diversity grants organizational tenure its meaning, thereby determining to what extent the benefits associated with organizational tenure will unfold.

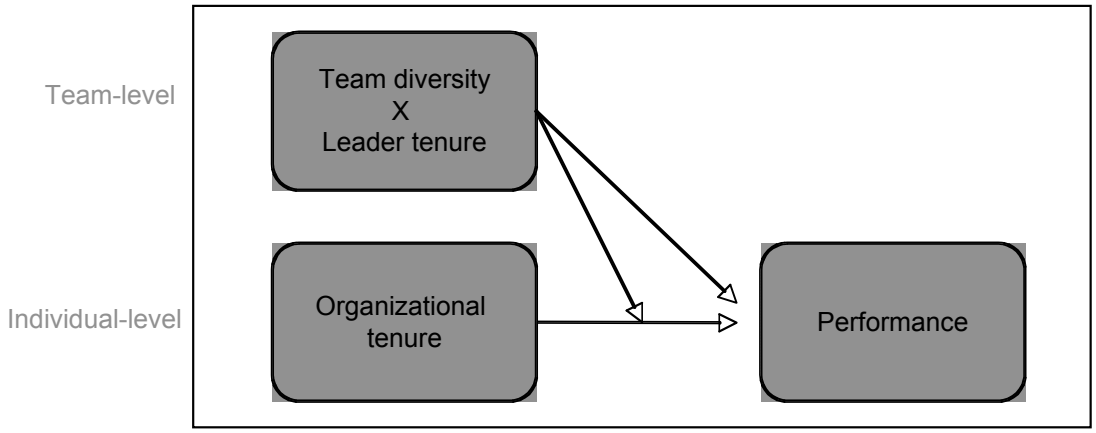


*Figure 10.* The direct and moderating cross-level influence of team organizational tenure diversity on employee performance.

Similarly, in Study 2 the authors illustrate how team gender diversity shapes individual-level relationships. Particularly, the relationship between gender diversity in teams and individual-level health symptoms of men and women was examined in two consecutive years in 220 natural work teams (N 1st year = 4538; N 2nd year=5182). As shown in Figure 11, in an attempt to account for inconsistencies in the literature regarding the relationship between gender and health symptoms, this relationship was examined from a multilevel perspective. As expected, it was found that individual-level gender was not related to health symptoms but that team gender composition determined this relationship. Specifically, controlling for group size, task complexity, and city size, it was found that women report more health symptoms as the proportion of female employees in the team increased, while men's self-reported health symptoms remained invariant with team gender composition changes. These findings were found stable across two measurement points, over two years.

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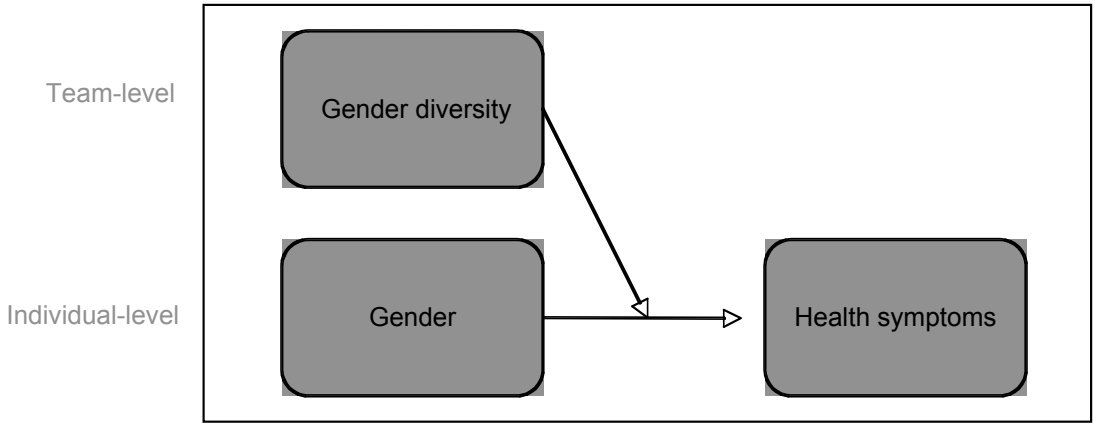


*Figure 11.* The moderating role of team gender diversity on the relationship between individual gender and health symptoms.

Finally, as depicted in Figure 12, Study 3 explored the role of perceived team diversity in facilitating the sharing of affects within teams. The results of Study A (170 employees in 33 Israeli teams) provide evidence that the average affective state of the other team members was related to an individual team member's affect. In addition, it was found that these affective linkages were moderated by perceived team diversity such that the linkages were stronger in teams with lower perceived diversity. In other words, individuals were more likely to share their affect with their team members in homogenous rather than diverse teams. In Study B (304 employees in 61 German teams) the authors replicated the findings of Study A and extended them by including an additional moderator: team identification. Using hierarchical linear modeling, it was found that team identification moderated the influence of perceived diversity on affective linkages such that members in diverse teams were more likely to share affective states with their team members if identification with the team was high. These results highlight pervasive and consistent effects, showing the importance of team characteristics in shaping affective linkages. The findings also contribute to the literature on team diversity

by showing that team identification may buffer the detrimental effects of perceived team diversity on affective linkages in teams.

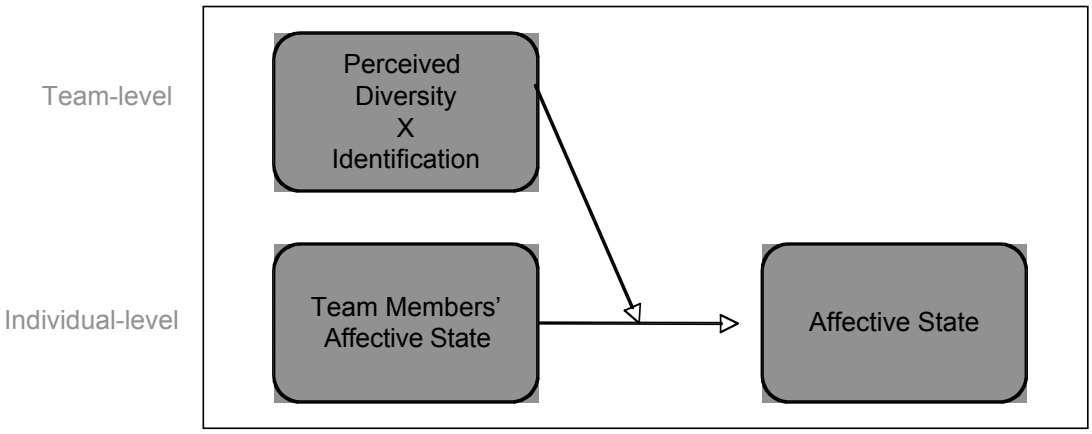


*Figure 12.* The cross level moderating impact of perceived diversity and team identification on affective linkages in teams.

## 9.3. Integration of findings

As indicated above, two specific aims were pursued in this dissertation. The first aim was to illustrate the empirical and theoretical usefulness of conceptualizing diversity as a context variable. Specifically, by assigning team diversity the role of a cross-level moderator it was aimed to illuminate phenomena on other organizational levels (i.e., individual level) and to draw a richer portrait of workplace behavior. In this regard, the most striking and significant contribution that all three studies offer is a consistent picture and strong support for the usefulness of the current theoretical approach. Particularly, in the first study, diversity, as a moderator, determined to what extent the positive effects of organizational tenure on individual performance would be realized. In the second study, the influence of gender diversity was found detrimental to the relationship between

individual gender and health. Finally, in the last study, perceived diversity influenced the extent to which mood linkages were established among team members. These findings suggest that conceptualizing team diversity as a moderator is empirically useful as diversity does not only illuminate lower level phenomena but also shapes and determines their nature.

Further facilitating the first aim, the findings emphasize another aspect in which the approach undertaken by the current dissertation may be useful. Namely, conceptualizing team diversity as a context variable extends the arsenal of questions that are available to diversity researchers. As argued above, diversity researchers have mainly explored the direct outcomes of diversity and so far have largely ignored other aspects, including the cross-level influence of diversity. The three studies illustrate that team diversity has, indeed, additional influences and that it can benefit from turning into new and unexplored avenues. For example, the current research is novel in its attempt to explore how different aspects of team diversity can shed light on previously inconsistent individual level findings. In particular, the results of the second study suggest that gender diversity determines the relationship between individual gender and health symptoms. Further, the results of Study 1 and Study 3 disclose additional influences of team diversity as a cross-level moderator. Specifically, in Study 1 team diversity sets the context by providing a frame of reference against which the meaning of individual and team behavior is drawn. As summarized above, it was found that the impact of organizational tenure on employee performance depends on the level of team organizational tenure diversity as well as on the organizational tenure of the team leader. Hence, in this case, team diversity influences the value of organizational tenure.

Similarly, the results of Study 3 reveal that team diversity may also set the context by influencing team processes and inter-individual relationships. Specifically, members in teams with high perceived team diversity were less likely to establish mood linkages with other members. In sum, conceptualizing team diversity as a critical factor of team context reveals new influences and roles of diversity.

In addition to demonstrating the empirical value of the approach undertaken in this dissertation, the three studies are also consistent in illustrating its *theoretical* usefulness. Principally, the studies reveal that team diversity exerts its influence across levels. To be exact, in their multilevel design and their conceptualization of diversity as a moderator, all three studies embody the view that team diversity has a defining role in the behavior of individuals and teams and that, as such, diversity must be seen as a phenomenon that realizes across organizational levels. This view of diversity is more closely aligned with the multi-level approach that views organizations as a structure of hierarchies that interact and exchange influence (Klein et al., 1994). Indeed, the results of the three studies illustrate that applying this view in the study of team diversity results in a richer and more accurate description of organizational life. Particularly, viewing tem diversity from a multi-level perspective illuminates the context surrounding individual-level processes, clarifying precisely when and where such processes are likely to occur within teams (House et al., 1995).

The second aim of this dissertation was to conceive team diversity as a contextual factor in order to explore the mechanisms and processes through which team diversity itself operates. Two specific findings provide direct and indirect evidence regarding the processes underlying cross-level influence of team diversity. The first, the finding in

Study 2 that team gender diversity exerts *unique* and *differentiated* effect on men's and women's health symptoms indicates that the influence of team diversity on the team is not unitary and depends on the characteristics of team members. In other words, the mechanisms through which team diversity operates are the result of an interaction between the nature of differences among team members (e.g., type, intensity, etc.) and the team or the subgroups within the team. Similarly, the findings in Study 3 provide additional evidence for the processes underlying the influence of diversity. Particularly, the finding that perceived diversity moderated mood linkages in teams while objective diversity did not, suggests that the influence of diversity is associated more with subjective inter-group categorization than with actual differences in teams. Inter-group categorization refers to the process by which similarities and differences between team members form the basis for categorizing self and others into groups (Ely, 1994). Further evidence for the centrality of categorization processes as a building block of the influence of team diversity can be seen in the finding that the influence of team diversity on mood linkages depends on the level of team identification. When members perceive themselves to be sharing a common in-group identity, the salience of subgroup categories decreases and associated categorization processes and biases are minimized.

## 9.4. Implications

### 9.4.1. Theoretical implications

This dissertation offers a number of theoretical contributions to the diversity literature. The first contribution pertains to the novel framing of team diversity as a cross-level contextual moderator within organizations. Since this framing and its useful aspects

have been detailed in several places along this dissertation, it will suffice to briefly recapitulate them. Principally, conceptualizing team diversity as a cross-level moderator draws on and advocates the idea that diversity is a permanent, integral, and ingrained phenomenon in any work unit. Also, this view uncovers the influence of team diversity beyond the team level and suggests that diversity is of importance across organizational levels. Finally, the current approach extends the pool of roles and influences associated with team diversity.

Another important theoretical implication of this work is the finding that diversity influences different sub-groups in different ways. Specifically, the pattern of results obtained in Study 2 supports the view that when gender differences do occur they may well be a result not of direct gender effects, but rather as a consequence of how each gender experiences the work context. Thus, the results indicate that the effect of team diversity on individual behavior is determined by more than just the type and intensity of differences among team members. Rather, the results support the notion that the experience of team diversity may critically differ for different sub-groups, depending on their norms and standards of behavior, as well as on their traditional status within their specific organizational and societal context (Kanter, 1977; Van Knippenberg & Schippers, 2007). Thus, the results imply not only that diversity is divergent in its conceptualization but also in its influence.

Finally, another theoretical contribution is associated with the finding in Study 3, namely that it is *perceived* diversity rather than *objective* diversity that influences mood linkages in teams. In line with the idea that differences are more likely to have an effect when they are perceived, this finding indicates that researchers may be well advised not

to narrow diversity down to its compositional, objective aspects, but to incorporate into their research measures of perceived diversity (Zellmer-Bruhn, Maloney, Bhappu, & Salvador, 2008). Moreover, while most prior studies that investigated the effects of perceived diversity on group outcomes and processes (e.g., Cunningham, 2007; Harrison et al., 2002; Van Dick et al., 2008; Zellmer-Bruhn et al., 2008) employed fixed sets of categories, chosen by the researchers, for eliciting measures of perceived inter-group differences, the findings here illustrate the need to consider diversity measures that are flexible enough to accommodate a whole range of undefined social categories that group members may employ to form impressions of others.

### 9.4.2. Recommendations for Diversity Management

In recent years, organizations and managers are increasingly more aware of the necessity to acknowledge and manage diversity in the workplace. Recognizing that diverse workforce may provide varied viewpoints, increase adaptability and allow serving customers on a global basis (Williams & O'Reilly, 1998), organizations nowadays employ practices that aim at increasing the fair treatment of different subgroups, ward off change resistance, promote diversity in leadership positions, and foster an attitude of openness (Kossek, Lobel, & Brown, 2006). While such practices have become widespread, they remain limited by a narrow view of diversity as a phenomenon that mainly concerns demographical composition of teams (Kulik & Roberson, 2008). Conceptualizing diversity in such a restricted view is likely to limit the ability of organizations to effectively manage the full range of aspects and issues associated with workplace diversity. Thus, the first practical implication is linked to the notion that the impact of team diversity is neither bounded to demographical team composition nor to

team outcomes. Rather, the findings suggest that diversity management research and practice could benefit from examining diversity beyond the question of its direct outcomes and turn to explore, for example, how team diversity shapes team norms and influences phenomena of inequality.

Similarly, the finding that diversity is not unitary in its impact and that different subgroups may be differently influenced by it may also have practical implications to organizations and managers. Organizational strategies to manage diversity may not be relevant or applicable to all groups since different groups experience the very same type of diversity in different ways. Thus, in order to increase the effectiveness of their diversity management practices, organizations should develop managerial strategies and instruments that are targeted at and specific to certain subgroups.

A more fine-grained approach to managing diversity is required in other regards as well. Particularly, Study 1 underscores that organizational behavior and phenomena, including workplace diversity, gain meaning from the context in which they occur (Rollag, 2004). In regard to staffing and hiring decisions, for example, this notion can be seen as a warning against considering candidates on the basis of the absolute value of their qualifications, experiences, and abilities, and to encourage the consideration of whether those are likely to realize and bear fruits within the designated team. In other words, an important practical implication of this work is the notion that teams and team composition should be placed as central factors in staffing processes. Related to that, team diversity may also be considered for its putative function as compensating for team members and leaders weaknesses. As was reported in Study 1, team organizational tenure

diversity was found to compensate for low tenure of individual team members as well as for low leader organizational tenure.

Finally, our findings add to the list of conditions, influences, and managerial practices that increase the benefits derived from diverse teams. In line with previous research (e.g., Van Dick et al., 2008), the current findings postulate that team identification serves as a key mechanism in helping teams translate the benefits of team diversity into significant achievements. One of the major managerial practices to enhance team identification is to increase team member participation in decision-making processes. Active participation enhances involvement, commitment, and a sense of belonging, which in turn lead to a higher level of team identification (Tyler & Blader, 2003; Wegge & Haslam, 2003). Team identification may also be enhanced by creating high goal interdependence among team members (Van der Vegt, Van de Vliert, & Oosterhof, 2003). Team members' perceptions of goal interdependence can be modified by them being jointly encouraged to formulate common team objectives and seek mutual feedback through reflection on their actions (Argyris & Schön, 1996).

## 9.5. Strengths, Limitations, and Future Research

In addition to the limitations, strengths, and suggestions for future research that were specified for each of the three studies, there are several that concern the current work as a whole. First, while the current approach takes the view that diversity occurs and exerts influences across levels, the current work examines only the top-down influence of team diversity on individual level behavior. Yet, the decision to limit the current work to only these two organizational levels is based on several reasons and

constraints. First, most previous research on diversity focused on teams (Kearney & Gebert, 2009). Thus, while studying diversity within team context provides a rich theoretical background, a lack of literature on diversity regarding other organizational levels would have provided only a weak foundation for this dissertation. Second, a common challenge shared by researchers who wish to study diversity on higher-levels (e.g., organization) is the need to acquire large datasets that comprise comparable organizations. Related to that, current statistical packages lack the option to examine bottom-up effects (e.g., the effect of team-level variables on organizational-level outcomes) and by that limit the practicality of such research. Despite these constraints and challenges, research on these under-studied aspects of diversity is certain to enrich our acquaintance with the roles of diversity as a cross-level moderator and the mechanisms through which it operates, but also to shed light and add depth to our understanding of the complex relationships between work phenomena across organizational levels.

An additional limitation is the partial regard of the time dimension in the examination of team diversity in the current work. Acknowledging the time dimension may be imperative to the influence of team diversity, as it comprises the identification of dynamic features of diversity, the temporal relations with other phenomena, and necessitates an assessment of long-term stability and changes of temporal parameters (Roe, 2008). In the current work two aspects of time were examined. Study 2 explored whether the influence of team gender diversity is stable across two years. In Study 3 it was examined whether the perception of team members regarding the extent to which their team is diverse was stable over two measurement points, four weeks apart. Despite

these attempts to incorporate certain aspects of time in the current work, and the preliminary findings that those provide, diversity research could benefit from a more comprehensive scrutiny of this topic. Future research that would examine the impact of time on the cross-level influences of diversity could lead to theoretical innovations and to a substantial expansion of possibilities for practical interventions. Several research questions may be especially relevant: What is the pattern of the effect of diversity in the long run? How do the relationships of team diversity with other work phenomena develop and change over time? Is the impact of the moderating variables on the influences of team diversity (e.g., team identification, diversity beliefs) stable? Does the perception and experience of team diversity by team members change with time?

Third, the current work is also limited in the range of types and influences of diversity that are being examined. In three studies we explored the moderating impact of general perceived diversity, tenure diversity, and gender diversity. Future research could of course scrutinize the moderating role of other types of objective diversity, including deep-level differences such as personality and values diversity, and specific perceived diversity attributes (e.g., subjective gender or personality diversity). Examining other types of team diversity may uncover new roles of diversity across organizational levels. For example, team values diversity may influence individual level behavior by shaping the goals that team members aspire to and are motivated by. Yet, it should be pointed out that the three studies do provide solid evidence for the generalizability of the claims and assertions of this dissertation. Particularly, while the range of diversity types measured is limited, the three studies comprise a number of major diversity categories (i.e., objective diversity, demographical diversity, subjective diversity) that provides an indication for

the applicability of the theoretical approach across the many forms and sorts of work team diversity. Several other aspects of the dissertation also afford confidence in the generalizability of the approach advocated in this work. First, the claims and hypotheses at the core of this dissertation were examined using four samples from 2 countries and across multiple fields of work. Second, the samples in all three studies were comprised of natural teams in the field. Third, the cross-level effect of team diversity was examined in regard to several dependent variables, including under-explored outcomes such as health and affect. Finally, several characteristics of the studies make them especially fitting to test our theoretical approach and thus provide indication for design and methodological solidity. Particularly, it is important to mention that each of the studies comprised large data sets that are organized hierarchically, making them suitable for exploring the impact of diversity across organizational levels.

## 9.6. Conclusion

I am in agreement with the majority of researchers in the field: work diversity does indeed play a central role in organizational life and it is a major challenge facing managers in current organizations (Jehn et al., 2008). However, in the current dissertation I claim that, despite this acknowledgement, previous research has miscalculated the breadth of the influence of diversity. Particularly, by regarding diversity as an isolated phenomenon that occurs only on a single organizational level and by focusing on the examination of the relationship between diversity and work outcomes, previous research has ignored other roles of diversity and neglected a variety of different questions.

In an attempt to overcome this drawback, this dissertation carried out three studies that illustrated the theoretical and practical contributions of assigning team diversity the role of a cross-level moderator. The findings demonstrate that viewing team diversity as a moderator broadens the focus of diversity research, illuminates new roles of team diversity, draws a richer and more complex portrait of other work phenomena, and opens the way to exploring a variety of new research questions regarding the effects of diversity in the workplace. The findings also illustrate that utilizing a broader view of team diversity may shed light on the mechanisms through which team diversity impacts work processes and outcomes. In sum, this dissertation is asking to extend previous work by reviewing the very concept of diversity and the traditional role that diversity is assigned to in the current research. Through the adoption of the multi-level approach as a cornerstone of organizational research and using a new concept of team diversity as a cross-level moderator, this dissertation opens new and unexplored horizons for diversity research.

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Hiermit versichere ich, dass ich die vorliegende Arbeit ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe; die aus fremden Quellen direkt oder indirekt übernommenen Gedanken sind als solche kenntlich gemacht. Die Arbeit wurde bisher weder im Inland noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt.

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Es haben keine früheren erfolglosen Promotionsverfahren stattgefunden.

Die Promotionsordnung der Fakultät Mathematik und Naturwissenschaften vom 20. März 2000 erkenne ich an.

Dresden, December 2010

M.A. Meir Shemla