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Learning and Leadership in Contemporary Organizations:
Quantitative, Qualitative, and Temporal Insights

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SUMMARY
Organizations are faced with a number of challenges for effectively managing their workforce, such as maintaining and developing employees’ knowledge against the background of demographic shifts, ensuring employees’ pro-organizational behavior, and conducting work in self-managed teams. Across four empirical chapters, the present dissertation investigates learning (studies 1 and 2) and leadership processes (studies 3 and 4) related to these organizational challenges, with an emphasis on the influence of the group context. For example, trainings in organizations are mostly conducted in groups in which employees share knowledge with each other and engage in discussions, thus affecting their learning outcomes. Similarly, leaders must be accepted by the group to establish their position and effectively guide group members’ behavior. Thus, the intra- and interpersonal processes associated with the group context have important implications for understanding contemporary organizational challenges.

Drawing from social identity theory and the information elaboration lens, studies 1 and 2 investigate processes and boundary conditions of knowledge development in age-diverse groups. On the one hand, according to social identity theory, learning in age-diverse groups can be impaired because individuals tend to prefer others whom they perceive as similar to themselves (i.e., “in-group” members) over others perceived as dissimilar (“out-group”). Because dissimilar group members are perceived as a potential identity threat, employees’ willingness to share knowledge with each other might be reduced in age-diverse groups. On the other hand, the information elaboration perspective argues that members of age-diverse groups could potentially tap a larger pool of knowledge from different areas and engage in deeper knowledge processing discussions, which may promote learning outcomes. Indeed, based on 31 in-depth, longitudinal interviews involving young and older trainees enrolled in a full-time intergenerational learning program at an automobile manufacturer, the first study shows that not all types of knowledge (i.e., expert, practical, social, and meta-cognitive knowledge) were exchanged equally between employees from different generation across a group’s lifespan. The data revealed that in newly formed trainee groups, employees from different generations required some time before feeling safe enough to start interacting with the “out-group” (i.e., members from a different generation).
Furthermore, while there was an intense phase of knowledge exchange after employees got to know each other better, participants also tended to split up into sub-groups again towards the end of the program. Building on these findings, this study develops a phase model of intergenerational learning in organizational groups.

Study 2 adds to this perspective by investigating boundary conditions of knowledge sharing in age-diverse groups in a short-term learning experience. 211 employees participated in a one-day collaborative group training and associated survey. In this setting, group members did not have much time to get to know each other, such that the depth of knowledge exchange might have been hampered in age-diverse groups through the occurrence of social identity processes that made participants feel insecure. Indeed, the results showed that perceived age diversity, but not objective diversity, was negatively linked to learning outcomes, and this relationship was mediated by knowledge sharing. Moreover, psychological safety climate was found to act as a buffer against the negative effects of perceived age diversity (moderated mediation model).

Overall, studies 1 and 2 contribute to our understanding of employees’ knowledge development in organizations as a social process that can be influenced by the (time-sensitive) interactions with other training group members.

Turning to the role of leaders in dealing with organizational challenges, in the next two chapters I consider the group context when investigating leaders’ effect on followers’ pro-organizational behavior (study 3) and the development of group members into informal leaders in self-managed teams (study 4). In particular, study 3 adopts a social identity lens to examine how leaders shape followers’ behavior through their effect on followers’ identity. A scenario study with 138 participants and a field study with 225 employees suggested that leaders perceived as ethical influence their followers’ pro-organizational behavior through affecting followers’ moral identity. Furthermore, these identity effects were more pronounced when followers perceived their leader as being highly group-prototypical, i.e., as being representative for the group and embodying the group’s identity.
Study 4 complements this identity-related perspective on leadership by focusing on the social interaction processes through which individuals gain interpersonal influence over time, i.e. through which they emerge as leaders. Particularly, this study adds to leadership theorizing by explicating how emergent leadership is associated differently with task-, relations- and change-oriented communication as the social context changes over a team’s lifecycle. Data were gathered at three measurement points in a sample of 42 self-managed teams working on an 8-week consulting. Multilevel modelling indicated that task-oriented communication was a stable predictor of emergent leadership. Relations-oriented communication gained importance, such that it predicted emergent leadership at the end. Change-oriented lost relevance, such that it was only a predictor of emergent leadership at the beginning of project work.

In sum, this dissertation provides novel theoretical and empirical insights into the role of learning and leadership as dynamic processes embedded in a group context that help organizations to deal with current challenges. The presented studies showcase qualitative as well as quantitative approaches; they rely on multiple sources of data (i.e., supervisor/trainer/mentor narrative, employee ratings, information on objective team composition, behavioral data) as well as different forms of data collection (interviews, survey measures, experimental and field study designs, video-taping/interaction coding). The results are obtained using a range of analytical methods (qualitative content analysis/Gioia method, moderated meditation index, and micro-level temporal interaction analysis). The findings have important implications for conceptualizing and designing learning in organizational groups in a way that promotes active sharing and integration of knowledge. Moreover, this thesis emphasizes the scholarly value of theory development and empirical analysis in understanding leadership as a relational process shaped through the interactions between leaders and followers. The insights presented in this dissertation are also highly relevant for human resource management practitioners who are in charge of training employees in diverse learning groups and responsible for selecting and developing leaders.
CHAPTER 1

GENERAL INTRODUCTION
To stay competitive, organizations have to deal with manifold challenges when managing their workforce, such as demographic shifts, continuous knowledge creation, an increasing awareness of ethical conducts, and the trend towards flat hierarchies (Ben-Menahem, von Krogh, Erden & Schneider, 2016; Frese, 2008; Leibold & Voelpel, 2006; Ng & Feldman, 2015; West, 2012). The present dissertation investigates learning (studies 1 and 2) and leadership processes (studies 3 and 4) related to these contemporary challenges by emphasizing the group context as an important influence factor. Indeed, employees in today’s organizations increasingly have to collaborate in interactive group settings (Magni, Paolino, Cappetta & Proserpio, 2013; van Knippenberg & Mell, 2016). While an individual’s resources are limited (West, 2012), groups of individuals can combine their extended range of knowledge to learn from and with each other (Ropes, 2013) and increase task performance if they value each other’s knowledge (Homan, van Knippenberg, Van Kleef & De Dreu, 2007; Jackson & Joshi, 2011; van Knippenberg, De Dreu & Homan, 2004). Leaders are also embedded in groups and can only exhibit their influence on group members if followers are willing to accept them (Hogg, 2001; Hogg, van Knippenberg & Rast, 2012; van Vugt, Hogan & Kaiser, 2008).

The social interactions occurring among group members and between group leaders and followers have important identity implications, which in turn influence organizational members’ attitudes and behavior. According to social identity theory (Tajfel & Turner, 2004), individuals continuously construct and change their identity by interacting with others. Social identity is defined as “the individual’s knowledge that [s/]he belongs to certain social groups together with some emotional and value significance to [her/]him of this group membership” (Tajfel, 1972: 292). Due to a preference for confirming rather than threatening one’s identity, individuals generally prefer others who are similar to them to those with different characteristics (Van der Vegt & Bunderson, 2005). Individuals who are dissimilar are likely to be evaluated overly
critically and to be categorized as out-group members. In contrast, individuals perceived as similar are classified as belonging to the in-group (Brewer, 1979).

The social identity perspective can serve as an integrative conceptual focus for linking individual identity-related processes to group phenomena (e.g., Hogg, Abrams, Otten & Hinkle, 2004; van Knippenberg et al., 2004) and to leadership (Hogg, 2001; Hogg & van Knippenberg, 2003; Hogg et al., 2012). Social identity processes in this regard can have both negative and positive connotations. On the negative side, the tendency to categorize others into in-group versus out-group members may increase social tensions in groups, inhibit knowledge exchange between members, and reduce the effectiveness of leader behaviors when group members limit their interactions with others whom they perceive as dissimilar (van Knippenberg et al., 2004). On the positive side, identity-related categorization processes can also promote group cohesion and leader effectiveness if group members feel safe in social interactions and perceive strong similarities to other group members or with their leader. Furthermore, the quality of social categorization processes associated with group members’ social identity might also change over time, such that both positive and negative consequences occur at different time points (Doosje, Spears & Ellemers, 2002; Hogg et al., 2012).

In this introductory chapter, social identity theory and SIMOL — the social identity model of leadership (Hogg, 2001; van Knippenberg, 2011) — are presented as overarching theoretical frameworks that motivated the research presented in this dissertation. Of note, the studies presented in the four empirical chapters do not aim to explicitly test the assumptions of social identity theory, but rather integrate this approach with other literature about group and leadership processes in order to develop theory about the learning and leadership challenges faced by organizations today. As such, the four empirical chapters contribute to the goal of creating relevance and rigor in management research by integrating (1) theory development, (2) sound empirical hypotheses testing, and (3) transfer to management practice.
SOCIAL IDENTITY THEORY AND LEARNING IN ORGANIZATIONAL GROUPS

When employees engage in learning activities, they are oftentimes embedded in a group (e.g., Magni et al., 2013), such that their learning processes are likely influenced by the social context. This holds for formal learning environments such as organizational trainings or systematic human resource development programs (e.g., Eisenbeiss & Otten, 2008) and informal learning environments such as working together in a group on a new task (e.g., Chen, Donahue & Klimoski, 2004). Learning is an active process of relating novel information to previous experiences and assimilating this information, rather than passively adopting it (Kostopoulos, & Bozionelos, 2011). In order to learn effectively, individuals need to be highly involved in the learning activity, share their expertise with others and make sense of new information through social exchange (Magni et al., 2013; van Knippenberg et al., 2004). This perspective is particularly pertinent as the nature of work has shifted from simple, physically demanding tasks to complex and diffuse work means and outcomes, continuously changing work tasks, and reduced supervision (Frese, 2008; Grant & Parker, 2009). As a result, most individuals—as employees and learners—find themselves in far more responsible and autonomous roles compared to traditional, hierarchical structured work environments (Bell & Kozlowski, 2008; Kraiger & Ford, 2007; Magni et al., 2013; Parker, 2014). These changes are also reflected in professional development practice. For example, ‘trainings’ are regularly labeled ‘workshops’ or ‘webinars’ to signal that knowledge is dispersed and must be given shared meaning through learner–learner interactions (Kraiger, 2008a; 2008b).

Following the idea that individual learning outcomes in human resource management activities can greatly benefit from social interactions such as knowledge sharing in groups, the question arises how group members influence each other in this process. In particular, social identity theory implies that individuals might not willingly share their knowledge with every other group member, but prefer those who are similar to themselves as interaction partners (Tajfel & Turner, 2004; Van der Vegt & Bunderson, 2005) and limit their social interactions.
with dissimilar others, which can increase social tensions within the group (Jehn, Northcraft & Neale, 1999). This in turn may have a negative effect on the overall learning outcome when individuals are more concerned with using their cognitive energy to resolve social tensions rather than engaging in the learning activity. As such, identity-related social categorization processes can be a potential threat to knowledge sharing activities in learning groups, particularly as organizational work and training groups become more diverse (van Knippenberg et al., 2004).

On the other hand, group members’ diverse background can also constitute an opportunity for learning in groups. This idea is reflected in the information elaboration perspective of diversity (Williams & O’Reilly, 1998). Groups whose members contribute diverse information, expertise, and skills to the learning situation can combine their knowledge in order to profit from a large information pool. In addition, the quality of information processing may be of high value in heterogeneous groups because group members have to discuss their different viewpoints thoroughly to agree on a common understanding (Gerpott & Lehmann-Willenbrock, 2015; van Knippenberg et al., 2004). From this perspective the deeper information elaboration in diverse groups can positively influence individuals’ learning processes.

From this line of reasoning follows that it is important to understand what managers and trainers can do to reduce identity-related social categorization processes invoked by perceived differences and increase information elaboration in learning groups. Yet, although individuals are frequently trained in heterogeneous training groups, the influence of diversity in these formal training settings has rarely been considered (Schmidt, 2009). This is particularly noteworthy since research has spent much effort on understanding the mechanisms linking work team diversity to performance (e.g., Guillaume, Dawson, Otaye-Ebede, Woods & West, 2015; van Knippenberg & Schippers, 2007) as well as diversity and team learning (e.g., Ely, Padavic, & Thomas, 2012; Van der Vegt & Bunderson, 2005). However, the findings from work teams do not necessarily translate to the processes occurring in organizational
training groups. Contrary to most training groups, work teams are characterized by common work goals, and team learning refers to a relatively permanent change in the team’s collective level of competence (Ellis et al., 2003; Senge, 1990). Training groups are conceptually and practically distinct from work teams in that they are comprised of temporarily organized individuals, who often do not know each other, and who share related learning needs, but do not necessarily share common work goals.

In an attempt to address this lack of research regarding the role of diversity in the training area, this dissertation integrates social identity theory and the information elaboration perspective with group development theory to derive predictions that favorable learning outcomes will result when members of training groups actively share their knowledge and engage in information elaboration without experiencing inhibiting identity-related social categorization processes. In particular, I take a closer look at two aspects that could be beneficial for increasing knowledge sharing in training groups as a means to improve learning outcomes, namely (1) the time a training group spends together and (2) the climate characterizing the training group.

**SOCIAL CATEGORIZATION PROCESSES AND TIME SPENT TOGETHER**

Groups are dynamic entities that develop and change over time (e.g., Cronin, Weingart, & Todorova, 2011; Kozlowski, 2015). Group members might begin feeling more similar to each other as time passes. In the beginning, individuals often worry that they have to give up their individuality by becoming part of the group and thus (over-)react hostilely towards other group members (Bonebright, 2010). After group members have spent some time together, they frequently start developing shared mental models, in-group feelings, and ways to optimize collaboration (Neuman & Wright, 1999; Tuckman, 1965). As a consequence, knowledge sharing activities within the group may increase once people get to know each other better. Indeed, research has provided evidence that the negative effects of easily visible diversity
attributes such as age or gender on group performance decrease as time passes (Harrison, Price, Gavin, & Florey, 2002).

Whereas research on (organizational) learning in diverse groups has not considered such a temporal perspective to date, the importance of considering changes in interaction and adaption processes over time has a long tradition in various other fields of research, such as (1) group development theory (e.g., Chang, Bordia & Duck, 2003; Gersick, 1988; 1989; Tuckman, 1965; Tuckman & Jensen, 1977), (2) acculturation research (Berry, 1997) and (3) the mentoring literature (e.g., Humberd & Rouse, 2016; Kram, 1983; Levinson, Darrow, Klein, Levinson & McKee, 1978). First, the group development literature provides ample evidence that groups develop over time and that groups’ interaction processes change according to specific group phases. For instance, it is commonly agreed that groups need to complete an initial team building phase before they can operate effectively (Raes, Kyndt, Decuyper, Van den Bossche, & Dochy, 2015; Tuckman, 1965; Tuckman & Jensen, 1977). Only after group members have discussed and agreed on group norms, they can concentrate on their tasks and become problem-solving entities (Tuckman, 1965). For the context of trainings in organizations, these notions suggest that learning groups will also undergo an initial group building phase, in which knowledge exchange activities between group members might not be very intensive. During early phases of the learning activity, group members might not want to open up too much towards dissimilar others, thus focusing more on the transfer of objective information and expert knowledge. Later on, once individuals recognize shared characteristics between themselves and the other group members through increased interaction (Humberd & Rouse, 2016), more private types of knowledge might be shared, too. For example, members of the training group may start talking about personal experiences or provide others with learning opportunities through sharing information from their social network.
Second, acculturation theory has raised the idea that individuals adapt their behavior over time when confronted with new situations. Acculturation refers to interactions between individuals from dissimilar cultural backgrounds and to the cognitive adaptation processes that occur as a result of such contact (Berry, 1997; Schwartz & Zamboanga, 2008). For example, Berry (1997) proposed that individuals either (1) assimilate the new culture and discard their heritage culture, (2) separate from the new culture and retain their heritage culture, (3) integrate the new and heritage cultures, or (4) marginalize both cultures by neglecting their heritage and the new culture, depending on situational and individual factors. In a similar vein, different forms of “acculturation” — that is, ways of learning from and with one another — might characterize learning relationships in diverse training groups. Members with different backgrounds may, for instance, stick to their old perspectives when interacting with each other, or they may substitute their former knowledge with new information from other group members. Furthermore, they can also integrate their own and the other group members’ expertise to develop new knowledge. Lastly individuals may recognize that their own and the other persons’ knowledge are incorrect and other sources should be used to learn how to solve a task or problem. These different options for knowledge exchange processes in diverse training groups suggest that the nature of learning processes is not stable, but instead fluctuates and changes over time. Sometimes individuals might assimilate their knowledge to those of others, and other times they might stick to their own perspective, depending on how much identity threat (i.e., potential harm to the value of one’s identity, cf. Petriglieri, 2011) they perceive through the different view of their dissimilar training colleagues.

Third, the mentoring literature has argued that mentors and their protégés require some time to develop mutual trust and to identify with each other (Humberd & Rouse, 2016; Kram, 1983). Mentoring relates to a unique work relationship helping the protégé to develop within a particular job, organization, or career path and ideally also allowing the mentor to gain new
perspectives (Chandler, Kram & Yip, 2011; Ragins, 2012). Comparable to diverse training groups, the interaction partners in mentoring programs usually possess different types of knowledge and vary in their expertise, but they share the goal of engaging in a learning relationship. Diverse background can be beneficial in mentoring relationships for experiencing mutual growth and affirming a positive identity (Ragins, 2012). However, interactions in the mentoring context can also develop into dysfunctional relationships characterized by a lack of trust and even bullying (Eby, Butts, Durley & Ragins, 2010; Eby & McManus, 2004). Hence, comparable to learning relationships in organizational groups, on the one hand mentoring partners’ different background and expertise can support the learning process through the development of new perspectives. On the other hand, their diverse background can also inhibit a mutual development of one’s self through the evocation of identity threat perceptions. Importantly, the quality of mentoring relationships is not stable but changes throughout the learning phases (Kram, 1983; Ragins, 2012). Similarly, the quality of knowledge exchange processes in diverse training groups might also be subject to changes, depending on group members’ feelings of identity threat across different learning phases (Holmes, Whitman, Campbell & Johnson, 2016; Petriglieri, 2011).

To summarize, there is ample evidence from other research areas arguing that identity-related social categorization processes in groups (and thus the outcomes of activities conducted in groups) vary over the course of a group’s lifespan. Particularly, while employees likely prefer to engage in learning processes with similar individuals (such as same-age colleagues) in the beginning, assimilation processes may increase perceived similarity and consequently learning activities with dissimilar group members over time. Furthermore, different types of knowledge ranging from objective to more private information might be exchanged with others at different points in time of the learning experience. Building on these conceptual ideas, Chapter 2 describes the empirical results of an in-depth qualitative field study investigating
what types of knowledge are exchanged when in age-diverse (intergenerational) learning groups. By investigating how learning processes unfold in heterogeneous learning groups in a long-term training intervention, this chapter addresses calls for research that can account for the temporal dynamics of group processes (Cronin et al., 2011; Ployhart & Ward, 2011).

**SOCIAL CATEGORIZATION PROCESSES AND GROUP CLIMATE**

Members of organizational learning groups do not always have time to socialize and get to know each other prior to collaborating. In this case, social categorization processes arising from diversity perceptions might have a more salient effect on knowledge sharing, and in turn learning outcomes. In an attempt to integrate the social identity perspective with the information elaboration approach, van Knippenberg and colleagues (2004) proposed the Categorization-Elaboration Model (CEM), arguing that individuals’ affective reactions towards social categorization processes constitute important boundary conditions influencing the degree to which individuals engage in knowledge elaboration. In other words, while social categorization processes occur more or less automatically (depending on the salience of diversity), their influence on individuals’ knowledge sharing and information elaboration behavior is dependent on employees’ evaluation of the extent that their self is subjectively threatened or challenged through the categorization of the group into more and less similar colleagues. Transferring this idea to ad hoc training groups, this dissertation investigates the group’s psychological safety climate (i.e. employees’ perceived risk to raise one’s opinion in the group) as a boundary condition influencing the link between diversity perceptions, knowledge sharing, and learning outcomes.

Group climate might be particularly important in short time training interventions, when participants do not have much time to get to know each other. Even if an individual perceives other group members as dissimilar when meeting them for the first time, this does not necessarily imply a negative affective reaction and an unfavorable bias towards them. Defense mechanisms and negative consequences only occur if an individual either perceives an
identity threat for themselves or for their subgroup’s identity (van Knippenberg et al., 2004). In the absence of such threats however, learning processes might not suffer from social categorization processes.

In a safe environment, individuals are more likely to develop trust even in dissimilar or unknown individuals (Roussin & Webber, 2012). A climate in which individuals are not feeling afraid of the consequences of taking interpersonal risks in a group (e.g., opening up, sharing one’s expertise) is referred to as a psychological safe climate (e.g., Edmondson & Lei, 2014; Kahn, 1990). A climate characterized by high psychological safety inspires “a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up” (Edmondson, 1999: 354). From the theoretical vantage point that identities are inherently social (Mead, 1934), a group climate of mutual appreciation can help individuals to feel accepted and maintain a positive identity. In such an environment, individuals will share their knowledge with others because they are not worried about threatening their self-image or status within the group when sharing information. Thus, a high psychological safety climate can serve as a buffer against the negative affective-evaluative reactions towards group-members who are perceived as dissimilar.

Importantly, the beneficial effects of a high psychological safety climate for learning outcomes in training groups are expected to play out in the short-term. For example, Homan and colleagues (2007) showed that convincing groups of the value of diversity immediately improved their performance in an idea generation and selection task through deeper information elaboration. These earlier findings suggest that a positive attitude towards the other group members in a training group can directly reduce identity threat and influence group collaboration processes in the short-term. Chapter 3 empirically investigates this idea in a field study of one-day training groups at an automotive company. The findings highlight the role of psychological safety climate as a boundary condition for the link between perceived diversity, knowledge sharing, and learning outcomes (moderated mediation model).
SOCIAL IDENTITY THEORY AND LEADERSHIP IN ORGANIZATIONAL GROUPS

Social identity theory also provides a helpful conceptual lens for understanding how organizational members claim and grant leader and follower identities through social interactions in groups (DeRue & Ashford, 2010; Hogg, 2001; Hogg et al., 2012). Leadership is a relational property within groups, meaning that leaders cannot exist without followers and vice versa (Hogg, 2001; van Vugt et al., 2008). It is an interdependent process and a structural feature of in-groups, implying that leader emergence and leader effectiveness are inherently linked to followers’ social cognitive processes occurring because of their group membership. This notion has been recognized more than a decade ago by Hogg (2001), who is often referred to as the founding father of the social identity theory of leadership. Hogg and colleagues have criticized the “heroization” in traditional leadership approaches and pointed out that there is a lack of research conceptualizing leadership as a group-membership-based influence process (Hogg, 2001; Hogg & van Knippenberg, 2003; Hogg et al., 2012).

The central notion of the social identity model of leadership effectiveness (SIMOL, Hogg, 2001; van Knippenberg, 2011; van Knippenberg & Hogg, 2003) is that the group prototypicality of the leader — the extent to which employees perceive a leader to represent the group and embody the group identity — is pivotal for understanding leadership effectiveness. Individuals are more likely to accept leaders who are perceived as highly prototypical for the group (Hogg et al., 2012). Moreover, followers tend to and evaluate prototypical leaders as charismatic (Platow, Haslam, Foddy, & Grace, 2003) as well as trustworthy (van Knippenberg, & van Knippenberg, 2005). However, although previous conceptual work argues that group prototypical leaders possess an important identity function for followers, empirical work has not addressed this notion to date (Hogg et al., 2012). Furthermore, not only followers’ identities are shaped by their leaders, but also leadership identity is co-constructed by followers (DeRue & Ashford, 2010). These mutual identity construction processes are inherently tied to the group context, because leadership and followership roles are reciprocally related. This means that
granting one group member a leader identity implies the instantiation of follower identities for other group members. Notably, this conceptualization also moves the research field away from a static understanding of leadership and followership toward a dynamic focus on how leader and follower identities emerge and change over time (DeRue & Ashford, 2010).

This dissertation aims to provide empirical evidence for the conceptual argument that both leaders and followers shape each other’s roles and identities. As such, this research also builds on recent developments in identity research arguing that one’s identity is not stable but continuously created through social interactions among individuals (Lord, Gatti & Chui, 2016). First, turning to the leader-follower identity relationship, I will elaborate on how leaders influence their followers’ behavior through affecting followers’ identity. Second, I will point out how an analysis of the verbal behavior occurring in initially leaderless groups can help deepen our understanding of the co-construction of leadership roles through social interactions between group members.

**Leaders Co-construction of Followers’ Identity**

The social identity perspective argues that followers refer to their leaders to define their identity (Hogg et al., 2012). However, traditional leadership research has paid only limited attention to this argument and mostly referred to social exchange theory (Blau, 1964; Gouldner, 1960) or social learning theory (Bandura, 1977; 1986) to explain how leaders influence their followers’ behavior. According to social exchange theory, followers feel obligated to act reciprocally by helping the organization in a variety of ways when leaders have treated them fairly. From a social learning perspective, employees tend to imitate the behaviors of important role models, such as their leaders. However, these explanations are rather general and do not take into account the identity-related consequences of particular leadership styles. In other words, if identities are inherently social (Mead, 1934), followers might not only act reciprocally or imitate leaders’ behavior, but also change parts of their self-concept (Lord et al., 2016; Weichun, Riggio, Avolio & Sosik, 2011). This effect on followers’ identities can have important implications for their subsequent attitudes, motivation and behavior (DeRue & Ashford, 2010).
This dissertation focuses on ethical leadership as an example for a leadership style with a
unique moral component. In line with an identity-based approach to leadership and followership,
the moral component of the leader’s behavior is expected to affect followers’ moral identity.
Researchers and practitioners alike have become increasingly interested in ethical leadership to
avoid ethical scandals, ensure organizations’ adherence to ethical principles, and foster
employees’ voice behavior (e.g., Lam, Loi, Chan & Liu, 2016; Reiley & Jacobs, 2016). Ethical
leaders are characterized by having moral values (moral person dimension) and by acting
ethically and promoting ethical conduct at work (moral manager dimension; Treviño, Brown, &
Hartman, 2003; Treviño, Hartman, & Brown, 2000). Leaders perceived as being and acting
ethical not only help deter employees from negative behavior, but can also increase positive
employees’ behavior, particularly their organizational citizenship behavior (Avey, Palanski, &
Walumbwa, 2011; Fehr, Kai Chi & Dang, 2015; Kacmar, Bachrach, Harris, & Zivnuska, 2011).
This construct refers to employees’ voluntary actions contributing to the effective functioning of
the workplace (Podsakoff, MacKenzie, Paine, & Bachrach, 2000).

Despite the proliferation of research on ethical leadership, the field still possesses a
nascent understanding of how ethical leadership’s unique moral dimension affects followers’
behaviors (Den Hartog, 2015; Zhu, Treviño, & Zheng, 2016). This dissertation adopts a social
identity lens to argue that leaders who are perceived as ethical might change their followers’
sense of moral identity, but only if they are recognized as being highly prototypical for the
group. Notably, scholars have only recently begun to acknowledge that individual differences
such as employees’ personality traits or (moral) identity can change during adulthood (Roberts,
Walton & Viechtbauer, 2006; Shao, Aquino, & Freeman, 2008; Zhu et al., 2016), implying that
followers’ self-concepts might also be malleable by leaders (Lord et al., 2016). Combining these
findings with the assumption that followers’ identity construction processes might only be
affected by group prototypical leaders (Hogg et al., 2012), Chapter 4 empirically examines the
role of leaders as “entrepreneurs of identity” (Reicher & Hopkins, 1996). In particular, I argue
that perceived ethical leadership influences followers’ behavior through its effect on follower’s moral identity, but only if leader group prototypicality is high. As such, the studies presented in Chapter 4 are among the first to use an identity perspective to explore the psychological processes via which ethical leadership influences follower behavior.

**Followers Co-construction of Leadership Identity**

Not only followers’ self-concept can be influenced by leaders, but leadership roles must also be granted by followers (DeRue & Ashford, 2010). From an evolutionary perspective, leadership emerges naturally in social systems because groups possess a survival advantage due to improved social coordination if they agree to follower a leader (e.g., Spisak, O’Brien, Nicholson & van Vugt, 2015; van Vugt et al., 2008). Thus, even in initially leaderless groups, it is likely that one or more group members develop into a leadership position (e.g., Spisak et al., 2015). Group members might choose those individuals as a focal point who can convince them of their leadership qualities and who seem to be competent to help the group accomplish their goals (van Vugt, 2006). In line with this notion, it is well established that (social) intelligence and personality characteristics such as extraversion are related to the likelihood of developing into a leader role (Judge, Ilies, Bono, & Gerhardt, 2002; Kenny & Zaccaro, 1983; van Vugt, 2006).

This dissertation goes beyond linking individual characteristics to leader emergence by focusing on what team members actually do to be ascribed leadership in initially leaderless teams. Integrating group process models with an interaction-focused perspective on leader-follower relationships, the study presented in Chapter 5 investigates emergent leaders’ verbal conduct over time in self-managed teams working on a consulting project. This chapter not only adds to the literature by focusing on the communicative behaviors through which leaders and followers co-construct leadership (Fairhurst & Uhl-Bien, 2012; Lehmann-Willenbrock, Meinecke, Rowold, & Kauffeld, 2015), but also by taking into account the temporal dynamics of claiming and granting leader and follower identities in social interactions (DeRue &
Ashford, 2010). As such, it addresses recent calls to pay more attention to the role of time in leadership and to the fine-grained interactive dynamics of emergent leader-follower processes in groups (e.g., Cronin et al., 2011; Dinh et al., 2014; Humphrey & Aime, 2014; Kozlowski, 2015).

Previous research has mostly focused on identifying team needs across the lifecycle and paid less attention to how leadership unfolds over time through behaviors that fulfill team needs (Morgeson et al., 2010). In other words, there is a lack of agreement on what team members do at which time point to be perceived as taking over leadership by their peers. Chapter 5 challenges the intuitively appealing notion that emergent leadership is ascribed to team members who engage in behaviors that are in line with the focus of team members’ attention (i.e., convergent communication). Contrary, emergent leadership may be associated with divergent behaviors, such that it positively relates to communicative acts that fill unfilled gaps by concentrating on what the other team members are not sufficiently doing (i.e., divergent communication). This line of reasoning draws from leader substitute literature (Kerr & Jemier, 1978; Podsakoff & MacKenzie, 1997) that suggests a high team need for directive related advice when teams start to collaborate and members possess a limited amount of knowledge. Individuals who initiate change, make sense of information and shape the direction of the project work in this initial phase may help the team to collaborate efficiently, thus likely being ascribed a leadership role. Over time, as teams get more knowledgeable and the deadline comes closer, members tend to focus on the project work and are in less need for directions. In this context, emergent leadership might be positively associated with relations-oriented behaviors that ensure a supportive social climate and support the team to efficiently collaborate in stressful situation. Thus, whereas team members focus on building relationships with others in the initial formation phase and become more task- and change-focused over time, emergent leadership may be positively related to the opposite behavioral pattern (i.e., task- and change-oriented communication in earlier team phases, relations-oriented behaviors towards the end).
To summarize, Chapter 5 presents the first study that empirically investigates the micro-level social dynamics underlying the development of leader-follower relationships through interaction analysis in self-managed groups. Analyzing these social and mutual influence processes is particularly important for understanding emergent leadership in contexts increasingly characterized by self-directed project work and missing hierarchies.

**DISSERTATION OUTLINE**

This cumulative dissertation contains four empirical chapters, concluded by a general discussion. All four empirical chapters are based on field data, using a blend of qualitative and quantitative methodologies and both short- and long-term research designs. Because the studies reported in the chapters reflect collaborations with my supervisors, members of my committee, and other researchers, I refer to these co-authors by using “we” instead of “I” throughout these chapters.

The first part of this dissertation (Chapters 2 and 3) is focused on learning through knowledge sharing in age-diverse training groups, using different field study approaches. Based on a qualitative field study with 31 interviews conducted over a timespan of three years, Chapter 2 develops a phase model of intergenerational learning in organizations. The findings indicate which types of knowledge employees in intergenerational training groups acquire from one another, and how these learning processes differ at different time points. Chapter 3 further analyzes the processes and boundary conditions influencing learning in a short-term training intervention by exploring how knowledge sharing and psychological safety promote employees’ learning outcomes. This study is based on a questionnaire survey in a sample of 211 employees participating in a collaborative one-day training at a large automobile manufacturer.

Chapters 4 and 5 shift the focus from learning in groups to leader-follower identity and interaction dynamics in groups. Particularly, Chapter 4 analyzes leaders’ behavior and their group prototypicality as factors influencing employees’ pro-organizational behavior. We argue that moral leaders affect their followers’ moral identity, which prompts followers to act in line
with their self-perception and thus show more organizational citizenship behavior. Furthermore, this process is expected to be moderated by leader prototypicality, meaning that the effect of ethical leadership through followers’ moral identity on organizational citizenship behavior is particularly strong when the leader is highly prototypical for the group. A scenario study ($N = 138$) in which we manipulated ethical leadership and leader prototypicality (between subject 2x2 factor design) and a field study of $N = 225$ confirmed that ethical leadership influences organizational citizenship behavior through follower’s moral identity, but only if the leader is perceived as prototypical for the group.

Chapter 5 builds on the idea that leadership is co-constructed through group members’ social interaction processes in which they mutually claim and grant leader and follower identities. In particular, we add to leadership theorizing by explicating how emergent leadership is associated differently with task-, relations- and change-oriented communication as the social context changes over a team’s lifecycle. We argue that emergent leadership is positively associated with task- and change oriented communication in earlier team phases because teams require a direction that enables efficient project work. Over time, as teams get more knowledgeable, teams are in less need for directive advice and relations-oriented communication becomes more important for predicting emergent leadership because it helps teams to establish a social supportive climate under stress. We test our hypotheses at the micro-level of communicative acts in 42 self-managed teams over the course of a project. At week 1, 5, and 7, we gathered round-robin leadership ratings, videotaped team meetings and applied a fine-grained quantitative interaction approach resulting in data sets of $N_{t1} = 39,966$, $N_{t2} = 56,504$, and $N_{t3} = 43,622$ verbal behaviors. Multilevel modelling showed that task-focused verbal behaviors were a stable predictor of emergent leadership over time. In contrast, change-oriented communication predicted emergent leadership only at the beginning, and relations-oriented only at the end of the project.
In concert, the four empirical studies advance both theory and practice by deepening our understanding of learning and leadership processes as embedded in organizational group contexts. Chapter 6 summarizes the four empirical studies and provides a general discussion of their major findings, theoretical implications, and practical insights. Furthermore, in integrating the intergenerational learning perspective of Chapters 2 and 3 with the leader-follower identity reasoning of Chapter 4 and the focus on the micro-dynamics of group work in Chapter 5, I also derive ideas for future research. Overall, I hope that this dissertation not only contributes to the theoretical and practical understanding of current organizational challenges, but that it will also inspire future research on how and when individuals share their knowledge to learn from each other, follow their leader, and take over leadership roles in organizational groups.
CHAPTER 2

A PHASE MODEL OF INTERGENERATIONAL LEARNING IN ORGANIZATIONS

ABSTRACT

Demographic changes challenge organizations to qualify employees across all career stages and to ensure the transfer of company-specific knowledge between experienced and young workers. Human resource development programs for employees from different generations may help address these challenges. However, there is a lack of insight into what types of knowledge employees in intergenerational training groups acquire from one another, as well as how these learning processes differ at different time points. Over a span of 3 years, we conducted 31 interviews at an automobile company involving young (16–19 years) and experienced participants (41–47 years) of a full-time intergenerational learning program and their instructors. Our findings show that both generations possess distinct expert, practical, social, and metacognitive knowledge, and that they exchange different types of knowledge at different time points. We integrate these findings into a phase model of intergenerational learning comprising three phases: (1) familiarization, (2) assimilation, and (3) detachment. Our results suggest that intergenerational learning should be conceptualized as a bidirectional process with different foci of mutual knowledge exchange across different temporal phases. To facilitate intergenerational learning, instructors should adapt their teaching methods to employees’ phase-specific needs and find ways to systematically map older and younger employees’ specific knowledge contents.

KEYWORDS:

Intergenerational Learning
Knowledge Transfer
Human Resource Development
Aging Workforce
INTRODUCTION

Generational phenomena manifest themselves in many ways and have significant effects on individual, team, and organizational performance (Joshi, Dencker, Franz, & Martocchio, 2010). A generation is defined as a group of individuals born around the same time who share specific attitudes and values that can influence their behavior and expectations at work (Benson & Brown, 2011; Bristow, Amyx, Castleberry, & Cochran, 2011; Schullery, 2013; Twenge, Freeman, & Campbell, 2012). Intergenerational learning is a generational phenomenon in the workplace that is of particular interest to human resource development. It concerns individuals’ joint construction of knowledge through an exchange of information with one or more individuals from different generations (Findsen & Formosa, 2011; Ropes, 2013; Thomas, 2009).

Previous research has argued that generations differ in their attitude towards training and their learning styles, which implies that researchers need to add another layer to the analysis of adult learning processes (Bartley, Ladd, & Morris, 2007; Deery, 2012). Furthermore, a growing research base suggests that human resource development programs should account for generational shifts in career expectations (Callanan & Greenhaus, 2008; Lyons, Ng, & Schweitzer, 2014). Yet, how learning outcomes are affected when employees from different generations learn together has received limited attention (Pinto, 2011; Ropes, 2012).

Our study’s aim is to deepen our understanding of the learning processes taking place over time in intergenerational training groups. Specifically, we investigate the processes that occur when young and experienced workers jointly engage in a learning experience. By exploring what types of knowledge are exchanged between employees participating in long-term intergenerational training groups, we address recent calls for research that can account for the temporal dynamics of group processes (Cronin, Weingart, & Todorova, 2011; Ployhart & Ward, 2011). Building on the information-decision-making perspective of diversity (Williams & O’Reilly, 1998), we argue that members of intergenerational training groups are challenged to discuss the training content more deeply to align their perspectives. Furthermore, they can
combine their extended range of expertise to learn from and with each other. Consequently, they might develop knowledge that goes beyond the formally stated training content.

Understanding the processes occurring in intergenerational training groups is crucial for organizations for at least two reasons. First, owing to worldwide demographic shifts in the human population, a higher average age and longer lifetime employment characterizes the workforce (McGuire, By, & Hutchings, 2007). For example, by 2018 approximately one fourth of the labor force in the US will be aged 55 years or older (Toossi, 2009). Simultaneously, the share of younger employees is expected to decrease significantly. To maintain a skilled workforce under these circumstances, organizations have to adapt their understanding of human resource development. They simultaneously must accommodate the needs of young workers at the beginning of their careers and of old workers with later-in-life career shifts or transitions to new jobs (Kulik, Ryan, Harper, & George, 2014; Lyons et al., 2014; Wolfson, Cavanagh, & Kraiger, 2014). Consequently, training groups are becoming increasingly diverse, meaning the development programs of organizations are regularly visited by young and old employees with different career goals.

Second, apart from the necessity to develop instruments to educate older workers, organizations must eventually also find ways to cope without the retiring employees. This implies a challenge to retain older workers’ company-specific knowledge, defined as personalized information about facts and procedures that employees gain through the course of their work life (Alavi & Leidner, 2001; Callanan & Greenhaus, 2008; Calo, 2008). Company-specific knowledge constitutes an important source of competitive advantage that is difficult to imitate (Grant, 1996, 1997). Because employees are the principal repositories of knowledge, the upcoming retirement wave of the “baby boomer” generation (born between 1946 and 1964; Cogin, 2012) posits a high risk in terms of organizational knowledge loss. Although policy, public, and private organizations have become increasingly aware of the potential ramifications of demographic changes in the workforce (McKinnon, 2010; Starks, 2013; Winkelmann-Gleed,
2009), a focus on fostering intergenerational learning as a strategy to prevent company-specific knowledge loss is far from prevalent in contemporary organizational practice (Kulik et al., 2014; Ropes, 2013).

To summarize, our study contributes to the literature by investigating intergenerational learning in organizational training groups as a means to develop new knowledge in different generations and to enhance knowledge exchange between generations. Besides investigating which types of knowledge employees from different generations develop, we are also interested in when they engage in different types of knowledge exchange. To this end, we interviewed 31 individuals, comprising young (16–19 years) as well as experienced (41–47 years) participants enrolled in an organizational training program over a span of 3 years, along with their company and vocational school instructors. To evaluate the interview data, we conducted an in-depth qualitative analysis using MAXQDA (VERBI Software, 2016). We discuss the theoretical implications of our findings for intergenerational learning research, as well as the managerial implications for organizational training practice.

THEORETICAL BACKGROUND AND RESEARCH QUESTION

GENERATIONAL DIFFERENCES IN THE WORKPLACE

Rooted in sociology, generational cohort theory argues that individuals from one generation have experienced the same historical events and social conditions at key developmental stages, and that these shared experiences influence their behavior and expectations at work (Benson & Brown, 2011; Bristow et al., 2011; Schullery, 2013; Twenge et al., 2012). This conceptualization implies that generational divides created by common historical trends can differ between countries. This implies that Western countries such as those in Western Europe, as well as Canada, the US, and Australia overlap more with each other with respect to generational cohort patterns than they do with Eastern countries such as China and Japan (Lyons et al., 2014). Note that we do not intend to resolve the long-standing controversy regarding the
conceptualization of generations (Costanza, Badger, Fraser, Severt, & Gade, 2012; Costanza & Finkelstein, 2015; Parry & Urwin, 2011). In other words, we do not focus on analyzing why individuals from different age groups vary in their attitudes, values, and expertise. For the purpose of this study, it is only important that these differences exist, and that they can be a potential resource for learning processes in organizations. We acknowledge the difficulty of pinpointing the extent to which differences in employees’ attitudes, values, and learning characteristics are the result of their generational affiliation, rather than other factors such as chronological age or life phase (Costanza & Finkelstein, 2015; Parry & Urwin, 2011). For instance, individuals of the same age tend to experience the family formation phase at around the same chronological time and also tend to retire during a similar time span due to biological reasons. Accordingly, not only societal events, but also age-related biological, psychosocial, or cognitive developments across the lifespan can influence individuals’ preferences and knowledge (Ropes & Ypsilanti, 2012). Such conceptual discussion aside, we apply the “generational terminology” in line with the current discourse on generation management in academia and practice.

INTERGENERATIONAL LEARNING IN ORGANIZATIONS

Since the beginning of humankind, intergenerational learning has occurred in families in terms of knowledge transfer from grandparents or parents to their children (Hoff, 2007; Newman & Hatton-Yeo, 2008). In the past few decades, owing to demographic changes and shifting family structures, intergenerational learning outside the family context has grown in relevance (e.g., in schools, community settings, and child or elderly care centers; Newman & Hatton-Yeo, 2008). Research on extrafamilial intergenerational programs, such as university initiatives (Bratianu, 2014; Tam, 2014), service learning (Fiebig, 2014; Karasik, 2013), and game-based education (Pappa et al., 2011), provides preliminary evidence for the positive effect that intergenerational learning has on the development of individuals’ knowledge and attitudes outside family relationships.
Organizational scholars have only recently become aware of the opportunities inherent in intergenerational learning (Ropes, 2013). Particular attention has been paid to the directionality of interaction processes between individuals from different generations (Harvey, 2012; Knight, Skouteris, Townsend, & Hooley, 2014; McCrea & Smith, 1997; Tempest, 2003). The traditional perspective on intergenerational relationships as occurring in families assumes that intergenerational learning is a unidirectional knowledge transfer process from one generation to another. This understanding is rooted in the idea that older advisers (e.g., grandparents, parents, or teachers) socialize younger individuals (e.g., children, adolescents, students). In the organizational context, mentoring is a typical example of a relationship in which younger employees are expected to learn from their older colleagues’ experience (Hunt & Michael, 1983). Yet, scholars have also looked into reverse mentoring relationships in which younger employees teach their older colleagues new concepts, trends, and technological skills (Baily, 2009; Chen, 2013; Murphy, 2012). No matter which generation is the instructor or the scholar, the basic understanding of the unidirectional approach is that a more knowledgeable person transfers information to a less experienced individual.

By contrast, more recent research emphasizes that intergenerational learning should be framed as a bidirectional development process rather than a “one-way street,” because both generations can benefit from intergenerational exchange (Fair & Delaplane, 2015; Knight et al., 2014). From this point of view, all employees—irrespective of their age or position within the company—possess unique knowledge that they can share with their colleagues (Fuller & Unwin, 2004; Senge, 1990). Accordingly, interactions between employees of different generations are an opportunity for a bidirectional learning process in which individuals from both generations can learn from the unique knowledge of the other.

Tempest (2003) notes that a wisdom-related image of older employees dominates the
language in everyday working life. Her study of production teams in the television industry shows that concepts such as “expert” or “wisdom” imply that older workers are more knowledgeable than their younger colleagues. This notion can impede bidirectional learning processes, because younger employees may feel that when they raise their voices or share their knowledge, it is not appreciated (Tempest, 2003). In such an environment, younger workers are at risk of continuously asking themselves whether others are judging them based on stereotypes (Ryan, King, & Finkelstein, 2015). These beliefs about stereotypes that outgroup members hold against themselves are also referred to as “metastereotypes” (Vorauer, Main, & O’Connell, 1998) and can disrupt interpersonal interactions (King, Kaplan, & Zaccaro, 2008). Of course, older workers may also be hindered by metastereotypes, for instance when they assume to be judged as not capable to successfully participate in learning-and-development activities (Lamont, Swift, & Abrams, 2015). Training employees in intergenerational groups can be a first step toward changing both stereotypes and metastereotypes. By exposing individuals from one generation to individuals from another, participants might realize that their implicitly held beliefs about the other generation turn out to be wrong (Penick, Fallshore, & Spencer, 2014).

Looking beyond the directionality and obstacles of intergenerational learning, it is also of interest to understand what types of knowledge are exchanged in intergenerational relationships. Theoretical perspectives commonly differentiate between explicit and tacit knowledge (e.g., Harvey, 2012; Starks, 2013; Wagner & Sternberg, 1985, 1987). In their seminal work, Nonaka and colleagues state that explicit knowledge is encoded and decoded relatively easily, whereas tacit knowledge is often messy and subconsciously understood through experiences and social relationships (Nonaka, 1994; Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995; Nonaka, von Krogh, & Voelpel, 2006). Explicit knowledge comprises information that can be articulated and written down. To illustrate, older workers have often acquired expert knowledge in their jobs that

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1 We acknowledge that teams and groups are not necessarily the same (e.g., Hinds, 2015). Yet, here we extrapolate from several previous team studies to derive arguments for the context of intergenerational groups.
they can pass on verbally or in written form to their colleagues. The younger generation may have more recent experience with and access to a larger amount of school and technology knowledge that they can share with their older colleagues (Chen, 2013). Since explicit knowledge in the occupational context is mostly related to professional expertise, we use the term expert knowledge here to refer to those knowledge contents that can be easily articulated by an individual.

Tacit knowledge is a multidimensional concept consisting of several aspects. First, it has been referred to as practical intelligence or practical knowledge (Sternberg, Wagner, Williams, & Horvath, 1995). For example, this aspect of tacit knowledge manifests in knowing how to use a tool for building an automotive part (without necessarily being able to verbalize this knowledge step-by-step). Because practical experience is obtained through repeated actions, older employees presumably possess more practical knowledge than their younger counterparts. In line with this idea, previous findings from intergenerational service-learning programs suggest that older individuals can serve as role models for younger individuals, who learn from the older individuals’ practical knowledge through imitation and cooperation (Schotter & Sopher, 2003; Zucchero, 2011).

Second, scholars have called for more attention to the social aspects of tacit knowledge in organizational research, because employees do not perform work tasks in a social vacuum (Insch, McIntyre, & Dawley, 2008). Social knowledge comprises skills such as knowing how to effectively interact with others and how to manage (long-term) relationships. Indeed, previous research suggests that caring behavior and knowledge about how to behave in specific social situations can be improved by means of intergenerational learning programs (Underwood & Dorfman, 2006).

To summarize, the current state of research, we observe that extant work on different types of knowledge exchanged during intergenerational learning has mostly been limited to family or educational environments. The systematic support of intergenerational learning in organizations is a rather new concept, and previous scholarly work investigating these processes
has tended to apply a unidirectional understanding of knowledge transfer from more knowledgeable employees to less informed colleagues. Furthermore, to date, researchers and practitioners alike have not considered the temporal nature of intergenerational relationships in organizations. This is surprising, given the considerable amount of research showing that relationships between individuals of different ages develops over time (e.g., Bales, Eklund, & Siffin, 2000; Couper, Sheehan, & Thomas, 1991). For instance, participants in an intergenerational learning program reported a more positive attitude toward the other generation after a few interactions (Hwang, Wang, & Lin, 2013; Penick et al., 2014). Similarly, developmental psychologists have proposed the notion of an “incubation effect,” meaning that the beneficial effects of peer collaboration on individual learning oftentimes only become apparent after some time has elapsed (Howe, McWilliam, & Cross, 2005). In the following, we build on social identity theory, knowledge management approaches, and the group development literature to argue that it is of particular importance to understand not only what types of knowledge are exchanged in intergenerational learning groups, but also when different types of exchange processes take place.

First, social identity theory argues that individuals define their identity by continuously comparing themselves to others (Ashforth & Mael, 1989; Tajfel & Turner, 2004). To confirm their selfimage, individuals generally prefer others who are similar to themselves (ingroup members) to dissimilar others (outgroup members; Fiske & Lee, 2008). Perceived similarity is oftentimes assessed by using highly visible cues, such as age, to form a first impression of other individuals (Zellmer-Bruhn, Maloney, Bhappu, & Salvador, 2008). Thus, in newly formed groups, employees from different generations will initially be likely to prefer colleagues from the same generation. They might require some time before feeling safe enough to start interacting with the “outgroup,” with the members from a different generation. Over time, the members of a group can become better acquainted with each other and start using more opportunities to exchange personal information (Harrison, Price, Gavin, & Florey, 2002). As a result, group
members may begin to feel more alike, which can reduce emotional conflict (Pelied, Eisenhardt, & Xin, 1999). In line with this argument, research shows that the negative effects of surface-level diversity attributes—such as group members’ age—on group outcomes decrease as time passes (Harrison et al., 2002).

A second argument for the dynamics of intergenerational exchange processes can be extrapolated from the knowledge management literature. For knowledge sharing to occur, individuals must possess at least a certain amount of shared understanding (Alavi & Leidner, 2001; Kelly, Schaan, & Joncas, 2001). Similarly, research on shared mental models in groups suggests that employees need to develop an understanding of where expertise is located within their group to purposefully ask others for information, help, or instruction (Ellwart, Bündgens, & Rack, 2013). Transferring this finding to intergenerational learning processes, knowledge exchange activities are likely to intensify as members of different generations start developing a common knowledge base.

Third, the group development literature provides ample evidence that groups develop over time and that their interaction processes change according to specific group phases (e.g., Gersick, 1988, 1989; Michinov & Michinov, 2007; Tuckman, 1965; Tuckman & Jensen, 1977). As common for developmental programs, participants in our study were part of training groups that consisted of members who did not know each other before the program start, collaborated intensively over a longer time period, and had to work on problemsolving tasks together. To begin with, it is commonly agreed that groups need to go through an initial group-building phase before they can operate effectively (Raes, Kyndt, Decuyper, Van den Bossche, & Dochy, 2015). This initial group period is also referred to as the forming phase in Tuckman’s predominant model of small-group development (Tuckman, 1965; Tuckman & Jensen, 1977). Tuckman (1965) posited that, after coming together as a group and orienting themselves toward the task, groups undergo a storming phase characterized by intragroup conflict. Individuals feel they may have to give up their individuality by becoming part of the group and often (over)react with
hostility toward other group members (Bonebright, 2010). These overreactions might be particularly strong against others perceived as dissimilar, because individuals who think differently provide a higher threat toward one’s identity (Fiske & Lee, 2008). After some time has passed, groups start developing shared mental models, ingroup feelings, and ways to optimize collaboration in the norming phase (Neuman & Wright, 1999; Tuckman, 1965). The emergent group cohesion builds the foundation for the performing phase, in which groups concentrate on their tasks and become problem-solving entities (Tuckman, 1965). Finally, as Tuckman and Jensen (1977) added in their amended model, groups undergo an adjourning phase in which they separate once the task at hand has been fulfilled. By transferring small-group development theory to intergenerational learning settings, we consider it likely that the members of an intergenerational training group will first get to know each other (forming phase) and then figure out the similarities, differences, and status distribution between the generations (storming and norming phases). An engagement in effective intergenerational learning processes (performance phase) may follow these periods. When intergenerational groups finally disband, members are challenged to negotiate their future frequency of contact and the nature of their interactions (adjourning phase).

By integrating these three different streams of research and applying them to the phenomenon of intergenerational learning, we assume that intergenerational learning processes do not remain stable, but are subject to changes over time. In other words, we aim to advance our understanding on how the types of knowledge exchanged in intergenerational learning groups connect to different temporal phases. To summarize, our work is guided by the following research question:

*RQ: How are specific types of knowledge exchanged in intergenerational learning groups across different temporal phases?*
METHODS

SAMPLE AND PROCEDURE

We collected our data at the German production plant of an international car manufacturer that has approximately 275,000 employees worldwide. In reaction to the steadily increasing average age of the company’s workforce, the management of the plant decided to retrain a number of experienced assembly line workers for less physically demanding jobs. To foster intergenerational exchange, the manufacturer chose to integrate the training of older assembly line workers into an 18-month apprenticeship program that qualifies high school graduates to become toolmakers. The company employs toolmakers to build custom-made machine tools for company-specific machines. Their job requires a mixture of engineering knowledge and mechanical skills, and it is less physically demanding than working in car production.

The intergenerational apprenticeship program commenced in September 2011 with eight young and four experienced employees. In the following years, the company continued to educate intergenerational apprenticeship groups, meaning that every September, eight young and four experienced apprentices began the full-time qualification program. The young apprentices (16–19 years) were recent high school graduates. The experienced participants (41–47 years) had been working at the company’s assembly lines for 21.18 years on average (SD = 4.32) prior to the program. In Germany, an apprenticeship is usually designed for young job starters who are aiming to become skilled workers in a specific area. Apprentices spend 3 days a week on the shop floor to acquire practical skills. During the remaining 2 days per week, they visit a vocational school to acquire theoretical knowledge relating to their jobs. The plant management designed the structure of the intergenerational training program in such a way that young and experienced participants collaborate on all their learning activities, both at the vocational school and on the plant’s shop floor. All faculty members involved in the program (i.e., the company and vocational school instructors) were asked beforehand if they were willing to educate an
intergenerational apprenticeship group. The application process for the toolmaker apprenticeship program is highly competitive and consists of attending an assessment center for 1 day and completing both practical and theoretical tests.

Our research aimed to include all relevant stakeholders’ perspectives (young and experienced apprentices, company and vocational school instructors) on the intergenerational learning processes taking place over the course of the program. To this end, we employed a purposeful sampling process (Palinkas et al., 2015; Patton, 1990), using the criterion “enrolled in or teaching the intergenerational learning group” to select participants. Hence, we interviewed all instructors concerned with the intergenerational program \((n = 4)\), all older apprentices (except one worker) who had started the program since 2011 \((n = 11)\) and a sample of young apprentices enrolled in the intergenerational program for 1 or 2 years \((n = 8)\). In particular, we conducted face-to-face interviews with four older participants and four instructors before the first cohort of apprentices started the program (i.e., in June 2011). The same individuals were interviewed again in January 2014. At that time, the older participants had successfully completed the program and were working in the area in which they had specialized during their apprenticeship. Moreover, to gain deeper insights into intergenerational learning processes at different stages of the program, the data collection in 2014 also comprised interviews with four older employees who had started their participation at the end of 2013 (i.e., they were in their first year of apprenticeship) and three older employees who had started in 2012 (i.e., they were in their second year of apprenticeship).

We complemented these perspectives with the experiences of four younger apprentices who had just begun the intergenerational program (first year of apprenticeship) and four younger apprentices who had already collaborated with the older participants for a year (second year of apprenticeship). Because of company restrictions, we could only interview the younger apprentices during our second data collection in 2014. Overall, however, our study design provided insights into the comprehensive learning processes occurring at different points in time during the intergenerational training program (see Figure 2.1).
Figure 2.1. Interviewees were interviewed twice, before and after the apprenticeship program ($N = 23$)

We conducted the 31 interviews with 23 subjects in separate meeting rooms at the plant ($M = 29.61$ min, $SD = 15.32$ min, ranging from 12 to 69 min). Participation in the interviews was voluntary, and the workers’ council approved the research project. Table 2.1 provides an overview of the demographics of our interviewees.

Table 2.1. Demographics of interviewees ($N = 23$).

<table>
<thead>
<tr>
<th></th>
<th>Younger employees ($n = 8$)</th>
<th>Older employees ($n = 11$)</th>
<th>Instructors ($n = 4$)</th>
</tr>
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<tbody>
<tr>
<td><strong>Age (in years)</strong></td>
<td></td>
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<tr>
<td>Average age (SD)</td>
<td>18.00 (1.07)</td>
<td>43.73 (1.95)</td>
<td>58.00 (4.24)</td>
</tr>
<tr>
<td>Age range</td>
<td>16–19 years</td>
<td>41–47 years</td>
<td>54–64 years</td>
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<tr>
<td><strong>Sex</strong></td>
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<td>Male</td>
<td>7</td>
<td>11</td>
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<tr>
<td>Female</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Work experience (in years)</strong></td>
<td>0.96 (0.58)</td>
<td>27.50 (2.21)</td>
<td>37.25 (6.90)</td>
</tr>
<tr>
<td><strong>Tenure (in years)</strong></td>
<td>0.96 (0.58)</td>
<td>21.18 (4.32)</td>
<td>29.75 (14.75)</td>
</tr>
</tbody>
</table>

The first author of the paper undertook the vast majority of the interviews; a research assistant who had received intensive training for this task conducted eight interviews. Prior to starting the interviews, we informed the participants that we would treat their data confidentially and guaranteed that we only report the findings on an aggregated level. The interviews were carried out in German, and all interviewees agreed to be tape-recorded. We took extensive notes during the interviews and transcribed the recordings in full. The transcripts that appear in this paper
have been translated and back-translated in collaboration with a native English-speaking research assistant to ensure the accuracy of the translation. The interviews followed a semistructured guideline consisting of four elements:

1. Introductory questions to get to know the interviewee (age; length of apprenticeship; tenure; occupational experience)

2. Framing questions on (intergenerational) learning (general meaning; previous learning experiences on and off the job)

3. Focus questions on intergenerational learning in the apprenticeship program (strengths and weaknesses of older and younger workers; types of knowledge learned from each other; descriptions of how intergenerational learning took place; differences and similarities between the generations)

4. Interviewees’ concluding remarks (evaluation of the apprenticeship program; suggestions for improvement; additional comments)

We used the interview guideline in a flexible way. All participants were asked all questions; however, we adapted the questions according to the stage of the participant’s apprenticeship. For instance, we asked interviewees before the start of the qualification about their positive and negative expectations of intergenerational learning, during the apprenticeship about their current learning experiences with the other generation, and after the program about their retrospective evaluation of learning in an intergenerational training group.

**Data Analysis Strategy**

Following the transcription of all interviews, we used MAXQDA software (VERBI Software, 2016) to analyze our data. We began by coding the first-order “in vivo” interview data, meaning we categorized participants’ original sentences into groups of statements dealing with related topics (Gioia, Corley, & Hamilton, 2012). In particular, we adhered to our theoretical framework and coded the data in terms of each generations’ perceptions of expert, practical, and social knowledge exchange processes. However, although we had a general theory-driven focus
of analysis, our coding approach was not purely deductive, meaning that we were willing to adapt our theory-based coding scheme during the process as needed.

Given that “data is inextricably fused with theory” (Alvesson & Kärreman, 2007: 1265), we followed recommendations by Gioia and colleagues (2012) to consult the literature again after our first coding phase. The goal of this step was to see whether the grouped first-order statements fit theoretical concepts, or whether new themes might have emerged that had not been considered in previous work (see also, Rowley, 2012). This procedure uncovered that participants talked about one additional type of knowledge—metacognitive knowledge—that was not included previously in the intergenerational learning literature. Thus, we extended our coding scheme to be able to code the participants’ statements in this area, too.

In the next step, we summarized the grouped first-order statements into second-order categories (Lockett, Currie, Finn, Martin, & Waring, 2014). These categories combine a number of first-order categories in a more theoretical and abstract way, but are still close to the interviewees’ meaning systems (Costas, 2012; Pratt, 2009). Furthermore, we returned to the company to clarify ambiguous statements and to discuss the grouped first-order statements and second-order categories with the interviewees and human resource experts on vocational education.

To analyze intergenerational learning processes at different time points, we applied two strategies. First, we made a note for each interview indicating at which stage of the intergenerational apprenticeship program the interview was conducted (i.e., before the start of the program, in the first year of the apprenticeship, in the second year of the apprenticeship, or after completing the apprenticeship). In other words, we assigned interviewees’ statements to different phases according to their temporal embeddedness within the apprenticeship program. Second, when participants talked about their past experiences, we assigned these statements to the time point they were referring to. By way of illustration, we coded the following statement of an older apprentice in the second year of the program as belonging to the middle phase of the intergenerational learning experience:
“Yes, somehow they [the younger apprentices] had some advantages at the vocational school in the beginning. But when you become older, you see things a bit differently, a bit more ambitiously. You do not want to look stupid in front of the kids. That’s why you start practicing a bit more, even if your brain can’t really remember it, and after a while, you think that it works out quite well.”

Furthermore, if an instructor talked about the changes in learning behavior in retrospect, we also classified this statement as belonging to the middle phase:

“With regard to the learning speed, they [the younger and older apprentices] become more similar. In the beginning, there is some insecurity. […] They [the older apprentices] have to get used to it again. If they have to read a book and write some things down. . . When was the last time they did something like this? That’s 20 to 30 years ago. That’s difficult at the beginning. They [the older ones] need a bit more time than the younger apprentices to get into it. […] But then, after six to nine months, they say, “I am glad that I did it.”

Last, to ensure that our coding procedure did not only reflect our perceptions and to avoid systematic confirmatory bias (Johnson & Harris, 2002), we trained a research assistant to recode 26% of all interviews (n = 8) using our second-order category scheme. Following accepted guidelines (e.g., Schreier, 2012), we provided the coder with the segmented interviews, meaning that transcripts were cut into segments that the coder had to assign to our second-order categories. The double-coded transcripts reached a satisfactory agreement rate of 87%.

RESULTS

The following results are structured according to our research question. Through systematic coding of our data, we first extracted the different types of knowledge that interviewees mentioned as relevant for intergenerational learning processes. Based on these findings, we then investigated how these types of knowledge are exchanged across group phases.
CHAPTER 2

OUTCOMES OF INTERGENERATIONAL LEARNING PROCESSES

Table 2.2 provides an overview of the four types of knowledge exchanged during the intergenerational learning program (second-order themes). Furthermore, it gives an impression of exemplary first-order statements that build the foundation for the aggregated second-order categories.

EXPERT KNOWLEDGE

The interviewees regarded young apprentices as possessing unique expert knowledge about general topics required for vocational education (e.g., mechanics, languages, mathematics) and as having a good technical understanding. Furthermore, our findings suggest that the older participants owned a considerable amount of company-specific expertise and knowledge about materials used in everyday working life.

Table 2.2. Types of knowledge learned in the intergenerational training groups.

<table>
<thead>
<tr>
<th>Associated second-order categories</th>
<th>First-order statements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expert knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>Provided by the younger generation</td>
<td>Y: Of course, we sat down together and helped them [the older apprentices] with the homework for school. In particular, we had to do mathematical tasks, over and over again.</td>
</tr>
<tr>
<td></td>
<td>I: Younger workers contribute knowledge about new technical devices, which is not the case with older employees. For example, knowledge about simulation technology and so on.</td>
</tr>
<tr>
<td></td>
<td>O: I had a manual calculator, Texas Instruments, that was very modern 20 years ago. A younger colleague politely told me that I would need a new one, and she patiently explained the new model to me.</td>
</tr>
<tr>
<td>Provided by the older generation</td>
<td>Y: Well, they [the older apprentices] possess considerable expert knowledge, most of them have already completed an apprenticeship. A profession in metals, whether as a metal worker or car mechanic, is an optimal prerequisite for the apprenticeship. The knowledge they previously acquired is still there. The basic expert competences can still be accessed.</td>
</tr>
<tr>
<td></td>
<td>I: Knowledge exchange is important; I need to be able to motivate the older apprentices to share their expertise. They have worked on the assembly line for years and have gained a lot of company-specific knowledge.</td>
</tr>
<tr>
<td><strong>Practical knowledge</strong></td>
<td>O: I did not know how to quickly find information that I needed to solve tasks at school. However, over time I saw that my younger colleagues had a clever system of Post-it notes in their books. I adopted this system and was soon able to solve tasks much faster.</td>
</tr>
<tr>
<td>Provided by the older generation</td>
<td>Provided by the younger generation</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>O: I was sitting next to a younger colleague who always wrote down everything that the instructor said in a very structured way. In the beginning, I did not make any notes, but over time I imitated my younger colleague’s behavior and noticed that I could remember much more.</td>
<td>O: With regard to practical tasks, we had a few advantages, because we had already completed an apprenticeship. If you own a house, or ride a motorcycle, or repair your car, or something comparable… our younger colleagues didn’t have experience with all that.</td>
</tr>
<tr>
<td>I: The younger apprentices imitate many of the older ones’ work practices.</td>
<td></td>
</tr>
<tr>
<td>Provided by the older generation</td>
<td>Provided by the younger generation</td>
</tr>
<tr>
<td>O: We were asked a lot of questions [by younger apprentices], because we already possess a lot of knowledge about the procedures at the plant… Whom to ask if you need something… We sometimes took on a kind of paternal role.</td>
<td>O: The younger employees are… how should I explain it… Everybody wants to have their own way, they are not that prepared to make a compromise, because they simply lack life experience. […] And we already have 20 years of work experience. We do not get upset as quickly as our younger colleagues, and we know how to deal with difficult social situations to solve conflicts.</td>
</tr>
<tr>
<td>Y: Sometimes they remind us of what is really important in life. Having friends, a reliable social network – and not just excellent grades.</td>
<td></td>
</tr>
<tr>
<td>Provided by the younger generation</td>
<td>Provided by the older generation</td>
</tr>
<tr>
<td>Y: We were able to let the older employees know how to deal with unknown problems by developing solutions systematically.</td>
<td>O: They [the younger employees] had already experienced learning through group work. That was different for us [the older employees]. We only knew teaching approaches based on direct instruction or lecturing.</td>
</tr>
<tr>
<td>Y: Yes, there were many things. We acquired, for example, specific methods to learn at school. For instance, we learned how to memorize facts effectively. Our older colleagues, of course, hadn’t heard about that before. We could pass this knowledge on to them.</td>
<td></td>
</tr>
<tr>
<td>Provided by the younger generation</td>
<td>Provided by the older generation</td>
</tr>
<tr>
<td>O: I remember from when I was younger that you do not want to work on the task when the instructor is away but instead chat to your colleagues. We [the older employees] tried to gently push the younger to organize themselves: Do it now, then you can have the afternoon off!</td>
<td></td>
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**Note.** Statements from Y = Younger apprentice, O = Older apprentice, I = Instructor.
In six out of the eight instructor interviews (75%), the young apprentices’ school knowledge was emphasized as a potential source for intergenerational knowledge exchange, for example by mentioning that “the younger apprentices have advantages at vocational school.” As the instructors noted, young job starters who came directly from high school could access comprehensive knowledge about topics such as the Pythagoras’ theorem more easily. Furthermore, one instructor emphasized that the younger apprentices’ technical knowledge was well developed (e.g., about simulation technology, computer hard- and software, 3D technology). Likewise, all interviewed young apprentices ($n = 8$) pointed out that “the younger ones have an easier time at school” because “we just graduated from high school and are still used to it.” In a similar vein, in the 11 interviews with the older apprentices who were either enrolled in the program or had recently completed it, interviewees expressed the opinion that “of course, in the beginning the younger ones are better at school, they have just finished their final secondary-school examinations, and they make a lot of progress very quickly.” This topic was not mentioned in the four interviews before the program start with the experienced workers in 2011; participants emphasized that they could only speculate about the collaboration at school at this early point and first needed to gain some experience.

The instructors emphasized participants’ company-specific expertise (e.g., about characteristics of a specific car model or assembly line specifics) in four of the eight interviews (50%). One instructor pointed out that this information was not only new for the younger apprentices, but also for the instructors themselves, because vocational instructors are usually not involved in the plant’s day- to-day operational work. Three of the eight young apprentices (37.5%) noted that the older apprentices possessed expert knowledge about the company that was helpful, such as knowledge about employment rights, working hour laws, and procedures in the company. The experienced apprentices did not talk much about how they passed on company-specific knowledge to their younger colleagues; this topic was only mentioned in two interviews.
The interviews also dealt with how expert knowledge was exchanged between the apprentices of different generations; namely, through (1) discussion (e.g., “they [the young and old apprentices] discuss about the class content”); (2) asking questions (e.g., “in school, they [the older apprentices] wanted more help, they asked for things they did not know—and with regards to practical information, it often was the other way around”); (3) private learning sessions (e.g., “there is a readiness to help each other; for example they [one young and one experienced apprentice] went home to one older colleague to give him one or two private lessons”); and (4) the instructors’ encouragement of knowledge sharing (e.g., “it’s important to motivate them [the older apprentices] to talk about their experiences”).

**Practical Knowledge**

The interviewees pointed out that the young apprentices possessed practical knowledge about how to access knowledge at vocational school (e.g., search techniques, information management). The older apprentices had strong practical skills at work, because they were familiar with many procedures and hand movements needed to create tools.

With regard to the young apprentices’ practical knowledge, the instructors mentioned that the older apprentices often did not know where to find information or how to work with texts. The young apprentices could explain to them how to systematically access information (mentioned in two of eight interviews; 25%). One of the eight young interviewees (12.5%) also referred to this topic by saying that they taught their older colleagues methods for acquiring knowledge. The older workers provided examples of how they imitated the young workers’ way of accessing information in three of fifteen interviews (20%). For instance, one older apprentice stated that he was impressed by the younger apprentices’ idea of using Post-It notes to indicate what types of information can be found in particular book chapters and that he copied this behavior to become more efficient.

According to the apprentices’ and the instructors’ descriptions, older workers had a wide range of practical knowledge. Six of eight interviews with the instructors (75%) contained
elaborations on the experienced apprentices’ practical know-how. For example, one instructor noted that “the old apprentices were far ahead with regards to on-the-job tasks” and another one pointed out that the older apprentices could show their younger colleagues “how to work with the grinders or how a tool should be used.” Seven of eight interviewed young apprentices (87.5%) pointed out that their experienced colleagues had a lot of practical knowledge that they could pass on to them. In a similar vein, 13 of 15 older apprentices (86.7%) mentioned that “we were much faster in practical tasks” so that “when they [the young apprentices] had questions, we showed them how to deal with it [the tool or machine].”

A number of statements by young and old apprentices also related to how practical knowledge was exchanged between the generations. The learning process was described as occurring through (1) demonstration (e.g., “the old apprentices show you how to do it [the task]”); (2) feedback (e.g., “they [the old apprentices] notice of course when you fumble with a tool or you are not using it correctly. They come over and suggest how to do a movement differently, and then you can work faster.”); and (3) imitation (e.g., “they explain it to you and ask you to copy their behavior).

**SOCIAL KNOWLEDGE**

The described instances of social learning exemplified unidirectional knowledge transfer processes from the older to the younger apprentices, meaning that no evidence for the bidirectional exchange of social knowledge was given. In particular, the interviewees mentioned two topics. First, three of eight younger interviewees (37.5%) acknowledged that the older apprentices had a positive influence on dealing with conflict and disagreement within the group. Furthermore, two younger interviewees reported that their older colleagues made them aware of the importance of friendship and integrity at work. Similarly, in three of eight instructor interviews (37.5%), it was emphasized that the age-mixed apprenticeship group was characterized by a positive learning climate of mutual support, and that the older workers helped
the group to solve conflicts. In six interviews (40%), the older workers explained their advantage in dealing with interpersonal problems by pointing out that through the years they have had enough time and opportunities to develop the necessary social skills for facilitating teamwork.

Second, the older workers’ large company-internal network was appreciated as a valuable source for career planning. For example, two young apprentices pointed out that their older colleagues could help them if they wanted to be placed in a particular department during the practical phase of their apprenticeship. This notion was also supported in one interview with an instructor and two interviews with older apprentices. To illustrate, one experienced worker said that “your network can help to some extent, you know many people after 25 years in the company. You walk through the production hall and [. . .] then you can already make a couple of arrangements for them [the younger apprentices].”

Interviewees mentioned that social knowledge was transferred between participants through (1) older apprentices acting as role models (e.g., “once in a while the young apprentices notice that there is an older colleague behaving differently, and they start thinking about changing their [social] behavior”), and (2) by means of conciliatory interventions (e.g., “when they [the younger apprentices] had problems among each other and one noticed that you [as an older apprentice] calmed them down or spoke a few clarifying words”).

META-COGNITIVE KNOWLEDGE

The fourth category that we added to the coding scheme concerns the monitoring of individual thought processes, or “thinking about thinking.” Two different types of metacognitive knowledge were exchanged in the intergenerational groups. On the one hand, the younger generation could learn from the older workers’ strategies for staying focused at work and for coping with stressful situations or problems. For example, the younger participants initially stopped engaging in their learning task as soon as the instructor was absent; however, after a while, they recognized that the older workers kept on working even in the absence of the
instructor, and thus, had less homework and more leisure time. Upon observing this, the younger workers kept working on their task even when no authority figure was present. This observation was also supported by three of eight interviews (37.5%) with the instructors, who portrayed the intergenerational apprentice group as much more disciplined and self-organized than apprentices’ groups of the same (i.e., young) age. Four of eight young apprentices (50%) were impressed by the older workers’ abilities to structure their work day, and they reported that their experienced colleagues showed them how to stay calm in demanding situations. Also, in five of eleven interviews conducted with the older apprentices during and after the program (45.5%), the interviewees noted that their presence could help their younger colleagues to learn how to organize and motivate themselves at work.

On the other hand, in four of eleven interviews with experienced participants (36.4%) who were currently enrolled in the program or had recently graduated from it, the interviewees talked about their growing ability to monitor their learning processes and how they “learned how to learn” through their interactions with the younger apprentices. Two of eight interviewed young employees (25%) mentioned that they were more familiar with strategies to memorize information and that they could pass this knowledge on to their older colleagues. These reports about the transfer of metacognitive knowledge were also confirmed by one instructor (12.5%). In addition, apprentices from both generations reported that they became more aware of their unique knowledge and skills through their interactions with one another.

Both types of metacognitive knowledge were acquired through a combination of being a role model for the other generation and explaining the reasons for a particular behavior (e.g., “we learned a lot [for vocational school], even at the weekends and explained to our younger colleagues that this apprenticeship is a unique opportunity. A few of them did not care, but some also became more disciplined, according to the motto ‘if this old guy can do it, I can do it even better’”).

55
INTERGENERATIONAL LEARNING PROCESSES ACROSS DIFFERENT GROUP PHASES

Beyond the different types of knowledge acquired in the intergenerational training groups, we were also interested in how specific types of knowledge are exchanged at different time points. The interview data revealed an interesting pattern of three sequential phases which followed the chronological course of the program, as depicted in Figure 2.2. The phases in this model should be understood as potentially overlapping time periods. They do not necessarily possess precise chronological boundaries, but are characterized by distinct attributes. Indeed, many participants used general time references such as “in the first months” or “after a while to refer to knowledge-exchange processes at different time points. Yet, although the phases vary in length, intergenerational learning groups generally went through three predictable phases: a familiarization phase, during which the relationships between group members were defined; an assimilation phase, during which similarities between apprentices of different age groups were developed and emphasized; and a separation phase, during which the established nature of intergenerational learning was substantially altered and participants changed their psychological focus to concentrate on their new jobs.

Figure 2.2. Phase model of intergenerational learning.
PHASE 1: FAMILIARIZATION

Based on our qualitative findings, we labeled the first phase of the intergenerational learning process as “familiarization.” In this phase, the apprentices met for the first time and carefully got to know each other. Temporally speaking, the familiarization phase started with the commencement of the apprenticeship program and lasted for approximately 5 to 9 months. The four interviewed instructors referred to the transition from Phase 1 to Phase 2 as occurring (1) after “half and three-fourths of a year,” (2) after “some time, when one has adapted,” (3) when “the initial reservations [to come into contact with members of the respective other age group] are gone,” and (4) after “the beginning, the first half year.” The 11 older apprentices did not mention a particular time frame, but all noted that “in the initial period” they needed to get used to the program and their younger colleagues. For instance, one of the older apprentices who had been in the program for 5 months at the time of the interview indicated that “you very much needed to get used to everything for the first two, three months, but now it gets better with every day.” In a similar vein, the eight younger apprentices pointed out that “in the beginning” they had to get accustomed to the day-to-day working life and the collaboration with their older colleagues. Illustrative quotations are as follows: “from the outset we [the elder and younger apprentices] had to communicate with each other, and after some time you found the right level, on which you can talk to each other,” or “when we started, it was strange that the older colleagues were also attending, but in the end it became more fun than without them.”

The knowledge exchange during the first phase was focused on expert knowledge and practical knowledge. When older and younger workers talked, they mostly spoke about work-related (rather than private) topics. Participants did rarely engage in social or metacognitive knowledge sharing during this first phase.

Concerning participants’ expectations about the program, the older apprentices’ statements indicated low learning-related self-esteem and anxiety about not being able to pass the qualification. They seemed to have adopted a negative picture of aging that associates age
with lower cognitive ability and adaptability. The instructors mostly agreed with this perspective before the first intergenerational apprenticeship group started (i.e., in 2011). They were worried that the older apprentices would need additional lectures to acquire the necessary knowledge. In particular, as one instructor emphasized, older workers were expected to face greater difficulty acquiring expert knowledge: “With regard to practical skills, I think they can manage. [. . .] But with regard to theoretical knowledge, I see little chance that they can reach an acceptable result. To do so, they lack too much basic knowledge.” The older apprentices shared the view of possessing an advantage in their level of practical skills before the start of the program: “With regard to vocational knowledge, or working, I think we cannot learn much from them [the younger apprentices].” Yet, the older workers expected their younger colleagues to have better technical knowledge and to provide new solutions for problematic company procedures.

Furthermore, during the familiarization phase, the older workers still struggled with less traditional forms of learning, such as group work and group discussions. They were more used to lectures and learning by heart instead of reflective learning experiences: “We now get a lot of feedback, and they [the instructors] ask us to reflect on our own, and so on. I have not been confronted with this; that’s difficult. Speaking without notes, sometimes I still feel self-conscious.” In comparison, the younger apprentices had a positive outlook and expressed excitement about learning with and from their older colleagues. However, they also raised some doubts regarding the intergenerational collaboration and were concerned that the older workers might act like “smart-alecks.”

**Phase 2: Assimilation**

After 5 to 9 months, the nature of the intergenerational exchanges took a different shape. Because older and younger workers increasingly recognized their similarities in this second phase, we chose the label “assimilation.” A young worker summarized the situation as follows: “They [the older apprentices] are just like us, only with a house, a family, and gray hair.” Timewise, the second phase lasted the longest and ended only a few months before the
qualification program concluded.

The focus of intergenerational interactions in the second phase was on practical, social, and metacognitive knowledge. Most participants emphasized a balanced level of intergenerational exchange, with both generations obtaining approximately the same amount of knowledge from each other. For example, a younger apprentice stated: “The first days when we were working at the company’s shop floor, I thought we would learn more from the older colleagues. After vocational school started, I then thought that the older would learn much more from us, but now I would say it’s relatively balanced.”

The instructors noted that when the group needs to split into smaller groups to solve a task, younger and older apprentices often spontaneously form intergenerational groups. In contrast to the instructors’ assumption in the first phase stating that the learning speed and learning outcomes are mostly determined by the apprentices’ age, they now emphasized the influence of individual differences and educational background. For instance, a vocational school instructor pointed out: “When I am teaching the class, I only have one age group. I only recognized the age differences in the first year of the apprenticeship. At this point in time, I get the opportunity to let the group become an entity.” Whereas the instructors had initially raised doubts about the older workers’ ability to participate successfully in the qualification program, in this phase they expressed confidence in the experienced apprentices’ capacities.

In addition, a change in the self-image of both the younger and the older apprentices became apparent during this second phase. The younger participants mentioned that they feel proud and competent when they can pass on their school knowledge to their older colleagues. The older workers switched from mainly talking about age-related deficits to acknowledging the possibilities of lifelong learning. Nine of them talked about a “breakthrough” in their learning capabilities, meaning that “in the beginning, your brain was literally hurting from thinking too much, but after a while you got used to it and learning became much easier.” In line with this notion, in three of the eight interviews with instructors (37.5%), interviewees mentioned that the
older workers experienced a notable change in their learning behavior. To illustrate, one instructor explained that “it took some time, but suddenly the older apprentices got used to learning again. They found their individual learning speed and developed learning strategies, sometime on their own, sometimes together with their older and younger colleagues.”

**Phase 3: Detachment**

A different picture emerged when analyzing the statements of individuals who had already completed the program, or were about to do so. The young and experienced apprentices then transitioned to a third phase, which comprised the last few months of the qualification program and continued beyond the program. Although the participants emphasized appreciation for the unique opportunities that the apprenticeship provided, the focus of their talk shifted to their new workplaces and future work tasks. Based on to these findings, we labeled the third and last phase as “detachment.”

The younger and older apprentices again split into subgroups within the vocational training group. They concentrated on the time after the apprenticeship and aimed to be placed at a department with their same-aged colleagues, meaning that the young apprentices wanted to stay with their young colleagues and the older apprentices preferred to be placed together with their older colleagues. The amount of knowledge exchanged between generations decreased in this final phase. When helping each other out, the conversations mostly concerned social advice regarding final job placements in the plant. For instance, the younger apprentices asked the older apprentices about their experience with particular departments or about contact persons from the older workers’ social networks within the firm.

The older apprentices maintained a positive image of their lifelong learning capabilities, yet they also emphasized that the training program is not suitable for all older workers, but only for those with an above-average motivation and intelligence. They also critically reflected on the cost–benefit ratio of retraining experienced workers. For example, one older worker shared his experience about the acquisition of technical skills as follows: “The younger ones, they really try
to teach us [how to work with computers], and some of the older ones like dealing with computers, but not all of them. Because that takes time. For example, why teach the knowledge to someone who has only five years left until retirement?” To some extent, interviewees in this phase lost their earlier positive bias or “rose-tinted glasses” regarding their participation in the program. As such, they evaluated the program in a balanced way by considering both advantages and disadvantages.

**DISCUSSION**

This in-depth qualitative study contributes to research on intergenerational phenomena in the workplace by uncovering which types of knowledge are exchanged between generations in organizational training groups and by investigating how intergenerational learning processes change at different time points. Whereas previous work has focused mainly on unidirectional knowledge transfer from more experienced to less experienced individuals (e.g., Davenport & Prusak, 1998; Lave & Wenger, 1991), our findings highlight that both age groups possess unique types of expert, practical, social, and metacognitive knowledge. Notably, our findings show that not all types of knowledge are exchanged equally at all points in time. In particular, our data suggests that acquiring expert and practical knowledge from one another is most important during the familiarization phase of an intergenerational learning program. In line with this finding, knowledge management and diversity researchers have argued that a common (expert) knowledge base needs to be established before groups can engage in effective interactions (Alavi & Leidner, 2001; Kelly et al., 2001; van Knippenberg, De Dreu, & Homan, 2004). Once familiarization has been accomplished and intergenerational participants know each other better, they enter the assimilation phase. At this stage, employees from different generations still exchange practical knowledge, but social and metacognitive learning processes gain relevance. Talking about expert knowledge becomes less relevant at this point in time. Last, in the detachment phase, employees from different generations stop engaging in intensive intergenerational learning efforts and focus on the exchange of social knowledge. Both
generations reorient themselves toward their own age group, and intergenerational differences become salient again. Our findings possess important theoretical implications for conceptualizing intergenerational learning in organizations and practical implications for managers and instructors concerned with the design of intergenerational learning initiatives. Furthermore, several implications for future research accrue from our exploratory study.

THEORETICAL IMPLICATIONS

First, our qualitative findings show that a wide range of knowledge beyond the formal training content is exchanged between training participants from different generations in a bidirectional process of mutual knowledge exchange. Indeed, our results suggest that neither generation is generally more knowledgeable than the other. Both younger and older employees can be experts in particular subject areas and novices in others. As such, scholars should take care to consider both pathways (i.e., knowledge exchange from older to younger employees as well as from younger to older employees) when investigating intergenerational programs. A focus on unidirectional transfer carries the risk of potentially omitting a wide range of organizational learning processes.

Second, previous research investigating the intergenerational exchange of tacit knowledge in familial or educational settings mainly focused on practical and social skills (e.g., Harvey, 2012; Schotter & Sopher, 2003; Underwood & Dorfman, 2006; Zucchero, 2011). In addition to these two types of tacit knowledge, we found that individuals developed the ability to “think about thinking” through intergenerational interactions. This type of skill is also referred to as metacognition (Hartman, 2001; Johnson, Archibald, & Tenenbaum, 2010) and manifests in participants’ improved ability to monitor and align their learning processes (Hartman, 2001; Johnson et al., 2010). Metacognitive knowledge concerns knowledge about managing oneself in learning-related situations. Thus, our research emphasized that tacit knowledge in intergenerational interactions should be considered in terms of how to get along at work (practical knowledge), how to manage interpersonal relationships (social knowledge), and how
to reflect on one’s abilities and their development (metacognitive knowledge). Related to our findings, Wagner (1987) differentiated between tacit knowledge in work-related situations about managing tasks, managing others, and managing self. Our findings can be seen as an extension of this initial categorization in the learning context, such that tacit knowledge about managing tasks is equivalent to practical knowledge, tacit knowledge about managing others is related to social knowledge, and tacit knowledge about managing self is concerned with metacognitive knowledge about organizing and monitoring one’s learning processes. Thus, an important contribution of this work is the differentiation of tacit knowledge into three dimensions, with varying degrees of relevance for intergenerational learning processes at different time points.

Third, the three phases of intergenerational learning show some overlap with (but also some divergence from) prevalent models of group development (Tuckman, 1965; Tuckman & Jensen, 1977). The first familiarization phase in intergenerational learning, as identified in this study, corresponds to the forming phase in Tuckman’s (1965) model, in which individuals come together as a group. However, we did not find evidence of a storming phase (Tuckman, 1965) among the apprentices. Instead, the level of intergenerational conflict remained relatively stable over time and tended to increase toward the end of the apprenticeship program. Furthermore, the establishment of group norms (Tuckman’s norming phase) was not restricted to a unique phase within our data, but also occurred during the familiarization phase. The lack of interpersonal conflicts and the immediate focus on the establishment of group norms at the beginning of the apprenticeship may have been due to the learning program’s high degree of uncertainty. For example, members of a project group usually have an established status based on their expert knowledge or experience and try to defend this status when they come together as a group, which may generate relationship conflict (Kauffeld, Lehmann-Willenbrock, & Grote, 2015). By contrast, the intergenerational apprenticeship program examined here constituted a completely new environment for all participants. As such, participants likely were not challenged to maintain their predefined status and identity in the group, but rather were concerned with finding
their identity in this new organizational learning context. The exchange of expert and tacit knowledge at the beginning of the apprenticeship aligns with the idea that group members need to develop shared mental models as a basis for knowledge sharing (Ellwart et al., 2013). Furthermore, the swift establishment of group norms in intergenerational training groups, as observed in our study, provides a secure social context in which individuals can find their identity within the group, rather than defending it (as would be the case in Tuckman’s storming phase).

However, although Tuckman’s forming, storming, and norming phases were not distinguishable in our sample of intergenerational learning groups, the assimilation phase in our descriptive model does bear a resemblance to Tuckman’s (1965) performing phase. In the assimilation phase, the intergenerational groups focused on the training content and on exchanging practical, social, and metacognitive knowledge that helped improve their learning outcomes. Attaining these learning outcomes corresponds to group performance in Tuckman’s (1965) group development model.

Moreover, the final detachment phase of intergenerational learning as described in our model is comparable to the adjourning phase of Tuckman and Jensen’s (1977) amended model. Similar to dissolving the group in Tuckman and Jensen’s (1997) adjourning phase, the separation of group members was particularly evident between the apprentices of different generations in the final detachment phase of our model. Whereas age-homogenous subgroups tended to remain together after the end of the apprenticeship program, the interactions between members of different generations decreased and often ceased entirely. Thus, when individuals transition into a new organizational context (in our case, their permanent workplaces) age differences become more apparent again, and individuals orientate toward others who are similar. This development is in line with previous research arguing that individuals are more likely to orient toward similar others in stressful situations than in stable environments (for an overview, see Blanton, Burkley, & Burkley, 2014). Furthermore, the older participants’ evaluation of the efforts needed to pass the
qualification is more realistic at the end of the program than at earlier stages of the apprenticeship. The “rose-tinted glasses” may have helped older workers to remain motivated during the apprenticeship and to defend their program participation against former coworkers’ potential criticism. However, a more balanced judgment, as evidenced by participants’ interview responses after completing the qualification program, may be more useful for other experienced workers who seek realistic insights into the challenges of a requalification. These findings highlight the importance of longitudinal research designs, because the point in time at which data are collected from participants may have a significant impact on program evaluations.

**Practical Implications**

We hope that our findings will encourage practitioners to embrace intergenerational learning as an opportunity for ensuring that employees from all generations possess the necessary skills for dealing with business challenges in a complex and everchanging business environment. Yet, human resource management research and practice has only recently become aware of the opportunities for knowledge building inherent in intergenerational learning processes (Ropes, 2013). To date, programs involving learners from different generations are often conceptualized as a unidirectional knowledge transfer process from knowledgeable experts to novices (e.g., trainings, mentoring). Because intergenerational learning provides a promising avenue to prevent organizational knowledge loss (e.g., Calo, 2008; Starks, 2013), managers may want to invest more effort into enhancing bidirectional learning between generations through formal support for this kind of knowledge exchange. Instructors or managers could systematically map the expert, social, and metacognitive knowledge content of the different generations to uncover where knowledge of particular value for the organization is located. For example, in the apprenticeship setting, instructors could aim to make the informal knowledge exchange between generations explicit by writing down and visualizing the topics discussed in intergenerational interactions. Research on strategy development has suggested that using frameworks, clustering knowledge, or visualizing information can help to structure data and
explore novel insights in collaborative settings (e.g., Eppler & Platts, 2009; Heracleous & Jacobs, 2008). Thus, instructors can selectively focus on particular topics (e.g., by elaborating how to use a tool or discussing what is specific about a particular type of car) and map the explicit knowledge that individuals from different generations have about this area. Furthermore, they may want to encourage participants to reflect on the similarities, differences, strengths, and weaknesses of different generations (Franz, 2009; Sánchez & Kaplan, 2014).

Our findings also emphasize the importance of adapting training methods to the different phases of intergenerational learning. Forming age-diverse groups does not automatically result in learning but calls for instructors’ or supervisors’ active engagement (Tempest, 2003). Specifically, our results suggest that in the first phase (familiarization), instructors need to create a safe learning environment in which intergenerational differences are discussed openly. The aim should not be to eliminate differences between generations, but to appreciate them as a source of learning (Franz, 2009). Such a reflection on the differences and similarities between generations in intergenerational learning processes can be an important first step for reducing age stereotypes (Penick et al., 2014). This is of particular importance during the early stages of intergenerational learning in groups, because members need to develop a common knowledge base to engage effectively in knowledge exchange (Alavi & Leidner, 2001; Kelly et al., 2001). Conversely, in the second phase (assimilation), instructors may want to step back and assign more responsibility to the trainees, such that group members can enlarge their knowledge base through intergenerational interactions. Instructors can focus on teaching expert knowledge and on providing the space for collaborative learning experiences between the generations. In the third phase (detachment), instructors need to be aware that generations tend to reorient themselves toward colleagues of a similar age. To avoid a disruption of contact between the generations, instructors should encourage a discussion of how individuals from both generations want to interact with each other once the group disbands. For example, instructors might encourage intergenerational mentoring tandems or collegial coaching dyads in which an older employee is
paired with a younger colleague and which continue their exchange even after a program has ended. Such an initiative might include regular weekly lunch meetings or coffee breaks that focus on informal knowledge exchange and mutual support. Given participants’ prior socialization and development of work relationships through the intergenerational learning program, such peer coaching activities as follow-up measures could prove very fruitful (see, Parker, Hall, & Kram, 2008).

Third, our findings point to obstacles that may prevent older workers from engaging in lifelong learning. In particular, prior to the program, older workers were afraid of acquiring theoretical knowledge and thought that their cognitive capabilities would not be sufficient for acquiring the qualification. Initially, even the instructors shared this negative view of older workers’ capacity for learning. However, after a few months the older workers recognized that they had retained their abilities to concentrate and learn. In combination with the development of metacognitive skills through interaction with their younger colleagues, their learning capabilities increased. This observation suggests that positive role models could increase older workers’ participation in trainings through the reduction of age-related stereotypes.

LIMITATIONS

Conducting a qualitative field study has its inherent limitations, but the richness of the realworld data that can be obtained from such an approach helps counterbalance this downside. An opportunity for field research typically implies that scholars have to deal with organizational restrictions, such as not being able to investigate a control group in the case of our study. As a consequence, we cannot completely rule out that the observed changes in knowledge result not solely from intergenerational exchange processes, but rather from other factors, such as maturation effects or events outside the apprenticeship program (Shadish, Cook, & Campbell, 2001). Nevertheless, our qualitative evidence strongly indicates that the contact with the other cohort constituted the main source of learning. First, it is well established in the literature that practical knowledge is transferred through observations and shared work experiences (Nonaka,
1994; Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995; Nonaka, von Krogh, & Voelpel, 2006). By definition, these processes are difficult to verbalize, but we used follow-up questions to encourage participants to explain in-depth how knowledge was transferred between individuals. Second, interactions with peers have repeatedly been identified as a main source of (informal) learning in groups (e.g., Chan, Li, & Pierce, 2014; Liang, Moreland, & Argote, 1995; Peeters et al., 2014). Similarly, the participants of the investigated program were trained full-time together as a group, and thus, had ample opportunities to observe and communicate with each other, which indicates that learning processes outside the program may have played only a minor role for the types of knowledge investigated here.

Furthermore, as in all research based on interview data, our findings might be influenced more strongly by the longer interviews. Of course, these sources contained more information than the shorter ones, but we took particular care to code and treat every conversation equally. Closely following the recommendation of Gioia and colleagues (2012) for creating qualitative rigor, we treated interviewees as “knowledgeable agents,” who will explain as much of their thoughts as they think is necessary to provide a picture of the situation. To avoid systematic confirmatory bias (Johnson & Harris, 2002), all three authors converged upon the same interpretations during the analysis phase, the categories and interpretations were discussed with participants after the analysis phase, and a student assistant double-coded part of our interview data.

Related to the previously mentioned concern, the experiences reported in our interviews reflect the subjective reality of the participants; that is, their perceptions and attitudes. We acknowledged all interviewees’ experiences by understanding them as active constructors of their organizational realities and assuming that they “know what they are trying to do and can explain their thoughts, intentions, and actions” (Gioia et al., 2012: 17). Nevertheless, their statements might be biased by (meta-) stereotypes about their own behavior as well as the behavior of the respective other generation (Finkelstein, King, & Voyles, 2015; Finkelstein, Ryan, & King, 2013). Although it is important to recognize this limitation, it is worth
highlighting that perceptions guide behavior, and not objective events. For instance, it has long been argued that group members’ diversity characteristics can only influence outcomes if individuals recognize that others differ from them (Ashforth & Mael, 1989; Harrison & Klein, 2007; Homan & Jehn, 2010; Shemla & Meyer, 2012). Indeed, research shows that perceptions of diversity mediate the effects of team members’ actual differences on team outcomes (Harrison et al., 2002).

Last, our sample mostly contained white male apprentices. Although this can be seen as a limitation, it strengthens our assumption that the learning processes occurred due to generational differences, and were not confounded by other diversity characteristics. Yet, we might note that intergenerational exchange processes can look different in other cultural settings (Lyons et al., 2014). For instance, in collectivistic nationalities that place more importance on hierarchies, younger individuals may be more afraid to speak up than individuals from an individualistic country (current study). To enable the reader to assess the transferability of our findings, we took particular care to offer a thorough description of the study setting and rich contextual information. Given that intergenerational learning experiences are a prevalent issue in today’s workforce (Joshi et al., 2010; Sánchez & Kaplan, 2014), we are confident that our findings are relevant to a range of organizational situations beyond the specific training setting investigated here. The processes we observed might represent general occurrences, which are similar or even structurally equivalent across domains (Gioia et al., 2012).

**Future Research**

This study has provided meaningful findings that point to several avenues for future research. First, we conducted our interviews at two time points and included apprentices who were at different stages of the qualification (before/during/after the program). This design allowed us to develop some initial ideas about intergenerational learning processes at different stages of the apprenticeship program. However, given that only a small number of apprentices and instructors were interviewed twice, future research could investigate the nature, triggers, and
results of changes in intergenerational learning in a longitudinal research setting with numerous measurement points (Ployhart & Ward, 2011). For instance, the timing of the shifts between the different phases may vary across groups or individuals. Moreover, a number of group-level antecedents (cohesion, size) or individual characteristics (openness to experience, self-conscientiousness) may affect when and how the transitions between the different phases occur. Furthermore, the actual behavioral interactions between apprentices from different generations could be examined, for example by means of interaction analysis during group discussions (e.g., Kauffeld & Lehmann-Willenbrock, 2012). Although such an analysis is beyond the scope of this study, it could yield interesting insights into fine-grained behavioral group dynamics in intergenerational learning contexts.

The training program investigated here was purposefully designed to bring together young and older workers at an automobile manufacturer in a stimulating learning environment. A substantial amount of financial and personnel resources were spent on the program to allow highly professional supervision of the trainees. Although our results highlight the potential of intergenerational learning, the concept is certainly not a silver bullet to solve every problem related to demographic changes (Ropes, 2013). Future research could examine potential “dark sides” of intergenerational learning relationships in less supportive learning environments. For instance, informal intergenerational learning might take place in multigenerational project groups that provide the opportunity for intergenerational exchange without explicitly structuring the learning process (Enberg, Lindkvist, & Tell, 2006). In less positive learning environments, learners of different generations may be more likely to interact only with others from the same generation. According to the similarity-attraction paradigm (Byrne, 1971), individuals generally prefer others who are similar to themselves to those who have different characteristics. Consequently, the quality of social interaction processes and the development of a shared knowledge base may be impaired in intergenerational learning groups that are not supported by a structured learning environment (Liebowitz, Ayyavoo, Hang, Carran, & Simien, 2007;
Sivasubramaniam, Liebowitz, & Lackman, 2012). Thus, bringing together individuals from
different generations may not automatically result in intergenerational learning processes, and
future research should investigate which circumstances stand out in encouraging
intergenerational interactions.

CONCLUSION

Due to societal demographic changes, organizations need to tackle the dual challenges of
qualifying older workers and transferring their knowledge to subsequent generations. This in-
depth qualitative study provides useful insights into the potential of intergenerational learning for
knowledge exchange in organizations. In particular, our findings show that individuals from
different generations possess distinct expert, practical, social, and meta-cognitive knowledge,
and that they exchange different types of knowledge at different time points. In closing, we hope
that our study encourages future longitudinal work on the opportunities and pitfalls of
intergenerational learning in the context of human resource development.
CHAPTER 3

AGE DIVERSITY AND LEARNING OUTCOMES IN ORGANIZATIONAL TRAINING GROUPS: THE ROLE OF KNOWLEDGE SHARING AND PSYCHOLOGICAL SAFETY CLIMATE

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ABSTRACT

Demographic shifts in the Western industrialized countries have resulted in an increasingly age diverse workforce, with implications for human resource development generally and for diverse training groups particularly. The purpose of this paper was to deepen our understanding of the processes and boundary conditions through which age diversity in formal training settings influences learning outcomes. Data were obtained via a survey of 211 employees participating in a collaborative one-day training at a large automobile manufacturer. Perceived age diversity, but not objective diversity, was negatively linked to learning outcomes. Knowledge sharing mediated this negative relationship. Furthermore, psychological safety climate augmented the indirect negative effect of perceived age diversity on learning outcomes through knowledge sharing (moderated mediation model). When participants indicated a high level of psychological safety, their knowledge sharing activities were high, regardless of perceived age diversity. However, when psychological safety climate was low, perceived age diversity was strongly negatively linked to knowledge sharing. The findings imply that age diversity influences learning in training through knowledge sharing, but only when the learners find diversity salient. Practitioners are advised to improve psychological safety climate in training, as it buffers the potential negative effects of perceived age diversity on knowledge sharing and learning.

KEYWORDS:
Age Diversity
Knowledge Sharing
Psychological Safety Climate
Learning
Training
INTRODUCTION

Demographic shifts have led to a workforce characterized by a higher average age, longer lifetime employment, and increased generational diversity (Kulik, Ryan, Harper, & George, 2014). These social changes imply major challenge for human resource management (Drabe, Hauff & Richter, 2014) because organizations need to ensure that employees’ knowledge and skills remain up-to-date across all age groups (Leibold & Voelpel, 2006). Training is the most frequently employed learning form for developing employees’ knowledge and skills, requiring an estimated investment of about $164.2 billion in the US in 2013 (Miller, 2013). Given the considerable financial resources invested in trainings and their strategic role for organizational knowledge creation, it is important to ensure that individuals acquire new knowledge effectively in this type of formal learning setting.

Most organizational trainings are conducted in groups and require considerable interaction between the participants to make sense of the provided knowledge. Yet, although individuals are frequently educated in heterogeneous training groups, the influence of diversity on learning outcomes in formal training settings has rarely been considered (Schmidt, 2009). Diversity has been argued to be a double-edged sword that can either have positive or negative effects on outcomes (Mannix & Neale, 2005). This study takes a first step to address the question whether and, if so, how age diversity influences organizational trainings’ effectiveness.

Scholars have argued that diversity research ought to (1) acknowledge that diversity only matters if group members recognize it (Harrison & Klein, 2007; Homan & Jehn, 2010; Shemla & Meyer, 2012), (2) investigate the mechanisms through which diversity influences outcomes (Homan & Jehn, 2010), and (3) explain the boundary conditions of these mechanisms (Van Knippenberg, De Dreu, & Homan, 2004). In keeping with these arguments, (1) we focus our subsequent theorizing on perceptions of age diversity, although our analysis also controls for objective age diversity in training groups. Moreover, (2) we consider knowledge sharing as a mediating mechanism through which perceived age diversity in training groups affects learning.
outcomes by integrating the information elaboration perspective on diversity with social identity theory (Williams & O’Reilly, 1998). On the one hand, a deeper cognitive elaboration of the training content is fostered through participants’ knowledge sharing. On the other hand, knowledge sharing might be reduced if individuals perceive their training group to be age-diverse, since other trainees, who are recognized as different from oneself, can cause feelings of vulnerability and anxiety about opening up (Siemsen, Roth, Balasubramanian, & Anand, 2009). Yet, if a climate can be established in which training participants still feel they can speak openly, perceived diversity’s negative effect on individual learning via knowledge sharing might disappear. Thus, (3) we investigate psychological safety climate as an important boundary condition that may help alleviate the negative relationship between age diversity and individual learning outcomes.

In sum, this study offers the following contributions. First, we build on recent theorizing to argue that perceived (rather than objective) age diversity negatively affects individual learning outcomes in group training settings. Second, we investigate knowledge sharing as a mediating mechanism and psychological safety as a boundary condition through which perceptions of age diversity in training groups impact individual learning outcomes (moderated mediation model). We test our assumptions in a sample of 211 employees participating in a one-day training on site and discuss the theoretical implications of our findings for diversity research in the training area, as well as their managerial implications for organizational training design and practice.

**PERCEIVED AGE DIVERSITY AND LEARNING OUTCOMES**

Diversity refers to the differences between individuals in respect of any attribute that may lead to the perception that another person differs from oneself (van Knippenberg et al., 2004; Williams & O’Reilly, 1998). This definition implies that diversity can only influence outcomes if individuals recognize that others differ from them (Homan, Greer, Jehn, & Koning, 2010). In other words, diversity must be salient to the recipient. Consequently, perceived diversity does not necessarily reflect objective diversity attributes, but describes the subjective perceptions of a
group’s diverse composition (Shemla & Meyer, 2012). Indeed, studies employing both objective and perceived diversity measures report weak or no relationships between the two variables (Hentschel, Shemla, Wegge, & Kearney, 2013; Ries, Diestel, Wegge, & Schmidt, 2010). Research further shows that perceptions of diversity mediate the effects of team members’ actual differences on team outcomes (Harrison, Price, Gavin, & Florey, 2002). Hence, diversity may matter most when individuals think the other is different.

Social identity theory provides an explanation for perceived age diversity possibly affecting individual learning in age-diverse training groups (Williams & O’Reilly, 1998). Individuals define their identity by continuously comparing themselves to others (Tajfel & Turner, 2004). To confirm their self-image, individuals generally prefer others who are similar to them to those with different characteristics. Individuals who are dissimilar are likely to be evaluated overly critically “through the biased lens of category stereotypes” (Polzer, Milton, & Swann Jr., 2002: 296) and to be categorized as out-group members. In contrast, individuals perceived as similar are classified as belonging to the in-group. This tendency toward self- and intragroup categorization reduces group identification and fosters relationship conflicts (Hentschel et al., 2013).

Newly formed groups—such as training groups—are particularly prone to self- and intragroup categorizations, because they are comprised of relative strangers, who are likely to make use of easily accessible information, such as highly visible diversity cues, to form a first impression of their co-trainees (Zellmer-Bruhn, Maloney, Bhappu, & Salvador, 2008). Contrary to other diversity dimensions, age does not always have clear valued and less valued dimensions (Riach, 2009). Whereas gender and ethnicity are linked to relatively stable status components across contexts (Ridgeway & Correll, 2004), the relationship between younger and older employees and their mutual appreciation may vary, depending on the specific organizational context. In a training setting, the other trainees’ age may trigger a range of beliefs about their personality, values, attitudes toward their work and career, their job satisfaction, organizational
citizenship and commitment, intentions to leave, and communication norms (Arsenault, 2004; Cennamo & Gardner, 2008; Drabe et al., 2014; Macky, Gardner, & Forsyth, 2008). Such stereotyping beliefs can subsequently cause conflict and distraction. For example, in highly competitive organizational environments, older trainees may fear that their younger colleagues will take over their jobs once they share company-specific expertise (Joshi, Dencker, Franz, & Martocchio, 2010). In line with conservation of resources theory (e.g., Hobfoll, 2011), older employees will try to protect their (knowledge) resources in such situations, particularly if perceived age discrimination is high (Rabl & Triana, 2013). Since individuals aim to uphold a stable social identity and positive self-image, employees’ cognitive processes and energy may be directed to address and cope with their inner or overt social tensions occurring when interacting in an age-diverse training group, rather than engaging with the learning process. Thus, we hypothesize:

*Hypothesis 1: Perceived age diversity of the training group is negatively associated with individual learning outcomes.*

**LEARNING THROUGH KNOWLEDGE SHARING**

Learning can be understood as the acquisition and refinement of both expert and practical knowledge (Kostopoulos & Bozionelos, 2011; Sveiby, 1997). According to constructivist learning perspectives (Arib & Hess, 1986; Yeo & Gold, 2011), individuals engage in active processes of relating novel information to previous experiences and assimilating this information, rather than passively adopting it. This perspective is particularly pertinent as the nature of work is becoming more dynamic and complex (Grant & Parker, 2009). As a result, scholars pointed out that most individuals—as employees and learners—find they are in far more responsible and autonomous roles (Bell & Kozlowski, 2008; Parker, 2014).

Knowledge sharing can be defined as purposeful, or unintended, activities through which information, skills, or expertise are exchanged with others (Joshi, Sarker, & Sarker, 2007). The discussion of one’s knowledge in trainings can foster impromptu discovery and new insights.
By sharing knowledge, individuals reflect on their experiences when putting them into words, engage in deeper information elaboration processes, become aware of knowledge gaps, and seek and link new information to existing knowledge (Nilsen & Ludvigsen, 2010; Vance et al., 1991). This helps reduce other efforts required to master new skills, besides providing heightened feelings of competence, which in turn lead to an increased skill application and performance at the workplace (Gilpin-Jackson & Bushe, 2007; Kang, Kim, & Chang, 2008).

For knowledge sharing to occur in organizational trainings, individuals must be willing to deliberately contribute their expertise and experiences. As perceived age diversity may affect trainees’ social identity with the training group, they may be less motivated to share their knowledge with other trainees, who they categorize as being different. Indeed, perceived age diversity was found to be negatively related to the frequency of exchange interactions with other team members (Ellwart, Bündgens & Rack, 2013). Research has also showed that, in diverse groups, subgroup categorization and the fear of rejection can inhibit knowledge exchange (van Ginkel & van Knippenberg, 2008), whereas knowledge sharing is more likely to occur when group members are familiar with and trust each other (Pinjani & Palvia, 2013). Building on these findings, we hypothesize:

*Hypothesis 2: Knowledge sharing mediates the negative relationship between perceived age diversity and individual learning outcomes.*

**Psychological Safety Climate as a Boundary Condition**

In view of knowledge sharing’s important role, it is necessary to maintain conditions in which the trainees feel safe to interact with each other (Edmondson, 1999; Noe, Tews, & McConnell Dachner, 2010; von Krogh, Roos, & Slocum, 1994). Psychological safety refers to the belief that risk taking in an organizational environment is a secure endeavor and helps develop trust in unknown individuals (Roussin & Webber, 2012) and forms “a sense of
confidence that the team will not embarrass, reject, or punish someone for speaking up” (Edmondson, 1999: 354).

A high level of psychological safety therefore describes a climate in which individuals dare express their opinion, raise constructive concerns about existing practices, make suggestions for improvement, feel capable of dealing with changes, and overcome learning anxiety (Edmonson & Lei, 2014; Liang, Farh & Farh, 2012). Consequently, a training experience characterized by a positive psychological safety climate potentially promotes knowledge sharing between trainees and team learning (Raes, Kyn, Van den Bossche, & Dochy, 2015). They can contribute more ideas, innovative suggestions, and divergent perspectives, which in turn help build shared mental models, integrate new information, and change individuals’ attitudes (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012; Nilsen & Ludvigsen, 2010).

These moderating mechanisms are particularly important in training groups that are perceived as highly diverse, because trainees who feel safe manage differences more constructively (Bradley et al., 2012). These trainees are less concerned with categorizing their co-trainees into subgroups, but instead appreciate and integrate each other’s unique knowledge (Zellmer-Bruhn et al., 2008). Thus, trainees who feel psychologically safe may learn more in diverse groups due to a deeper level of information elaboration (van Ginkel & van Knippenberg, 2008; Williams & O'Reilly, 1998). Psychological safety can therefore act as a buffer against perceived age diversity’s negative effect on individual learning outcomes, which knowledge sharing mediates. Together, this suggests a moderated mediation model (see Figure 3.1). Our final hypothesis posits:

Hypothesis 3: Psychological safety climate moderates the negative relationship between perceived age diversity and knowledge sharing, such that this relationship is stronger for those who experience lower rather than higher psychological safety climate levels.
Figure 3.1. Conceptual model (H = Hypothesis).

METHODS

SAMPLE AND PROCEDURE

We gathered data from 211 employees (83% male) participating in a one-day training (7 hours) at a large global automobile manufacturer’s plant in Germany. Each trainee was assigned to one of 18 training groups consisting of 10 to 14 members ($M = 11.72, SD = 1.49$). The average age of the participants was 33.5 years ($SD = 9.84$, minimum age = 17 years, maximum age = 60 years). About 87% of the trainees worked on the assembly line, or in a related role. The remaining 13% worked as team leaders responsible for production teams.

Owing to the size of the plant (about 12,000 employees), most of the trainees came from different departments and were not acquainted before the training day. The training aimed to teach the principles of continuous improvement, that is the ongoing endeavor to increase the quality of processes, products and services. Newly hired, highly qualified employees, foremen, as well as all the employees in a managerial position, were encouraged to participate in the voluntary training and excused from work for that time. The trainers were two experts on continuous improvement, whom had conducted the training for more than a year at the time of the data gathering. The trainers and the works council supported the research project.

The training started with a one-hour introduction in a seminar room. Afterward, the trainees took part in a simulation of a production process at an assembly line (0.5 hours).
Subsequently, the trainer asked the training group to optimize the production process in a self-directed group work process according to the continuous improvement principles (4 hours).

Finally, their solution was implemented and tested in another simulation round (1 hour). Trainees then completed our questionnaire and had a general feedback session with the trainer. They were informed that study participation was voluntary and that by filling in the questionnaire they gave their informed consent to participate in our research. The first author of this paper was on site during every training session to answer questions on the project and collect the questionnaires.

**Measures**

The items were measured via self-report, because our constructs of interest refer to private events and perceptions during the training, which only the individual experiencing these can assess (Conway & Lance, 2010). We obtained all variable values by averaging the responses to the items assigned to a particular construct (complete item list see Appendix). Unless otherwise noted, we used a six-point answering format ranging from 1 (“completely disagree”) to 6 (“completely agree”). We applied a translation-back translation procedure with two bilingual translators to generate the German survey.

**Perceived age diversity** was assessed with one item developed by Harrison, Price, and Bell (1998): “How similar were the participants of the training regarding their age?” The respondents indicated their answers on a 4-point Likert scale (1 = completely dissimilar, 4 = completely similar).

**Objective age diversity** was operationalized as the within-group standard deviation of the trainees’ actual age (Hentschel et al., 2013).

**Knowledge sharing** was measured with two items relating to the sharing of codified expert knowledge and the contribution of action-related information about how things work in the organization (Faraj & Lee, 2000): “I shared my expert knowledge with the other participants,” and “I shared my experiences about processes and courses of action with the other participants” (Cronbach’s $\alpha = .90$).
Psychological safety climate was assessed with four items (van Ginkel & van Knippenberg, 2008). A sample item is “I had the impression the other group members wanted to hear what I had to say” (Cronbach’s α = .86).

Learning outcomes were measured with three items asking the trainees to rate their individual self-perception of learning (Magni, Paolino, Cappetta & Proserpio, 2013). A sample item is “I gained new knowledge about processes and courses of action according to the principles of continuous improvement through the training” (Cronbach’s α = .91).

Control variables. We controlled for individual age (in years), job position (0 = managerial function with responsibility, 1 = regular employee without managerial function), and gender (0 = male, 1 = female).

RESULTS

Prior to hypothesis testing, we conducted a confirmatory factor analysis, using structural equation modeling (Mplus; Muthén & Muthén, 2012) to ensure that psychological safety climate, knowledge sharing, and learning outcomes were distinct constructs. The fit of the three-factor solution (χ²/df = 3.03, p < 0.01, RMSEA = 0.10, CFI = 0.96, SRMR = 0.04) clearly outperformed the baseline model, in which all items loaded on one factor (χ²/df = 10.93, p < 0.01, RMSEA = 0.22, CFI = 0.78, SRMR = 0.07).

Table 3.1 presents the descriptive statistics and correlations of the study variables. Perceived and objective age diversity were moderately correlated (r = .25, p < .01). Although perceived age diversity was negatively linked to psychological safety climate (r = -.34, p < .01), knowledge sharing (r = -.37, p < .01), and learning outcomes (r = -.42, p < .01), objective age diversity showed no significant relationship with these outcome variables. We therefore omitted objective age diversity from our subsequent analyses. Given that objective age diversity was measured at the team level, and all the other variables were obtained at the individual level, we selected multilevel hierarchical regression (MHR) analysis (Hox, 2010; West, Welch, & Galecki, 2007) to validate the indicative evidence derived from the examination of the correlation matrix.
The MHR revealed no significant relationships between objective age diversity and psychological safety climate ($B = .00, p = .93$), knowledge sharing ($B = -.02, p = .65$), and learning outcomes ($B = -.05, p = .32$). We therefore dropped objective age diversity from the analysis.

Table 3.1. Descriptive statistics and intercorrelations of study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>33.49</td>
<td>9.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Job position</td>
<td>0.87</td>
<td>0.33</td>
<td>-.20**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gender</td>
<td>0.17</td>
<td>0.38</td>
<td>-.06</td>
<td>.14*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Objective age diversity</td>
<td>7.17</td>
<td>2.36</td>
<td>.08</td>
<td>-.04</td>
<td>-.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived age diversity</td>
<td>2.94</td>
<td>0.90</td>
<td>-.25**</td>
<td>.06</td>
<td>-.12</td>
<td>.25**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Psychol. safety climate</td>
<td>4.83</td>
<td>0.95</td>
<td>-.06</td>
<td>-.06</td>
<td>.01</td>
<td>-.34**</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Knowledge sharing</td>
<td>6.05</td>
<td>1.04</td>
<td>.11</td>
<td>-.07</td>
<td>-.07</td>
<td>-.04</td>
<td>-.37**</td>
<td>.77**</td>
<td>(.90)</td>
<td></td>
</tr>
<tr>
<td>8. Learning outcomes</td>
<td>5.07</td>
<td>1.10</td>
<td>-.01</td>
<td>-.05</td>
<td>-.05</td>
<td>-.09</td>
<td>-.42**</td>
<td>.61**</td>
<td>.66**</td>
<td>(.91)</td>
</tr>
</tbody>
</table>

Notes. All variables were measured at the individual level ($N = 211$; 0 = manager, 1 = worker; 0 = female, 1 = male), except for objective age diversity, which was measured at the team level ($N = 18$, operationalized as standard deviation of age within the group). Cronbach $\alpha$ values in brackets. **$p < .01$ (two-tailed).

To test our hypotheses, we used the PROCESS tool described and documented in Hayes (2013). We followed the procedure recommended by Hayes (2015) to calculate the moderated mediation index, which is based on an interval estimate of the parameter of a function linking the indirect effect to a moderator’s values.

Supporting H1, we found a direct negative effect when regressing learning outcomes on perceived age diversity ($c = -.31, CI = -.45$ to $-.17, p < .001$; see Table 3.2). Furthermore, in line with H2, when holding constant perceived age diversity, gender, age and job position, participants with relatively higher knowledge sharing reported higher learning outcomes relative to those with low knowledge sharing ($b_1 = .62, CI = .51$ to $-.73, p < .001$; see Table 3.2).
Table 3.2. *Unstandardized OLS regression coefficients (standard errors in parentheses) with confidence intervals (CI).*

<table>
<thead>
<tr>
<th>Knowledge sharing (M)</th>
<th>Coeff.</th>
<th>95% CI</th>
<th>Learning outcomes (Y)</th>
<th>Coeff.</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived age diversity (X)</td>
<td>-.65*** (.24)</td>
<td>-1.13, -.17</td>
<td>Knowledge Sharing (M)</td>
<td>.62*** (.06)</td>
<td>.51, .73</td>
</tr>
<tr>
<td>Psychological safety climate (W)</td>
<td>.55*** (.13)</td>
<td>.30, .80</td>
<td>X x W</td>
<td>.10* (.05)</td>
<td>.01, .20</td>
</tr>
<tr>
<td>Age (C₁)</td>
<td>.00 (.01)</td>
<td>-0.01, 0.01</td>
<td>-0.01* (.01)</td>
<td>-.03, -.00</td>
<td></td>
</tr>
<tr>
<td>Job position (C₂)</td>
<td>.06 (.14)</td>
<td>-.22, .33</td>
<td>.30 (.17)</td>
<td>-.03, .64</td>
<td></td>
</tr>
<tr>
<td>Gender (C₃)</td>
<td>-.09 (.12)</td>
<td>-.33, .15</td>
<td>-.22 (.15)</td>
<td>-.51, .08</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>2.63*** (.73)</td>
<td>1.18, 4.07</td>
<td>2.74*** (.61)</td>
<td>1.55, 3.94</td>
<td></td>
</tr>
</tbody>
</table>

R² = .62

F(5, 203) = 55.85***

R² = .49

F(5, 204) = 39.76***

*Notes.* Perceived age diversity and psychological safety climate were mean-centered prior to analysis. N = 207; 0 = manager, 1 = worker; 0 = female, 1 = male. ***p < .001; **p < .01; *p < .05.

To address our moderated mediation hypothesis, Hayes (2015) suggests a formal test that will quantify the relationship between the proposed moderator and the size of the indirect effect in order to determine whether the indirect effect depends on the moderator. For our data, this index of moderated mediation is positive and the confidence interval (CI) does not include zero (ω = .06; CI = .01 to .14). The conclusion is that the indirect effect of perceived age diversity on individual learning outcomes through knowledge sharing is positively moderated by psychological safety climate.
An analysis of the effects at different values of the moderator revealed a non-significant result under conditions of high psychological safety climate (CI = -.12 to .05; see Table 3.3). In contrast, when psychological safety climate was low, perceived age diversity was negatively linked to knowledge sharing (CI = -.27 to -.05, see Table 3.3). This suggests that when psychological safety climate was low, perceived age diversity inhibited trainees’ knowledge sharing behavior and their subsequent learning outcomes (moderated mediation effect). These findings support Hypothesis 3. Figure 3.2 illustrates our complete model.

Table 3.3. Conditional indirect effects of perceived age diversity on learning outcomes at values of the moderator psychological safety climate.

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Psychological Safety Climate</th>
<th>Effect</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Sharing</td>
<td>3.87</td>
<td>-.15</td>
<td>-.27, -.05</td>
</tr>
<tr>
<td>Knowledge Sharing</td>
<td>4.82</td>
<td>-.09</td>
<td>-.17, -.02</td>
</tr>
<tr>
<td>Knowledge Sharing</td>
<td>5.77</td>
<td>-.03</td>
<td>-.12, .05</td>
</tr>
</tbody>
</table>

Figure 3.2. Moderated mediation model (N = 207). Unstandardized regression weights. *** p < .001; ** p < .01; * p < .05.
DISCUSSION

The goal of this study was to assess the role of age diversity in formal learning settings by integrating recent theorizing on diversity perceptions, information elaboration and social identity theory to empirically investigate the contextual factors through which age diversity affects individual learning outcomes in trainings.

Three main findings ensued from this study. First, we found a negative link between age diversity as perceived by the trainees and individual learning outcomes. No such influence was found in respect of objective rather than perceived age diversity. Second, we found that knowledge sharing mediated the relationship between perceived age diversity of the training group and individual learning outcomes. Third, we identified psychological safety climate in the training group as an important boundary condition (moderated mediation model). Specifically, we found that the negative relationship between perceived age diversity and individual learning, mediated via knowledge sharing, was stronger in respect of those trainees who experienced lower rather than higher levels of psychological safety.

THEORETICAL IMPLICATIONS

Our findings have several implications for research on diversity and training in organizations. First, our study underscores the importance of considering the subjective component of diversity. Although objective and perceived diversity were moderately related in our study, only perceived diversity showed significant effects on individual learning outcomes. The results are in line with social identity theory (Tajfel & Turner, 2004), suggesting that diversity can be a potential threat and provoke social categorizations, but only when salient to the individual. Thus, to understand how diversity influences formal learning processes and outcomes more generally, it is important to consider how trainees perceive and interpret diversity. First attempts have been made to identify the factors determining the degree to which employees perceive themselves and others as similar or different (Homan et al., 2010;
Unzueta, Knowles & Ho, 2012). However, much more research is needed to shed light on the processes that influence diversity construal from various angles (van Knippenberg et al., 2004; van Knippenberg & Schippers, 2007). This includes understanding how individual differences, such as personality traits, or contextual conditions, such as the type of training, affect the likelihood of perceiving others as dissimilar.

Second, our findings highlight learning as a constructivist process that can be enhanced through knowledge sharing. The recall of previous expertise sets the stage for an active integration of the new training content into the trainees’ existing knowledge base. Even though a considerable amount of research has been devoted to uncovering the antecedents and consequences of knowledge sharing in work teams (Hinds & Weisband, 2003; Zakaria, Amelinckx, & Wilemon, 2004), knowledge sharing has rarely been considered in the training and development context. Our study suggests that knowledge sharing may also be important for improving more formal learning interventions’ outcomes. Thus, our consideration of knowledge sharing addresses calls to direct more attention to learning as an active process comprising both individual and social aspects (Salomon & Perkins, 1998). As such, our findings also contribute to the training design literature (e.g., Arthur Jr., Bennett Jr., Edens, & Bell, 2003; Grossman & Salas, 2011) by underscoring the relevance of the social aspects of training for individual learning outcomes.

Third, our results show that trainees are more inclined to share knowledge when they feel safe to express what they think. Our present findings highlight psychological safety as an important boundary condition for understanding the impact of perceived age diversity in training groups, which addresses a gap in the diversity literature (cf. Hentschel et al., 2013).

On a more general level, this research can be seen as a starting point for embracing the potentials of age diverse teams as a learning and knowledge management opportunity in the workplace. The idea of intergenerational learning relates to an individuals’ active construction of knowledge by exchanging information, skills and values, cooperating on a task, or jointly
learning about a new topic with one or more individuals from a different generational cohort (Gerpott, Lehmann-Willenbrock & Voelpel, 2017, Ropes, 2013). Given that knowledge sharing mediated by a psychological safety climate in groups perceived as age diverse was a key mechanism for learning in our study, further insights into the advantages and pitfalls of intergenerational learning in the workplace may be uncovered by taking these variables into account. In addition, this stream of research may profit from investigating whether it is the perceived or the objective generational affiliation that explains intergenerational learning’s outcomes in the workplace (Lester, Standifer, Schultz & Windsor, 2012).

**PRACTICAL IMPLICATIONS**

Our findings also have meaningful implications for strategically designing and delivering organizational training. Trainee demographics, such as age, cannot be changed, therefore they need to be effectively managed. Our results suggest that training providers should focus on creating a climate of trust, mutual appreciation, and safety in order to facilitate learning in age diverse training groups. For example, trainers could begin a training day by establishing the “ground rules” and creating a positive, trustful atmosphere before delving into the actual training content (e.g., Rodas-Meeker & Meeker, 2005). Once a trainer has created such a climate of psychological safety, diverse groups are likely to constructively use their broad knowledge base to improve individual learning (Bradley et al., 2012; Williams & O’Reilly, 1998).

To accentuate similarities rather than differences between trainees, trainers could use team-building exercises that help trainees get to know one another better and which facilitate the discovery of shared similarities. A number of “icebreaker” activities and exercises could be helpful in this context (e.g., Mackin, 2007). Furthermore, fostering positive attitudes about diversity can lessen diversity’s potential negative consequences (Homan et al., 2010). Furthermore, Kirchner, Völker, and Bock (2015) provide evidence that priming individuals with positive age stereotypes can improve the task performance of older workers. These findings
indicate that trainers can influence trainees’ learning outcomes by choosing positive role models of learners from every age group.

Implementing diversity-related human resource management instruments and increasing age diversity at different levels so that it becomes a natural scenario may produce a supportive climate on the organizational level (Singh, Winkel, & Selvarajan, 2013). Trainings that improve employees’ awareness and attitudes toward diversity more generally could flank the previous efforts, in particular for organizational teams with low beliefs in diversity’s positive effects (Homan, Buengeler, Eckhoff, van Ginkel, & Voelpel, 2015). Moreover, organizational leaders striving for high psychological safety climate levels in human resource development activities should carefully consider the teaching styles of their trainers. The ability to create a safe learning environment should be used as a selection criterion when recruiting training professionals. For instance, previous trainees can be asked to report on a trainer’s capability to support the open expression of unfiltered viewpoints and opinions between them. Alternatively, objective raters could participate in a training session to assess the trainer’s application of behavioral markers, which indicates attempts to have the trainees experience psychological safety (Bradley et al., 2012).

LIMITATIONS AND FUTURE DIRECTIONS

A number of limitations in this study may serve as future research’s points of departure. To begin with, we conducted our investigation at one company in the automobile industry. It would be interesting to see whether the relationships we report also hold for trainings with participants from different organizations and from different sectors. Furthermore, investigating trainings with different learning contents and degrees of complexity may shed light on the contextual conditions through which age diversity influences learning outcomes.

It is conceivable that other diversity aspects, such as gender, or cultural background, which were not salient in our sample, could be more important in different organizational settings. In our study, we focused on age diversity, because this variable reflects one of the
main challenges for organizations confronted with societal demographic changes (Streb, Voelpel, & Leibold, 2009). Nevertheless, we suggest that additional aspects of diversity should be investigated, since they may have different psychological significances (Shemla & Meyer, 2012). The processes required to create a high psychological safety climate level may differ across groups that are diverse in different ways. For instance, creating psychological safety in a gender-diverse group may require other inputs than fostering such a climate in an age-diverse group (van Knippenberg & Schippers, 2007).

Furthermore, age (like other demographic variables) is seen as an attribute of surface-level diversity. In contrast, deep-level diversity, which refers to less visible characteristics, such as individuals’ personality, attitudes, or education and functional background, has been argued to be more likely related to work-related knowledge (Harrison et al., 1998). Thus, deep-level diversity attributes may have a different effect on training group processes and learning outcomes. Future work should consider both the objective and the perceived deep-level diversity characteristics to contribute to our understanding of learning in heterogeneous training groups. Moreover, it would be interesting to further investigate individual differences as antecedents of trainees’ tendency to engage in surface- and deep-level diversity construal (Homan et al., 2010).

We also suggest examining whether psychological safety provokes backlashes under certain circumstances. For instance, very high psychological safety climate levels may prompt group thinking, overconfidence, or a drive toward consensus in trainings that stimulate participants to develop a common solution within a limited time (Gardner, 2012). Furthermore, it would be interesting to investigate a potential bidirectional relationship between psychological safety climate and perceived similarity (Hentschel et al, 2013; Lazarus, 1991), such that individuals might feel more similar to each other when their psychological safety is high.

Finally, our data were collected cross-sectional via self-reports. Since perceptions of diversity (Harrison et al., 2002; Zellmer-Bruhn et al., 2008) and psychological safety climate (Bradley et al., 2012) may change over time, future research should pay attention to the temporal dynamics of perceived diversity by using longitudinal research designs. In addition,
researchers could collect data from sources other than the trainees, and include objective learning outcome criteria.

CONCLUSION

In the context of substantial societal demographic shifts, managers and human resource professionals need to understand an increasingly diverse workforce’s potential effects on training. However, in the context of professional training, age diversity has received little scientific attention to date. This study provides first insights into the mechanisms and effects of perceived age diversity on learning outcomes in a training setting. We show that knowledge sharing is inhibited if trainees perceive their training group as highly age-diverse. In turn, a lower level of knowledge sharing explains the overall poorer learning outcomes of trainees who perceive the group composition as relatively age-diverse. However, psychological safety climate can serve as a buffer by eliminating the negative effects of perceived age diversity on learning through knowledge sharing, which offers promising avenues for managing age diversity in training practice. We hope that our study will encourage future work on the potentials and pitfalls of diversity in the context of human resource development.
CHAPTER 4

AN IDENTITY PERSPECTIVE ON ETHICAL LEADERSHIP TO EXPLAIN ORGANIZATIONAL CITIZENSHIP BEHAVIOR: THE INTERPLAY OF FOLLOWER MORAL IDENTITY AND LEADER GROUP PROTOTYPICALITY

ABSTRACT

Despite the proliferation of research on ethical leadership, there remains a limited understanding of how specifically the assumingly moral component of this leadership style affects employee behavior. Taking an identity perspective, we integrate the ethical leadership literature with research on the dynamics of the moral self-concept to posit that ethical leadership will foster a sense of moral identity among employees, which then inspires followers to adopt more ethical actions, such as increased organization citizenship behavior (OCB). We further argue that these identity effects should be more pronounced when leaders are perceived to be group prototypical, as their actions then speak louder to followers’ sense of identity. Two studies—a scenario experiment with 138 participants and a field study with 225 employees—provided support for our hypothesized moderated mediation model. Perceived ethical leadership positively affected OCB via followers’ moral identity but only under conditions of high perceived leader group prototypicality. We discuss how the identity pathway of ethical leadership can facilitate novel theorizing about moral transference. Our findings also suggest that, when hiring external ethical leaders or training internal managers, practitioners are well advised to consider that these individuals may only be effective in morally transforming followers when they are perceived as prototypical for the group.

Keywords: Ethical leadership; Moral identity; Group prototypicality; Organizational citizenship behavior (OCB); Ethics
INTRODUCTION

Amidst the growing number of ethical scandals arising from organizations, scholars and practitioners alike have become increasingly aware that ethical leadership matters (e.g., Avey, Wernsing, & Palanski, 2012; Chen & Hou, 2016; Drover, Franczak, & Beltramini, 2012; Reiley & Jacobs, 2016). Despite this consensus, researchers only recently began to ponder whether there are unique moral components of ethical leadership that can explain the ensuing processes through which followers “change for the better” (Reynolds, 2008; Sharif & Scandura, 2014; van Gils, Van Quaquebeke, van Knippenberg, van Dijke, & De Cremer, 2015). This approach stands in contrast with previous undertakings that often treated ethical leadership as simply being another good type of leadership (cf. Hansen, Alge, Brown, Jackson, & Dunford, 2013; Walumbwa et al., 2011).

In line with more general theorizing on leadership and identity (Epitropaki, Kark, Mainemelis, & Lord, 2017), recent work suggests that ethical leaders particularly speak to followers’ moral self-concept, i.e. their moral identity (Stets & Carter, 2012), through their moral behavior (Zhu, 2008; Zhu, Treviño, & Zheng, 2016). The underlying reasoning is that the formation and salience of identity facets can change through work context factors such as leadership (Welbourne & Paterson, 2017, Zhu et al., 2016), which in turn strongly informs behavior (van Knippenberg, van Knippenberg, De Cremer, & Hogg, 2004; van Knippenberg, van Knippenberg, De Cremer, & Hogg, 2005). As such, moral identity is no exception, in that it too is partly considered to be a fluid characteristic rather than a (relatively) fixed and unchanging feature (Jennings, Mitchell, & Hannah, 2015; Krettenauer & Hertz, 2015).

With the present study, we extend the nascent identity lens on ethical leadership. Firstly, we seek to demonstrate the complete chain of effects, i.e. that changes in follower moral identity due to perceived ethical leadership in fact do translate to follower moral work outcomes such as employees’ organizational citizenship behavior (OCB). Secondly, we aim to validate the causal mechanism implied in previous work (Zhu et al., 2016) through experimental designs with clear
differentiation in cause and effect. And thirdly, we want to substantiate the identity rationale by examining its boundaries in greater detail (Spencer, Zanna, & Fong, 2005). To this end, we turn to the social identity model of organizational leadership (SIMOL, Hogg, 2001; van Knippenberg, 2011; van Knippenberg & Hogg, 2003), which emphasizes that leaders are more effective at influencing subordinates when followers perceive them as group prototypical, i.e. as representing the group. It is then, the theory argues, that leaders speak more authoritatively to followers’ identity.

In summary, we seek to link ethical leadership and identity theorizing more tightly. As such, we argue that, depending on the extent to which followers perceive ethical leaders to represent the group, the leader speaks more or less strongly to followers’ moral identity, which ultimately translates to ethical follower actions at work (i.e., OCB). Our conceptual model is summarized in Figure 4.1. We test our model in a scenario experiment with 138 participants and a field study with 225 employees. This multiple-study design allows us first to establish causality using a “clean” empirical design and second to replicate our findings in the field, which has the added benefit of providing external validity.

Figure 4.1. Conceptual model of the relationships between perceptions of ethical leadership, leader group prototypicality, follower moral identity, and organizational citizenship behavior.
ETHICAL LEADERSHIP AND FOLLOWERS’ ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Ethical leadership is commonly understood as “the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making” (Brown, Treviño, & Harrison, 2005: 120). According to Treviño and colleagues (Treviño, Brown, & Hartman, 2003; Treviño, Hartman, & Brown, 2000), followers perceive ethical leaders on two dimensions: (1) whether the leader manages the ethical behavior of the team through communication, reinforcement, and visible actions (moral manager dimension) and (2) whether the leader is an ethical person, as indicated by his/her traits, behavior, and decision making as an individual (moral person dimension). The two facets of ethical leadership, however, show a high overlap such that managers tend to be perceived as either acting and being ethical or neither of the two (Treviño et al., 2000). In other words, followers who ascribe ethical leadership to their supervisor assume that morality is an important part of the leader’s self-concept and a guiding principle behind the leader’s actions (Giessner, Van Quaquebeke, van Gils, van Knippenberg, & Kollée, 2015).

A growing body of literature suggests that ethical leadership not only helps deter employees from negative moral behavior, such as discretionary workplace behavior, workplace incivility, or organizational deviance (e.g., Miao, Newman, Yu, & Xu, 2013; Resick, Hargis, Shao, & Dust, 2013; Taylor & Pattie, 2014; van Gils et al., 2015) but can also inspire positive employees’ behavior, such as OCB (Avey, Palanski, & Walumbwa, 2011; Kacmar, Bachrach, Harris, & Zivnuska, 2011; Mo & Shi, 2017; Newman, Kiazad, Miao, & Cooper, 2014). OCB refers to altruistic, voluntary activities that organizational members undertake outside of their job requirements and possibly without compensation (Organ, 1988; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). These activities can be directed at other organizational members (OCB
individual) or the organization itself (OCB organizational; Williams & Anderson, 1991). Employees who show high levels of individual-directed OCB will, for example, assist their supervisor or colleagues when they need help, make time to listen to them, and take a personal interest in their well-being. Meanwhile, employees who score high on organization-directed OCB have high attendance rates, protect organizational property, adhere to informal rules, and avoid taking undeserved work breaks. Since both types of OCB can be considered morally appropriate workplace behavior, it is not surprising to note that ethical leadership has been identified as one of the main antecedents of such follower behavior (Avey et al., 2011; Kacmar et al., 2011).

Importantly, ethical leadership can be distinguished from other follower-oriented leadership styles (e.g., transformational leadership, authentic leadership, or participative leadership) through its foundational emphasis on moral motivations (van Gils et al., 2015). This core idea of moral motives being the central driving force behind ethical leader behavior is supported by research showing that ethical leaders are indeed characterized by a higher moral identity (Giessner et al., 2015; Mayer, Aquino, Greenbaum, & Kuenzi, 2012; Skubinn & Herzog, 2016; Zhu et al., 2016). Yet, surprisingly, so far there remains limited knowledge about the unique moral processes through which ethical leaders influence followers’ OCB (Den Hartog, 2015; Ng & Feldman, 2015; van Gils et al., 2015). In other words, the conceptualization of ethical leadership’s underlying processes in previous studies largely neglected that moral leaders may change specific morality-related follower characteristics, which in turn affects follower behavior. To illustrate, a tremendous amount of research has argued that ethical leadership evokes moral follower behavior through general social exchange mechanisms such as the quality of the leader–member exchange relationship (e.g., Hansen, Alge, Brown, Jackson, & Dunford, 2013; Walumbwa et al., 2011). Only recently have initial attempts been made to consider specific moral psychological mechanisms such as moral attentiveness (van Gils et al., 2015) or moral efficacy (Lee, Choi, Youn, & Chun, 2017) to explain work-related follower pro-social behavior. While other endeavors have started to illuminate followers’ moral identity as a
consequence of perceived ethical leadership, these studies have not been expanded to encompass actual work outcomes (Zhu et al., 2016). We not only provide this extension but also seek to build on the understanding of the moral essence of ethical leadership by drawing on an identity framework to outline how (through moral identity) and when (under conditions of high leader group prototypicality) leaders affect follower pro-social behavior at work.

**FOLLOWER MORAL IDENTITY AS A MEDIATOR BETWEEN PERCEIVED ETHICAL LEADERSHIP AND OCB**

Recognizing that employees’ answers to the “who am I” questions (Thoits, 1992) is pivotal for understanding prosocial behavior at work, scholars have become increasingly interested in the dynamic nature of employees’ identity and the complex processes through which self-definitions change in leader–follower relationships (Epitropaki et al., 2017; Welbourne & Patterson, 2017). Building on the idea that different identity aspects are activated by context (Lord, Brown, & Freiberg, 1999), a follower’s working self-concept refers to the current salient portion of self-concepts that guide actions (Epitropaki et al., 2017). Thus, it is argued, subordinates’ moral identity can be a more or less activated sub-component of the working self that includes the moral values employees consider to be important and desirable (Aquino & Reed, 2002; Stets & Carter, 2012). In other words, the self-attributed importance of moral values may vary between contexts that provide different levels of salience to it. Furthermore, identity theory (Burke & Stets, 2009; Stryker & Burke, 2000) suggests that the general content of an individual’s self-concepts can change over time. Hence, an individual’s moral identity, while somewhat stable, may develop across adolescence (Jennings et al., 2015; Krettenauer & Hertz, 2015) and change as a result of environmental stimuli such as being exposed to an ethical leader (Lord & Brown, 2004; Shao, Aquino, & Freeman, 2008; Zhu, 2008; Zhu et al., 2016).

To understand the activated identity components in an individual’s working self-concept, processes of identity salience and priming are central (Lord et al., 1999). On the one hand,
ethical leaders may increase followers’ immediate self-importance of moral values through highly visible signals. This can be the case, for instance, when the leader makes a visible ethical decision in a difficult situation where business and moral goals contradict each other. Yet, such rather obvious moral cues might be rare in daily work life. Therefore, on the other hand, ethical leaders may also influence follower moral identity by continually providing (low-key) ethical cues in daily settings (Piccolo, Greenbaum, Den Hartog, & Folger, 2010). Ethical leaders may talk about moral values, discuss ethical standards, and provide ethical mentoring, thus making it likely that followers internalize these ethical messages. Furthermore, ethical leaders position ethical consideration firmly as a readily available norm at the workplace. Such (informal) characteristic of the work environment have been shown to possess strong identity consequences for individuals as they shape their expectations and beliefs about what is right or wrong (Grotevant, 1987; Shao et al., 2008). While these low-key moral messages of ethical leaders can take some time to elevate the moral aspects of follower moral identity, initial evidence from the field indeed indicates that ethical leadership and follower moral identity might be connected (Zhu et al., 2016). To summarize, followers’ concept of who they are, so we argue, may become more morally grounded through the (low- or high-key) moral signals of their ethical leader.

A highly salient moral identity has motivational power for individuals’ actions because individuals aim to act in line with their self-concept (Blasi, 1984; Van Quaquebeke, Becker, Goretzki, & Barrot, 2017). Herein lies the reason to ultimately expect positive effects of perceived ethical leadership on followers’ work behavior: It increases their moral identity (salience). Moral identity has been linked to an expanded circle of moral regard (Reed & Aquino, 2003), which means that individuals with a high moral identity tend to help other people (humanity orientation). This directly relates to aspects of OCB individual, such as supporting colleagues inside or outside one’s work group without being asked. Furthermore, individuals led by ethical leaders who emphasize the importance of behavior benefiting the organization (OCB organizational) might act in line with this activated moral concern such that they are more likely to show voluntary pro-
organizational behavior (Mo & Shi, 2017; Shin 2012). Summarizing the arguments above, we conceptualize followers’ moral identity as a mediator—the process by which ethical leadership influences OCB. In other words, we propose that employees’ perceptions of ethical leadership affect their moral identity (i.e., the “being” side), which, in turn, guides their ethical behavior (the “doing” side of moral identity)—in our case, OCB. Thus, we propose:

Hypothesis 1: Follower moral identity mediates the positive relationship between perceived ethical leadership and (individual and organizational) follower OCB.

THE MODERATING ROLE OF LEADER GROUP PROTOTYPICALITY

The first part of our argument is that ethical leadership produces positive follower behavior (such as OCB) through influencing followers’ moral identity. However, bolstering the process rationale may not only be done via directly investigations of the mediator, but also by exploring meaningful moderators, i.e. conditions that act as “switches” to attenuate the main relationship (Spencer et al., 2005). Given our identity theorizing, we turn to perceived leader group prototypicality as an identity-relevant feature in leader–follower relationships.

Leader group prototypicality describes the extent to which individuals perceive a leader to represent the group and embody the group identity (Hogg, 2001; van Knippenberg, 2011; van Knippenberg & Hogg, 2003). Specifically, the social identity model of leadership effectiveness (Hogg, 2001; van Knippenberg, 2011) argues that group membership carries identity implications for individuals, helping them to define who they are and develop a shared mindset about beliefs and values with other group members. Furthermore, groups have a normative influence on employees, affecting what group members perceive as appropriate and desirable (Abrams & Hogg, 1990; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Research by Mussweiler and Bodenhausen (2002) provides an additional angle by showing that individuals tend to align their self-concepts with those of in-group members but contrast the same evaluations with those of out-group members. Therefore, it follows that leaders are more effective at speaking to followers’ identity, and in extension their behavior, when they are
perceived as group prototypical—that is, they represent what is group-normative (Hogg, 2001; van Knippenberg, 2011; van Knippenberg & Hogg, 2003).

In line with these theoretical propositions, recent studies have shown that group prototypical leaders are indeed more effective at guiding and motivating followers than non-group prototypical leaders (Pierro, Ciceroa, Beonaiutoa, van Knippenberg, & Kruglanskic, 2005; van Knippenberg, 2011). Importantly, their in-group status also allows them more leeway in gaining support from their followers (Giessner, van Knippenberg, & Sleebos, 2009; Graf, Schuh, Van Quaquebeke, & van Dick, 2012). As such, (new) ethical norms propagated by them are also not easily dismissed but likely taken more serious than when presented by an out-group or anti-group prototypical leader. We therefore argue that ethical leaders, who are perceived as group prototypical, exhibit a stronger influence over followers’ moral identity and subsequent behavior than leaders whose group prototypicality is perceived to be low. Stated formally, we propose that the indirect effect of perceived ethical leadership on OCB through follower moral identity, as stated in Hypothesis 1, is qualified by the perceived leader’s group prototypicality:

**Hypothesis 2:** Perceived leader group prototypicality moderates the positive effect of perceived ethical leadership on OCB through follower moral identity such that the relationship is stronger for leaders perceived to be high in group prototypicality (compared to leaders perceived to be low in group prototypicality).

**STUDY 1**

**METHODS**

*Pilot Study.* To establish the experimental paradigm, we recruited 106 participants from the United States (mean age = 36.33 years, $SD = 9.88$; 34.9 female) using TurkPrime (Litman, Robinson, & Abberbock, 2017) for a financial compensation of USD 0.80. Such channels allow researchers to recruit diverse samples and has been shown to deliver very acceptable data quality for academic research (Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013). We randomly assigned the participants to one of four scenarios (2x2 between-subject factorial...
design) featuring a pre-prepared vignette. Such vignettes have proved to be as effective as lab experiments at evoking responses (Robinson & Clore, 2001). In each vignette, participants were asked to imagine a (gender-neutral) supervisor (Alex) as the leader of their work team. The leader descriptions contained our manipulations. The first factor varied the degree of ethical leadership (low versus high), while the second factor varied leader group prototypicality (low versus high). The leader descriptions were based on the scale items for ethical leadership (Brown et al., 2005; as employed by van Gils et al., 2015) and leader group prototypicality (Giessner, van Knippenberg, van Ginkel, & Sleebos, 2013; see Appendix for the scenario texts).

Participants read the vignette and were asked to imagine working for the described leader as vividly as possible. We then asked them to describe what it would be like to work for this supervisor, followed by two manipulation check questions. Specifically, we asked participants to indicate on a seven-point Likert scale to what extent they think Alex is an ethical leader and to what extent they think Alex is typical for the team, i.e. embodies what the team stands for (1 = not at all, 7 = very much).

We conducted two one-way ANOVAs with the manipulation check items as the dependent variables. The first ANOVA analysis revealed that participants in the high ethical leadership condition rated the leader as more ethical than participants in the low ethical leadership condition, $F(1, 104) = 363.47, p < .001$. The effect for the leader group prototypicality condition on the ethical leadership manipulation was not significant, $F(1, 104) = 2.30, p = .13$.

The second one-way ANOVA with the manipulation check item for leader group prototypicality as a dependent variable indicated that participants in the high leader group prototypicality condition rated the leader as more group prototypical than those in the low leader group prototypicality condition, $F(1, 104) = 92.24, p < .01$. The effect for the ethical leadership condition on the leader group prototypicality manipulation was not significant, $F(1, 104) = 1.21, p = .27$. Hence, the devised manipulations seem to work as intended.
Sample and procedure. For the actual scenario experiment, we recruited a total of 170 individuals via the online platform Mechanical Turk (MTurk). Participants received USD 1.00 for completing the questionnaire. Informed consent was obtained from all individual participants included in the study. We subsequently randomly assigned the participants to one of the four scenarios described in the pilot study (2x2 between-subject factorial design). Participants read the vignette and were asked to imagine working for the described leader as vividly as possible. To foster participants’ cognitive elaboration, participants had to write a short story about what they thought working with that supervisor would be like (cf., Bhal & Dahich, 2011; van Gils et al., 2015). Following this task, participants completed our questionnaire containing the measures of moral identity, OCB as well as demographic information. Specifically, we put the scales in the hypothetical context of the leader described in the vignette by asking, “When working with Alex as my supervisor, I would be … [e.g., untruthful…truthful].”

To identify and remove participants who did not follow the instructions and selected random answers, we used instruction manipulation checks (IMCs) in the form of three checker items (e.g., “Please mark the item at ‘somewhat agree’”). These IMCs have proved to be effective at identifying and eliminating participants who do not provide legitimate responses (Oppenheimer, Meyvis, & Davidenko, 2009). For this study, we excluded 10 participants who did not answer these IMCs correctly. We also removed the data of 22 individuals who participated more than once (as indicated by their IP address). Our analysis is therefore based on the completed questionnaires of 138 participants (42.8% female; average age 36.52 years, SD = 10.75). Participants were living in the United States and working in various industries, with the most highly represented sectors being information technology (16.7% of participants), healthcare (13.8%), and the public sector (13%).

Measures. Moral identity was measured with 12 items from Stets and Carter (2012; an elaboration on the original scale of Aquino & Reed, 2002; Stets & Carter, 2006; Walker & Hennig, 2004). Cronbach’s alpha for the scale was α = .90. Respondents received a list of bipolar characteristics that capture two sub-facets, moral justice (e.g., honest/dishonest,
untruthful/truthful, principled/unprincipled) and moral care (e.g., caring/uncaring, compassionate/hardhearted, selfish/selfless). These facets generally correlate highly and are thus considered together to provide a complete picture of moral identity (Stets & Carter, 2012). Participants had to think about what kind of person they think they are for each pair of characteristics and place themselves on a five-point continuum between the two contradictory characteristics (1 = agreement with one characteristic, 3 = between the two characteristics; 5 = agreement with the other characteristic). The semantic differential technique constitutes a typical approach to capture the meaning of many identities that can all separately contribute to an individual’s working self-concept (Burke & Stets, 2009; Osgood, Suci, & Tannenbaum, 1957). This measurement approach considers the subjective meanings people ascribe to their current self-concept and has been successfully used before to measure a range of different identity aspects (e.g., Carter, 2013, see also Stets & Serpe, 2013).

We assessed OCB with 14 items developed by Williams and Anderson (1991). Participants were asked to think of the vignette again and describe how they would behave if they worked for a supervisor like Alex. The scale consists of two sub-dimensions (OCB individual and organizational), each featuring seven items measured with seven-point Likert scales (1 = strongly disagree, 7 = strongly agree). Firstly, individual-oriented OCB refers to behaviors relating to coworkers; a sample item is “When working for a supervisor like Alex, I would help others who have heavy workloads.” Secondly, organization-directed OCB characterizes general actions at work that support or harm organizational goal attainment; a sample item is “When working for a supervisor like Alex, I would conserve and protect organizational property.” Cronbach’s alphas for the two sub-scales were $\alpha = .90$ and $\alpha = .85$. The complete item list can be found in the Appendix.

RESULTS

Table 4.1 shows the study variables’ means and standard deviations. Prior to testing the hypotheses, we conducted a confirmatory factor analysis (CFA, robust MLM estimator) with
Mplus (Muthén & Muthén, 2012) to estimate the distinctiveness of the assessed variables (follower moral identity, OCB individual, and OCB organizational). The correlated three-factor solution (with moral identity as a second-order factor of the two sub-facets, moral care and moral justice) fit the data well (Vandenberg & Lance, 2000), $RMSEA = 0.07$, $CFI = 0.90$, $SRMR = 0.07$. These fit indices clearly outperformed a one-factor model ($RMSEA = 0.13$, $CFI = 0.67$, $SRMR = 0.10$). To continue with our hypothesis testing, we used the regression-based PROCESS macro for SPSS (Hayes, 2013, 2015).

Table 4.1. Study 1: Descriptive statistics and correlations of study variables (Cronbach’s alpha in brackets).

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ethical leadership</td>
<td>1.49</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Leader group prototypicality</td>
<td>1.53</td>
<td>0.50</td>
<td>-.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Follower moral identity</td>
<td>4.09</td>
<td>0.38</td>
<td>.23**</td>
<td>.03</td>
<td></td>
<td>(.94)</td>
<td></td>
</tr>
<tr>
<td>4. OCB individual</td>
<td>5.27</td>
<td>1.10</td>
<td>.12</td>
<td>-.04</td>
<td>.61**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. OCB organizational</td>
<td>5.75</td>
<td>1.00</td>
<td>.12</td>
<td>-.03</td>
<td>.61**</td>
<td>.61**</td>
<td>(.85)</td>
</tr>
</tbody>
</table>

Notes. 1) Conditions: 1 = low; 2 = high; $N = 138$. *$p < .05$; **$p < .01$ (two-tailed).

**Ethical leadership, OCB, and follower moral identity.** In line with Hypothesis 1, the indirect effect of ethical leadership through follower moral identity on OCB was significant for OCB individual ($b = .31$; CI = .09 to .55) and for OCB organizational ($b = .28$; CI = .07 to .50). There was no remaining significant direct effect on OCB individual ($b = -.05$; CI = -.35 to .25) and OCB organizational ($b = -.04$; CI = -.32 to .24).

**Moderated mediation.** As depicted in Table 4.2, the interaction effect between the ethical leadership condition and the leader group prototypicality condition on follower moral identity was significant ($b = .68$, CI = .14 to 1.22). Figure 4.2 depicts the interaction effect between ethical leadership and leader group prototypicality on follower moral identity.
<table>
<thead>
<tr>
<th></th>
<th>Moral identity</th>
<th>OCB individual ($Y_1$)</th>
<th>OCB organizational ($Y_2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>95% CI</td>
<td>$b$</td>
</tr>
<tr>
<td>Ethical leadership$^1$ ($X$)</td>
<td>0.39*** (0.14)</td>
<td>0.12, 0.66</td>
<td>-0.05 (0.15)</td>
</tr>
<tr>
<td>Leader group prot.$^1$ ($W$)</td>
<td>0.09 (0.14)</td>
<td>-0.18, 0.36</td>
<td></td>
</tr>
<tr>
<td>$X \times W$</td>
<td>0.68* (0.27)</td>
<td>0.14, 1.22</td>
<td></td>
</tr>
<tr>
<td>Follower moral identity ($M$)</td>
<td></td>
<td>0.81*** (0.09)</td>
<td>0.63, 1.00</td>
</tr>
</tbody>
</table>

$R^2 = .10$ \hspace{1cm} $R^2 = .37$ \hspace{1cm} $R^2 = .36$

$F(3, 134) = 4.88^{***}$ \hspace{1cm} $F(2, 135) = 39.70^{***}$ \hspace{1cm} $F(2, 135) = 38.38^{***}$

**Notes.** 1) Conditions: 1 = low; 2 = high; $N = 138$. *$p < .05$; **$p < .01$; ***$p < .001$
To test Hypothesis 2, we calculated a moderated mediation model following the procedure recently developed by Hayes (2015). This formal test of linear moderated mediation in path analysis is based on an interval estimate of an index of moderated mediation, which is a function linking the indirect effect of an independent variable to a moderator (for the theoretical rationale, cf. Hayes, 2015). Only a single inferential test is necessary to determine whether a test of moderated mediation is supported, which occurs if the bootstrapping interval of the moderated mediation index does not include zero. In line with Hypothesis 2, the moderated mediation index was positive for both OCB individual ($\omega = .55; \text{CI} = .18 \text{ to } 1.04$) and OCB organizational ($\omega = .50; \text{CI} = .13 \text{ to } .95$). Since the bootstrapping interval did not include zero, the moderated mediation index can be interpreted as significant. The moderated mediation effect remained significant even when including control variables such as age and gender ($\omega = .54; \text{CI} = .18 \text{ to } .97$ for OCB individual and $\omega = .48; \text{CI} = .14 \text{ to } .91$ for OCB organizational), which points to a certain robustness of the effect.

As expected, the conditional indirect effect of perceived ethical leadership on OCB individual through follower moral identity at different values of the moderator (1 = low leader
group prototypicality condition; 2 = high leader group prototypicality condition) was significant in the high prototypicality condition \((b = .58; \text{CI} = .28 \text{ to } .93)\) but not in the low condition \((b = .03; \text{CI} = -.29 \text{ to } .29; \text{Table 4.3})\). For OCB organizational, the conditional indirect effect was also significant in the high group prototypicality condition \((b = .52; \text{CI} = .24 \text{ to } .88)\) but not in the low condition \((b = .02; \text{CI} = -.25 \text{ to } .26; \text{Table 4.3})\).

Table 4.3. Study 1: Conditional indirect effects of ethical leadership on OCB through follower moral identity in both moderator (leader group prototypicality) conditions \((1 = \text{low}, \ 2 = \text{high})\)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Leader group prototypicality</th>
<th>Effect</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCB individual</td>
<td>1.00</td>
<td>0.03</td>
<td>-0.29, 0.29</td>
</tr>
<tr>
<td></td>
<td>2.00</td>
<td>0.58</td>
<td>0.28, 0.93</td>
</tr>
<tr>
<td>OCB organizational</td>
<td>1.00</td>
<td>0.02</td>
<td>-0.25, 0.26</td>
</tr>
<tr>
<td></td>
<td>2.00</td>
<td>0.52</td>
<td>0.24, 0.88</td>
</tr>
</tbody>
</table>

**STUDY 2**

While Study 1 was able to establish causality using a “clean” empirical design, it may have been limited by some degree of demand characteristic. Although demand characteristics cannot really account for the uncovered interactions, we nevertheless sought to replicate our findings in the field, which has the added benefit of providing external validity.

Moreover, the dichotomous nature of the experimental manipulation in Study 1 only allows to observe that the mediation is present at high leader group prototypicality but not at low leader group prototypicality. As such, we do not know where the tipping point of significance may lie. Because of the continuous nature of the variables in the field, we also used this second study to more exactly identify the region of perceived leader group prototypicality at which perceived ethical leadership may cease to exhibit an effect on follower moral identity and in its extension on follower OCB.
METHODS

Sample and procedure. To recruit a diverse sample for our field study and to increase the confidence in our findings, we decided to use a different online data collection platform than in Study 1. Particularly, building on the idea that the moral identity mechanism is a general process through which leaders influence their followers, we sought to recruit a sample of employees working in different industries, organizations, and occupations in industrialized Western countries. Against this background, we decided to use CrowdFlower to collect 342 questionnaires and paid USD 0.70 to participants for completing the survey. CrowdFlower partners with a multitude of labor pools to increase the diversity of their workforce and at the same time ensures data quality through the strict control and training of their workers (Peer, Brandimarte, Samat, & Acquisti, 2017). We excluded 52 people who did not pass our IMCs and 64 people who participated more than once (as indicated by their IP address). Our final sample consisted of 225 participants (54.2% female; average age 38.54 years, SD = 10.97). Informed consent was obtained from all individual participants included in the study. 45.3% of our sample lived in Europe, 35.6% in the United States, 16.4% in Canada, and 2.7% resided in other countries. 14% of the sample was employed in the secondary sector (i.e., goods-producing industries) and 84.4% of the participants worked in the tertiary sector (i.e., service-providing industries) with the most highly represented industries being information technology (15.6%), the public sector (13.8%), and health care (12%). On average, respondents had worked with their current supervisor for 4.45 years (SD = 4.68).

Measures. We assessed perceived ethical leadership with the 10-item scale developed by Brown and colleagues (2005). Sample items include: “My supervisor disciplines employees who violate ethical standards” and “My supervisor defines success not just by results, but also by the way that they are obtained.” Answers were given on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach’s alpha for the scale was α = .95.
To operationalize leader group prototypicality, we used six items from Giessner and colleagues (2013). Participants indicated their agreement on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Sample items include: “My supervisor has much in common with the members of our team” and “My supervisor represents what is characteristic about our team” ($\alpha = .97$).

Moral identity was measured with 12 items from Stets and Carter (2012; see Study 1). Respondents had to place themselves along a continuum between two contradictory characteristics (1 = agreement with one characteristic, 3 = between the two characteristics; 5 = agreement with the opposing characteristic). Cronbach’s alpha for the scale was $\alpha = .88$.

We operationalized OCB with 14 items developed by Williams and Anderson (1991). As in Study 1, OCB individual and OCB organizational were assessed with seven items each. Cronbach’s alphas for the two sub-scales were $\alpha = .86$ and $\alpha = .76$.

**RESULTS**

We followed the same procedure as in Study 1 and used the PROCESS macro (including mean-centered predictor and moderator variable) to calculate our models. Table 4.4 shows the study variables’ means, correlations, and standard deviations.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ethical leadership</td>
<td>4.89</td>
<td>1.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Leader group prototypicality</td>
<td>4.74</td>
<td>1.48</td>
<td>.79**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Follower moral identity</td>
<td>4.16</td>
<td>0.59</td>
<td>.21**</td>
<td>.18**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. OCB individual</td>
<td>5.11</td>
<td>1.10</td>
<td>.20**</td>
<td>.18**</td>
<td>.41**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. OCB organizational</td>
<td>5.50</td>
<td>0.97</td>
<td>.16</td>
<td>.16</td>
<td>.59**</td>
<td>.46**</td>
<td></td>
</tr>
</tbody>
</table>

*Notes. N = 225. *p < .05; **p < .01 (two-tailed).*
**Confirmatory factor analysis.** Using the same procedure as in Study 1, we conducted a CFA to ensure that the surveyed measures (perceived ethical leadership, follower moral identity, leader group prototypicality, OCB individual, OCB organizational) were sufficiently distinct from each other to continue our hypothesis testing. The correlated five-factor solution (with moral identity as a second-order factor of the two sub-facets, moral care and moral justice) fit the data well \((RMSEA = 0.05, CFI = 0.95, SRMR = 0.06)\) and clearly outperformed the one-factor baseline model \((RMSEA = 0.14, CFI = 0.66, SRMR = 0.16)\). Additionally, we calculated the post-hoc Harman single-factor test (Podsakoff & Organ, 1986) to test if common method bias might potentially confound the interpretation of the results. This is the case if (1) one general factor accounts for the majority of the covariance among the variables or (2) a single factor emerges from a factor analysis. Our analysis clearly revealed that neither one general factor nor the first (largest) factor accounted for the majority of the variance (12%), thus indicating that this type of bias was not a concern.

Additionally, we calculated the post-hoc Harman single-factor test (Podsakoff & Organ, 1986) to determine whether common method bias might potentially confound the interpretation of the results. This is the case if (1) one general factor accounts for the majority of the covariance among the variables or (2) a single factor emerges from a factor analysis. Our analysis clearly revealed that neither one general factor nor the first (largest) factor accounted for the majority of the variance (12%), thus indicating that this type of bias was not a concern.

**Perceived ethical leadership, OCB, and follower moral identity.** Both OCB individual \((r = .20^{* *})\) and OCB organizational \((r = .16^{*})\) were positively correlated with perceived ethical leadership. Follower moral identity positively correlated with OCB individual \((r = .41^{* *})\) and OCB organizational \((r = .59^{* *})\). The indirect effect of perceived ethical leadership on OCB through follower moral identity was significant for both OCB individual \((b = .07; CI = .02 \text{ to } .13)\) and OCB organizational \((b = .09; CI = .03 \text{ to } .16)\), which supports Hypothesis 1. As already observed in Study 1, the remaining direct effect between perceived ethical leadership and OCB
individual \( (b = .10; CI = -.00 \text{ to } .21, p = .06) \) and OCB organizational \( (b = .06; CI = .03 \text{ to } .09, p = .46) \) was not significant (Table 4.5).

**Moderated mediation.** To test whether leader group prototypicality moderates the identified mediation effect (Hypothesis 2), we calculated a moderated mediation index. The moderated mediation index was positive, and the bootstrapping interval did not include zero for either OCB individual \( (\omega = .06; CI = .03 \text{ to } .09) \) or OCB organizational \( (\omega = .08; CI = .05 \text{ to } .11) \), which provides support for our hypothesis. Figure 4.3 depicts the interaction effect between perceptions of ethical leadership and leader group prototypicality on follower moral identity. As in Study 1, the moderated mediation effect was robust against the inclusion of control variables such as age and gender \( (\omega = .04; CI = .02 \text{ to } .08 \text{ for OCB individual and } \omega = .06; CI = .03 \text{ to } .09 \text{ for OCB organizational}).

![Figure 4.3](image-url)

*Figure 4.3. Study 2: Interaction effect between perceptions of ethical leadership and leader group prototypicality on follower moral identity.*
Table 4.5. Study 2: Unstandardized OLS regression coefficients (standard errors in brackets) with confidence intervals (CI).

<table>
<thead>
<tr>
<th></th>
<th>Moral identity</th>
<th>OCB individual ($Y_1$)</th>
<th>OCB organizational ($Y_2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>95% CI</td>
<td>$b$</td>
</tr>
<tr>
<td>Ethical leadership ($X$)</td>
<td>0.14** (0.05)</td>
<td>0.04, 0.24</td>
<td>0.10 (0.05)</td>
</tr>
<tr>
<td>Leader group prot. ($W$)</td>
<td>0.04 (0.04)</td>
<td>-0.04, 0.12</td>
<td></td>
</tr>
<tr>
<td>$X \times W$</td>
<td>0.08*** (0.02)</td>
<td>0.05, 0.11</td>
<td></td>
</tr>
<tr>
<td>Follower moral identity ($M$)</td>
<td></td>
<td></td>
<td>0.72*** (0.12)</td>
</tr>
</tbody>
</table>

$(M)R^2 = .14$  
$R^2 = .18$  
$R^2 = .34$

$F(3, 221) = 11.70^{***}$  
$F(2, 222) = 24.85^{***}$  
$F(2, 222) = 58.10^{***}$

*Notes. N = 225; * $p < .05$; ** $p < .01$; *** $p < .001$. 
Next, we calculated the conditional indirect effect of perceived ethical leadership on OCB individual through follower moral identity at three levels of leader group prototypicality, namely the mean value, a high value (+1 SD), and a low value (-1 SD). The conditional indirect effect of perceived ethical leadership on OCB individual was significant at the high ($b = .19; CI = .08$ to $.32$) and the mean value ($b = .10; CI = .03$ to $.19$) of leader group prototypicality but not at the low value ($b = .02; CI = -.06$ to $.09$; Table 4.6). The value of perceived group prototypicality at which the indirect effect for OCB individual became significant was 4.30, which is slightly below the mean of 4.74 ($SD = 1.48$). Similarly, the conditional indirect effect of perceived ethical leadership on OCB organizational was significant at the high ($b = .25; CI = .12$ to $.39$) and the mean value ($b = .13; CI = .04$ to $.25$) of leader group prototypicality but not at the low value ($b = .02; CI = -.08$ to $.11$; Table 4.6). The value of perceived group prototypicality at which the indirect effect for OCB organizational became significant was 4.21.

Table 4.6. Study 2: Conditional indirect effects of perceived ethical leadership on OCB through follower moral identity at different values (mean, mean +/- one SD) of the moderator ‘perceived leader group prototypicality’.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Leader group prototypicality</th>
<th>Effect</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.26</td>
<td>0.02</td>
<td>-0.06, 0.09</td>
</tr>
<tr>
<td>OCB individual</td>
<td>4.74</td>
<td>0.10</td>
<td>0.03, 0.19</td>
</tr>
<tr>
<td></td>
<td>6.22</td>
<td>0.19</td>
<td>0.08, 0.32</td>
</tr>
<tr>
<td></td>
<td>3.26</td>
<td>0.02</td>
<td>-0.08, 0.11</td>
</tr>
<tr>
<td>OCB organizational</td>
<td>4.74</td>
<td>0.13</td>
<td>0.04, 0.25</td>
</tr>
<tr>
<td></td>
<td>6.22</td>
<td>0.25</td>
<td>0.12, 0.39</td>
</tr>
</tbody>
</table>
**DISCUSSION**

The purpose of this research was to advance the literature on ethical leadership by investigating the moral process through which followers’ perceptions of ethical leadership influence broader outcomes. As such, we are among the first to use an identity perspective (Zhu et al., 2016) to explore the psychological processes via which ethical leadership influences OCB (Brown & Treviño, 2006; Ng & Feldman, 2015). To substantiate our identity reasoning, we performed two tests of the mechanism (Jacoby & Sassenberg, 2011; Spencer et al., 2005), namely, follower moral identity as a mediator and perceived leader group prototypicality as a moderator. As hypothesized, follower moral identity mediated the relationship between perceived ethical leadership and both types of OCB (individual-directed and organization-directed). Meanwhile, perceived leader group prototypicality moderated the indirect effect of ethical leadership on OCB through follower moral identity, such that perceived ethical leadership more positively influenced followers’ moral self-concept and subsequent OCB if leaders were perceived as highly group prototypical. Together, these findings soundly underpin the relevance of (moral) identity in explaining the effect of ethical leadership on follower behavior at work.

The major methodological strengths of this research include the application of different methodologies (a scenario experiment and a field study) and the use of mediation and moderation to meaningfully substantiate the identity process. The use of different methodologies increases our confidence in the findings, as the strengths of one study can compensate for the weaknesses of the other. For instance, the experimental design allowed us to systematically manipulate the constructs of interest, while the field study showed that our conceptual model holds true in a day-to-day work context where subordinates have been working with their supervisor for an extended period of time. Lastly, the complete model also replicated in two different samples. Together, this corroborates trust in the findings.
**THEORETICAL IMPLICATIONS AND FUTURE RESEARCH**

This research has several implications for future theorizing and empirical work in the ethical leadership field. Firstly, our results indicate that followers’ moral identity can be altered by strong ethical leaders. As such, our finding contributes to the debate about flexibility versus stability of moral identity across people’s lifespans (Krettenauer & Hertz, 2015; Leavitt, Zhu, & Aquino, 2015). Although it was beyond the scope of the study, it would be interesting to determine whether an ethical leader’s influence over a follower’s moral identity persists over time—for instance, when an employee moves to a new work group or is promoted into a leadership position (Zhu et al., 2016). Furthermore, researchers might want to investigate whether “authentic” ethical leaders (i.e., those with also a strong internalized moral identity) are more effective at influencing followers’ moral identity than leaders displaying ethical leadership without really meaning it (i.e., those who publicly express moral actions only to reach a certain goal; cf. Den Hartog & Belschak, 2012). In addition, if moral identity is pliable, then it is possible that coworkers’ moral identity could also affect employees’ moral identity and complement or counteract the (in-group) leader’s influence on followers’ self-concept.

Secondly, while it is in the nature of our field survey that it cannot distinguish between cause and effect, the findings of our experimental study provide unambiguous evidence for a causal link between ethical leadership and followers’ moral identity. The results overall support the assumptions inherent to “upper-echelon” approaches—namely, that higher-status leaders exert a significant top-down influence on the organization (Hambrick & Matson, 1984). Notably though, while we established this direction of influence through our experimental design in Study 1, it is possible that the causality could also work in the opposite direction. In other words, followers’ moral identity could influence leaders’ moral identity and, by extension, their ethical behavior. Indeed, an experiment by Tee, Ashkanasy,
and Paulsen (2013) provides support for a reverse transfer of followers’ moods to their leader’s mood, which can ultimately have an impact on the leader’s task performance. Similarly, Hsee, Hatfield, Carlson and Chemtob (1990) found that powerful individuals, such as teachers, were prone to mirror subordinates’ feelings. In a switch of perspectives unusual for the leadership field, future research may want to examine whether this reverse causality also occurs in organizations. For instance, scholars could analyze whether leaders’ perceptions of ethical followership ultimately have an impact on the leaders’ moral identity and, consequently, on their ethical leadership behavior. Furthermore, it could be of interest to investigate if these effects are stronger when high power (compared to low power) team members are group prototypical or how these effects change depending on the degree of interdependence between leaders and followers (Gerpott, Balliet, Columbus, Molho, & de Vries, in press).

Thirdly, we uncovered that leaders must be perceived as being representative of their groups in order to influence followers’ ethical characteristics and subsequent behaviors effectively. Put differently and considering the finer-grained analyses of Study 2, for ethical leadership to affect follower moral identity and by extension their OCB, it seems necessary that leaders are not perceived to be anti-group prototypical. Indeed, followers may not automatically undergo changes in their moral identity simply from perceiving ethical leadership; rather, their “buy in” depends on their evaluation of how much the leader represents the group. In this respect, future research may be able to further nuance the moderating role of leader group prototypicality, perhaps by contrasting it with other socio-cognitive processes as well. For example, future scholars could determine the relative importance of group prototypicality versus leader prototypicality (Hains, Hogg, & Duck, 1997). In contrast to group prototypicality, leader prototypicality captures the extent to which a leader matches a follower’s stereotypical concept of an ideal leader (i.e., their implicit
leadership theories; Junker & van Dick, 2014; Van Quaquebeke, Graf, & Eckloff, 2014). The central question would be whether ethical leaders are better served by representing the group ideal or the leader ideal, or whether an interaction might exist. In a similar vein, leader group prototypicality may be complemented or even substituted by leaders’ group identification, which refers to their ability to project a sense of ‘we’ and ‘us’ as part of their self-concept (Steffens, Schuh, Haslam, Pérez, & van Dick, 2015).

Lastly, with regard to group prototypicality, future research could examine whether specific group values are more effective at reinforcing the moral message of ethical leadership. Most research in the business and management domain has focused on ideal (approach-oriented) values that emphasize desired end-states (Van Quaquebeke, Graf, Kerschreiter, Schuh, & van Dick, 2014). However, the human motivation literature suggests that individuals are driven by two forces: approach and avoidance motivation. By implication, a leader’s counter-ideal (avoidance-oriented) values could also increase followers’ perceptions of leader group prototypicality (Schuh et al., 2016; Van Quaquebeke et al., 2014). In line with the idea that “bad is stronger than good” (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), counter-ideal values highlighting undesirable end-states might be particularly relevant to followers’ evaluations of a leader’s group prototypicality. Even more so, due to their avoidance nature, a counter-ideal value group prototypicality may also resonate more with the message of ethical leadership as it too is more often than not in reference to prevention rather than reaching for the stars.

**Practical Implications**

Several findings from our study may be of consequence for practice. Firstly, the external recruitment of highly ethical leaders may backfire if followers do not perceive those leaders as being prototypical for their group (cf. Graf et al., 2012). Similarly, leadership training that aims to increase supervisors’ ethical awareness may only be optimally effective
if followers perceive the trained leader as group prototypical. Although we propose that ethical leadership is a managerial style that should be strived for as an end in itself, organizations hoping to promote OCB should not only develop leaders’ ethical characteristics but also encourage ethical leaders to reflect on how well they represent their groups. To promote insight into the group prototype (i.e., followers’ mental representations about a group’s defining characteristics), HR departments might develop instruments, such as team workshops, to help delineate common values and a joint purpose. In an interactive setting, followers can discuss what they think is typical for their group in comparison with other relevant groups. This could have a dual effect of (1) helping leaders understand how to position themselves as more group prototypical and (2) helping group members realize the more group prototypical aspects of their leaders.

Secondly, organizations might not want to rely solely on leaders to increase followers’ moral identity. As indicated by the high correlation between moral identity and the two types of OCB in our study, moral identity exerts a strong influence on employees’ behavior in different organizational contexts (Skarlicki, van Jaarsveld, Shao, Song, & Wang, 2016). Therefore, organizations aiming to foster more ethical employee behavior may want to appeal to employees’ moral identity – both through their supervisors and beyond. For instance, fostering a general ethical climate in the organization (Ambrose, Arnaud, & Schminke, 2008; Schminke, Ambrose, & Neubaum, 2005; Victor & Cullen, 1988) or supporting coworkers’ moral identity (Thornton & Rupp, 2015) and peer leadership (Schaubroeck, Lam, & Peng, 2016) may also represent viable ways to stimulate employees’ sense of moral identity.

LIMITATIONS AND FUTURE RESEARCH

Of course, this study is not without limitations. Firstly, we exclusively measured followers’ reports of OCB rather than actual behavior or third-party reports of follower behavior. While recent meta-analytical results suggest that there are valid reasons to use
employees’ perceptions of OCB (Carpenter, Berry, & Houston, 2014), future research may still want to spread the outcomes into other domains, such as followers’ ethical decision making when, for example, advising clients (van Gils, Hogg, Van Quaquebeke, & van Knippenberg, 2015).

Secondly, we used an explicit measure of moral identity to capture the current importance of moral characteristics for participants in their self-concept (Stets & Crater, 2012). This may have brought about some socially desirable answer patterns. In any case, neither the systematic variation nor the findings regarding the moderation can be explained by social desirability. Nevertheless, our measure could be compared to an implicit operationalization of moral identity that does not rely on participants’ verbal reports. For instance, the implicit association test, which presents participants with various stimuli on a computer screen (e.g., TREE and TRUTHFUL), could be used to associate individuals’ reaction speeds with the strength of their moral identity. In fairness, however, Hertz and Krettenauer’s (2016) recent meta-analysis showed that the effect sizes of studies combining explicit measures of moral identity with behavioral observations or third-party ratings were not much lower than those of studies based on self-reported data. A different avenue for future research could be the inclusion of a trait-like moral motive measure that assesses people’s relative degree of moral development or their general ethical perspective (e.g., Forsyth, 1980; Gibbs, Basinger, & Fuller, 1992) in addition to the moral identity measure used in the present studies. Scholars could then investigate the change effect of ethical leadership on followers’ (state) moral identity while controlling for the effect of trait morality.

Thirdly, we conducted our studies using online data collection platforms. While some critics have claimed that platform workers spend much of their time participating in studies and thus might have gained experience with common experimental tasks and questionnaires (Peer et al., 2017), we have several reasons to assume that these concerns do not reduce the
reliability of our findings. Firstly, a moderated mediation effect cannot be the result of an intended response pattern of the participants across studies (Van Quaquebeke et al., 2011). In other words, even if participants were familiar with our survey items and replied in a way they think is favorable to our research aim, this could increase the correlations between our study variables but at the same time severely deflate the interaction effect, making it more difficult to detect through statistical means (Siemsen, Roth, & Oliveria, 2009). Secondly, we recruited participants from different platforms in Studies 1 and 2 to increase the diversity of our samples and thus the generalizability of our findings (Peer et al., 2017). Lastly, speaking against an overestimation of our effects, workers’ experience with online surveys is expected to reduce (rather than increase) the effect sizes of known research findings (Chandler, Paolacci, Peer, Mueller, & Ratliff, 2015). Notably, at least our experimental design also had the advantage of being able to manipulate ethical leadership. Yet, in case future research wants to replicate our findings in an organizational setting, we suggest running a time-lagged, quasi-experimental study with teams who are assigned a new leader. Employees would provide their moral identity and OCB ratings at time 1 (i.e., before the leader joins the team), and would administer these ratings again in a follow-up study. In this second questionnaire, employees would also rate their leaders’ ethical behavior and group prototypicality. If the follow-up surveys can be disseminated over time, such a design could potentially also elucidate some cross-lagged effect on the sustainability of ethical leadership on follower moral identity. Another approach may lie in the identification of suitable instrumental variables to counter endogeneity in the analyses and corroborate causality (Antonakis, 2017). However, to the best of our knowledge, an optimal instrument for ethical leadership has yet to be found.

Lastly, common source bias and participants’ inclination for social desirability (i.e., reporting behavior as more positive than it actually is) can indeed raise the main effect; importantly, however, it cannot explain the complexity of interaction effects observed in the
experiment and the field study (Van Quaquebeke et al., 2011). If anything, common method biases actually work against finding interaction confirmed (Siemsen et al., 2009). What is equally noteworthy is that the moderating role of leader group prototypicality also held true when control variables were included. Thus, while an assumed demand characteristic may be able to explain the main effect, it is an unlikely explanation for the uncovered interaction. In addition, specifically for our field study, the Harman single-factor test also indicated that common method biases are not a concern.

**CONCLUSION**

As a field, leadership research has been called “curiously unformed” (Hackman & Wageman, 2007: 43), and research on ethical leadership is no exception. Part of the problem is the difficulty in disentangling the proliferating number of leadership concepts. In our view, many of these concepts are unfortunately all too often explored only superficially and lack an investigation into their specific essences. In order to help remedy this situation, this study argued for two nested processes of identity and morality that flow from ethical leadership and closely relate to its moral essence. As such, we believe the study to be a small but meaningful step toward understanding the specific moral mechanisms that underlie the link between ethical leadership and organizational outcomes.
CHAPTER 5

IT’S NOT ONLY WHAT YOU SAY BUT ALSO WHEN YOU SAY IT: A TEMPORAL ACCOUNT OF VERBAL BEHAVIORS AND EMERGENT LEADERSHIP 4

4 This paper is work in progress (revise & resubmit) for the Academy of Management Journal as Gerpott, F. H., Lehmann-Willenbrock, N., Voelpel, S. C. & van Vugt, M. It’s not only what you say but also when you say it: A temporal account of verbal behaviors and emergent leadership. Paper drafts have been presented at the SIOP Conference 2015, EAWOP Conference 2015, WAOP Conference 2015, INGroup Conference 2016 and AOM Conference 2016.
ABSTRACT

Emergent leadership is a dynamic process evolving through interactions that are embedded in the social context. We add to leadership theorizing by explicating how emergent leadership is associated differently with task-, relations- and change-oriented communication as the social context changes over a team’s lifecycle. We argue that task- and change oriented verbal behaviors predict emergent leadership in earlier phases but lose relevance over time because members are in less need for advice as they become more knowledgeable. Relations-oriented communication should gain importance for emergent leadership because of its functionality for establishing a supportive climate under stressful conditions. We test our hypotheses at the micro-level of communicative acts in 42 self-managed teams over the course of a project. At week 1, 5, and 7, we gathered round-robin leadership ratings, videotaped team meetings and applied a fine-grained quantitative interaction approach, resulting in data sets of $N_{t1}=39,966$, $N_{t2}=56,504$, and $N_{t3}=43,622$ verbal behaviors. Multilevel modelling indicated that task-oriented communication was a stable positive predictor of emergent leadership. Relations-oriented communication gained importance, such that it predicted emergent leadership at the end. Change-oriented lost relevance, such that it was only a predictor of emergent leadership at the beginning of project work.

KEYWORDS:
Emergent leadership
Verbal behavior
Interaction analysis
Dynamic team leadership
Leader substitute theory
INTRODUCTION

Emergent leadership – the ascription of informal leadership status in initially leaderless teams (Morgeson, DeRue, & Karam, 2010) – is a relational process that comes about through the temporal course of verbal interactions between team members. Yet, although the popular literature suggests that individuals are ascribed leadership potential based on their day-to-day communication (Rothwell, 2016; Walker & Aritz, 2014) and common knowledge widely assumes that “leadership is a language game” playing out over time (Pondy, 1989), we know little about whether it matters what team members say and at which point in a team’s lifecycle in order to be ascribed a leadership role. From a scholarly perspective, the behavioral conceptualization of leadership at the micro-level of specific communicative acts (i.e., what is said; Van Quaquebeke & Felps, 2017) and the role of time in team leadership theory (i.e., when something is said; Bluedorn & Jaussi, 2010; Kozlowski, Watola, Nowakowski, Kim, & Botero, 1999; Mitchell & James, 2001; Shamir, 2011) is remarkably under-theorized. The lack of conceptual knowledge stands in stark contrast to the high interest of practitioners in communication-based (e.g., Hackman & Johnson, 2013; Steward-Gross, 2004) and informal leadership (e.g., Robertson, 2015; Smart, 2010). This curiosity about understanding how individuals take over leadership roles through their communicative conduct is triggered by a changing work environment in which organizations increasingly rely on autonomous project teams conducting work in highly interactive contexts (Kozlowski & Bell, 2013). Following a recent research stream that emphasizes the theory development potential stemming from a focus on communication in leadership studies (DeRue, 2011; Fairhurst, 2007; Fairhurst & Connaughton, 2014; Fairhurst & Uhl-Bien, 2012; Ruben & Gigliotti, 2016; Van Quaquebeke & Felps, 2017), we consider the time ripe to explore emergent leadership as a dynamic phenomenon that evolves through different types of communication over the course of a team’s lifecycle.
Emergent leadership occurs naturally in initially leaderless teams because it helps team members to solve coordination tasks more efficiently (Bass, 1954; Neubert & Taggar, 2004; Spisak, O'Brien, Nicholson, & van Vugt, 2015; van Vugt, 2006) which in turn results in higher team performance (Carte, Chidambaram, & Becker, 2006; de Souza & Klein, 1995). Hence, emergent leadership should be assigned to team members who engage in behaviors that facilitate the satisfaction of unsatisfied team needs. This notion raises the question what types of communication are functional for teams at which time points (Morgeson et al., 2010). The leadership literature suggests that functional behaviors can be classified into three meta-categories that differ in their primary objectives, namely (1) task-oriented behaviors (that have the primary goal of achieving high-quality task outcomes), (2) relations-oriented behavior (that have the primary goal of increasing the quality of relations), and (3) change-oriented behaviors (that have the primary goal of initiating actions to change the status quo; Yukl, Gordon, & Taber, 2002; Yukl, 2012). Conceptual research has linked several combinations of these leadership behaviors to team processes across time based on the assumption that leadership should address varying team needs in different team development phases (e.g., Karriker, 2005; Kozlowski et al., 1999; Morgeson et al., 2010). However, these models not only remain largely unintegrated and empirically untested, but also neglect the social embeddedness of leadership as a dynamic process coming into place through communication in social contexts. The social context is strongly influenced by the actors’ interaction history and time (Uhl-Bien et al., 2007). This means that shifting social contexts (such as team phases) can evoke different reactions of team members to the same type of communication, such that specific verbal behaviors may not always have the same relevance for the ascription of leadership (Barge & Hirokawa, 1989). In an attempt to conceptually position emergent leadership as an outcome of interactions across shifting social contexts, we consider specific communicative acts (i.e., task-, relations-, and change-oriented verbal behaviors) within temporal team interactions and seek answers to the following question: How does task-, relations- and change-oriented communication relate to emergent leadership at the beginning, in the middle, and at the end of a team’s lifecycle?
Prior conceptual work largely coincides in their focus on task- and change-oriented advice as central antecedents of team leadership across time (e.g., Karriker, 2005; Kozlowski et al., 1999, Sorrentino & Field), particularly in later, performance-oriented team phases. This is not to say that relations-oriented communication is neglected – indeed, most conceptual models refer to interpersonal acts as an important aspect of team leadership (e.g., Morgeson et al., 2010). However, in comparison to task- and change-oriented behaviors, relations-oriented communication tends to be considered as an “add-on” to the directive function of leadership (Keyton & Beck, 2009; McCallum & O’Connell, 2009; Wolff, Pescosolido, & Druskat, 2002). Karriker (2005) for example notes that relations-oriented leader behaviors are superseded by task-oriented behaviors over time, as teams transition from an initial formation phase to a performance focus. We draw from the leader substitute literature (Kerr & Jermier, 1978; Jermier & Kerr, 1997) to challenge the under-representation of relations-oriented communication in the conceptualization of dynamic team leadership, thus contributing to the debate on how and why different types of communication should be associated differently with emergent leadership across the time span of a team project.

According to the leader substitute lens, characteristics of subordinates (e.g., ability/experience/knowledge), tasks (e.g., degree of ambiguity), and the organization (e.g., cohesive work group) determine a team’s need for task-, relations-, and/or change-oriented leadership behaviors (Kerr & Jermier, 1978). For instance, if the task is not clearly defined and team members possess limited expertise, team members may appreciate directive and action-oriented advice. Such a setting is characteristic of earlier team phases, meaning that individuals who communicate the necessity to change and point out ideas on how to approach tasks may be ascribed leadership by their peers during early team interactions. However, as teams become more knowledgeable and task-focused toward the deadline (Gersick, 1988, 1989), members are in less need for directive guidance but in danger to disregard group cohesiveness (Morgeson et al., 2010). In this context, emergent leadership may be positively associated with relations-oriented behaviors that ensure a supportive climate and facilitate collaboration in an increasingly stressful situation. Thus, whereas team members focus on building relationships with others in the initial formation
phase and become more goal-driven over time (Gersick, 1988, 1989), we argue that emergent leadership is positively linked to the opposite behavioral pattern (i.e., task- and change-oriented communication in earlier team phases, relations-oriented behaviors towards the end).

Our research offers three main contributions. First, our temporal perspective of team interactions through a leader substitute lens provides a new angle for understanding how the relevance of different types of communicative behaviors for emergent leadership changes over the course of a team’s lifecycle. Particularly, we define task, relations-, and change-oriented leadership behavior at the level of particular communicative acts (i.e., what is said), specify the shifting social context across different team phases (i.e., when something is said), and apply substitute for leadership theory to develop testable prepositions about how behaviors relate differently to leader emergence over the course of a team project.

Second, as theory development and empirical contributions should go hand in hand (van Maanen, Sorensen, & Mitchell, 2007; Van Quaquebeke & Felps, 2017), we illuminate the communication processes at the heart of leadership influence (e.g., DeRue, 2011; Fairhurst & Connaughton, 2014; Fairhurst & Uhl-Bien, 2012) by applying a quantitative interaction analytical approach that generates copious data on the fine-grained conversational dynamics underlying leadership emergence within temporal team interactions. As such, our study addresses calls for research on verbal behaviors to advance our conceptual understanding of concrete leadership acts (e.g., Meyer et al., 2016; van Knippenberg & Sitkin, 2013; Van Quaquebeke & Felps, 2017). Our approach also illustrates how a focus on actual behavior can tackle methodological challenges such as common method bias or endogeneity problems (Antonakis, Bendahan, Jacquart, & Lalive, 2010; Baumeister, Vohs, & Funder, 2007).

Third, we contribute to a stream of research that considers all sources of team leadership rather than focusing on a single leader to develop a complete understanding of team leadership processes (Day, Gronn, & Salas, 2004; Denis, Langley, & Sergi, 2012; Morgeson et al., 2010). Noting that a leadership function must not necessarily be accomplished by one person but can be
distributed and shift among team members (Aime, Humphrey, DeRue, & Paul, 2014; Burke et al., 2006; Denis et al., 2012), our understanding of emergent leadership draws from the assumption that every team member takes over leadership to a certain extent through their communicative acts. Accordingly, our methodological approach captures emergent leadership using a round-robin design that provides all team members with emergent leadership ratings at the beginning, middle, and end of a project.

**Theoretical Background and Hypotheses**

To develop our predictions about the shifting relevance of task-, change-, and relations-oriented behaviors for emergent leadership, we first conceptualize leadership as an interpersonal process that evolves through communication. Second, we describe how the salience and meaning of communication is strongly informed by the social context – “a context in which patterns over time must be considered and where history matters” (Uhl-Bien et al., 2007: 299). We explicate context changes across team phases and apply substitutes for leadership theory (Kerr & Jermier, 1978; Jermier & Kerr, 1997) to hypothesize how the relationship between specific verbal behaviors and emergent leadership is expected to change over time.

**Emergent Leadership Through a Communication Lens**

We define emergent leadership as a dynamic process of perceived interpersonal influence that evolves in social situations through interactions between team members (Paunova, 2015; Uhl-Bien, 2006; Uhl-Bien, Marion, & McKelvey, 2007). Despite general consensus that leadership comes into place through communication, scholars have diverged in their way of positioning, conceptualizing and operationalizing the role of verbal behaviors in the leadership process. A first stream of research captures communication by asking team members to evaluate each other’s verbal contributions and then links these assessments to emergent leadership ratings. For instance, scholars have predicted emergent leadership by team members’ perceptions of innovative and facilitative statements (Guastello, 1995), listening acts (Bechler & Johnson, 1995), and expressions of encouragement (Wickham & Walter, 2009). Although this research
has contributed to a conceptual discussion about the functionality of some of the identified leadership behaviors (Van Quaquebeke & Felps, 2017), there are two fundamental challenges of operationalizing verbal behaviors through perceptions.

First, from a methodological perspective, the measurement instruments often refer to vague classes of verbal behaviors that leave much room for interpretation and may confound the measurement of communication with attributions about its effects (Hoffman & Lord, 2013; Meyer et al., 2016; van Knippenberg & Sitkin, 2013). This blurriness in the operationalization runs at risk to measure overall positive or negative attitudes towards a person rather than specific communicative behavior (“halo effect”, cf. Baumeister et al., 2007; Frone, Adams, Rice, & Instone-Noonan, 1986), thus contributing to endogeneity problems that often occur in survey-based research designs (Antonakis et al., 2010).

Second, from a conceptual perspective, perception-based approaches to communication fall short in considering the social dynamics of emergent leadership. Studies in this tradition implicitly assume that communication is a linear, one-way act that serves as a conduit through which cognitive content is transferred to receivers, who can easily encode and act upon the sender’s message (conduit model of communication, Reddy, 1979; see also Cornelissen, Durand, Fiss, Lammers, & Vaara, 2015). This approach neglects that verbal behaviors trigger reactions of others and are embedded in a social context that strongly influences the salience and meaning of communication (Ruben & Gigliotti, 2016).

As a response to this critique, a newer stream of research anchored in socioconstructionist epistemology considers leadership as a collective process that is constructed in situ through interactions (for reviews, see Denis et al., 2012; Fairhurst, 2007; Fairhurst & Connaughton, 2014). This discursive perspective focuses on the two-way influences between senders and receivers and defines leadership as “a co-created, performative, contextual, and attributional process where the ideas articulated in talk or action are recognized by others” (Barge & Fairhurst, 2008: 232). This understanding of actors as present in leadership rather than
“containers of leadership” (Denis et al., 2012: 254) constitutes a radically different perspective—beyond the focus on the individual leader toward a conceptualization of leadership as an outcome of social interactions in which it is impossible to ignore other actors (Day et al., 2004; Denis et al., 2012; Fairhurst, 2009).

Most discursive researchers consider themselves as “more qualitative than mainstream leadership scholars” (Fairhurst, 2009: 1608), such that they largely rely on the in-depth analysis of talk under the consideration of the surrounding setting using ethnographic research approaches (e.g., Vine, Holmes, Marra, Pfeifer, & Jackson, 2008). Yet, in situ communication research in a more quantitative tradition has also focused on variable-based theorizing and testing. Specifically, scholars following an interaction analysis approach focus on developing definitions of behavioral categories based on their conceptual framework and then apply an empirical coding procedure to capture behavioral units at the micro-level of communicative acts (e.g., Meinecke & Lehmann-Willenbrock, 2015). Early work in this tradition has established the “babble effect”, which shows that the quantity of individual contributions strongly links to emergent leadership (e.g., Bass, 1954; Morris & Hackman, 1969; Mullen, Salas, & Driskell, 1989; Sorrentino & Boutillier, 1975). This positive relationship is explained through a competence-signaling effect (Mullen et al., 1989), meaning that team members interpret an actor’s high contribution rate as a proxy for cognitive ability (Wardle, Cederbaum, & de Wit, 2011) and for their commitment to the group (Pavitt, Whitchurch, Siple, & Petersen, 1997), which in turn reflects positively on the actor’s ability to contribute to team problem solving tasks.

Although interesting, the “babble” effect cannot reveal much about the specific behaviors through which emergent leadership evolves in team interactions, such that assumptions about the qualitative aspects of communication that may be functional for emergent leadership remain speculative. To better understand the role of communication content, scholars have made initial attempts to investigate what people say to be ascribed leadership by peers. Yet, despite linking emergent leadership to a range of verbal behaviors such as procedural utterances (Pavitt et al.,
1997), listening (Johnson & Bechler, 1998), or active statements (Kirsch, Lodahl, & Haire, 1959), research in this area remains rather siloed and does not follow an overall functional behavior typology (Paunova, 2015) or overarching theoretical framework that integrates fragmented findings on different types of behaviors (Barge & Hirokawa, 1989).

Noting that behavioral theories of leadership can provide a foundation on which to build a more integrated leadership field (Day & Antonakis, 2012; Van Quaquebeke & Felps, 2017), we address the shortcomings of previous studies and rely on a comprehensive taxonomy (Yukl et al., 2002; Yukl, 2012) for classifying verbal behaviors occurring in situ (i.e., in team meetings). Yukl and colleagues (2002; Yukl, 2012) reviewed the past 50 years of leadership research and structured the variety of identified behaviors in a parsimonious framework consisting of three broad meta-categories, namely task-, relations-, and change-oriented behaviors. The categories are defined by their overarching goal and subsume specific component behaviors. Whereas task- and relations-oriented behaviors possess a long tradition of being differentiated in leadership research (Fleishman, 1953, 1995; Judge, Piccolo, & Ilies, 2004), change-oriented behaviors are relatively novel in the literature. Yukl and colleagues (2002; Yukl, 2012) emphasize the importance of change-oriented behaviors to fully understand leadership in dynamic environments that require the proactive will to initiate change. Indeed, given the increasing number of problem-solving teams that often work in project-based settings with a finite lifespan on the development of innovative deliverables (Carte et al., 2006; van Knippenberg & Mell, 2016), change-oriented behaviors are likely to become even more relevant in the coming years.

Task-oriented behaviors have the primary objective of accomplishing work in an efficient way to achieve high-quality task outcomes (Yukl, 2012; Yukl et al., 2002). Component behaviors refer to performing the task (e.g., through problem-solving or clarifying contributions of others)

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5 Although specific behaviors can have relevance for more than one of the categories (e.g., every task-oriented advice also contains a relational message, cf. Keyton & Beck, 2009; Watzlawick, Beavin, & Jackson, 1967), the theoretical basis for the assignment of behaviors to the task-, relations-, or change-oriented meta-category is their contribution to the primary goal (Yukl, 2012).
and monitoring the team’s progress (e.g., through time management or procedural planning. Relations-oriented behaviors have the primary goal of increasing the quality of relations within a team. Specific behaviors concern the recognition of team members (e.g., through offering praise or active listening) and the integration of others in the team work (e.g., through asking questions to involve quiet participants or inviting team members to engage in the discussion). Change-oriented behaviors have the primary goal of initiating actions to change the status quo toward a desirable status. Component behaviors refer to the envisioning of goals (e.g. through defining a goal or prioritizing tasks in line with the team’s objectives) or facilitating the implementation of new ideas (e.g., through signaling interest in change or engaging in action planning to realize innovations).

Whereas previous research has associated all of these behaviors with leadership effectiveness in formal leader settings (Yukl et al., 2002; Yukl, 2012), an unanswered conceptual and empirical question is how the different behavioral categories relate to emergent leadership in shifting social contexts over time.

EMERGENT LEADERSHIP, COMMUNICATION, AND TIME

The meaning of task-, relations-, and change-oriented communication is highly context-dependent, meaning that the salience and interpretation of verbal behaviors for leadership in teams is contingent upon the team situation (Barge & Hirokawa, 1989). In contrast to the one-way conduit perspective of communication (Cornelissen et al., 2015; Reddy, 1979) that assumes a direct transfer of easily decodable cognitive concepts from one person to the other through a message, more complex communication theories posit that multiple factors influence the process between sending and interpreting a message (Ruben & Gigliotti, 2016). For instance, Gerbner’s (1956) seminal work proposes that the communication agent (either the sender or receiver of a message) can never objectively grasp an event. Instead, communicative events are perceived through the lens of the context (i.e., circumstances under which the event takes place), availability (i.e., influence of individual characteristics such as personality or mood), and selective attention.
(i.e., aspects of the event that are considered as relevant). This perspective implies that the relative importance of different types of communication for leadership can only be understood by accounting for the social context and changes in its configuration (Barge & Hirokawa, 1989).

The group development literature (e.g., Arrow, Poole, Henry, Wheelan, & Moreland, 2004; Gersick, 1988, 1989; Tuckman, 1965; Tuckman & Jensen, 1977) has a long tradition of describing the shifting social context in which team interactions take place. Although slightly varying in the number of suggested phases, these theories can be seen as complementary rather than competing explanations of group development processes (Chang, Bordia, & Duck, 2003). The literature agrees in that teams go through an initial formation phase in which members set up relationships with each other and aim to accomplish clarity about the team’s task. During that period, team work is characterized by idea generation but also cognitive inertia. This phase is followed by an action phase, during which a burst of idea-related activity can be noticed and teams eventually begin to focus on the task. For successful project work, it is pivotal to break out of the early phase of inertia and move on to the action phase. Otherwise, teams can enter a vacuous path of inactivity from which they often cannot recover (Ericksen & Dyer, 2004). Given that project teams are usually set up for a limited time frame and work towards a strict deadline (e.g., Kauffeld, Lehmann-Willenbrock, & Grote, 2015), the action phase tends to become more intense over time, such that team face an increasing amount of time awareness, pressure and stress in view of the upcoming deadline (Chang et al., 2003). Under these circumstances, the social context is likely to be more susceptible to emotional distress across team members, thus making it important to preserve a collective calm (Zaccaro, Rittman, & Marks, 2001).

The group development literature has been prospering for a long time; yet, scholars only recently began to integrate this stream of research with leadership theory to define team needs that should be addressed through leadership (e.g., Karriker, 2005; Kozlowski et al., 1999, Morgeson et al., 2010). Whereas these attempts have brought about a range of suggested
leadership functions for different team phases, we still lack a conceptual understanding *why*
specific behaviors should change in functionality for leadership as teams progress through
different developmental phases. So far, the literature has implicitly assumed that leadership is
positively associated with doing more of what the team is naturally doing. To illustrate this line
of reasoning, if everyone is focusing on the task, the common notion is that team members who
most intensively engage in this activity should be ascribed leadership. In other words, scholars
assume that emergent leadership is positively associated with convergent communication (e.g.,
CITE). We challenge this notion and argue that emergent leadership is associated with
communicative behaviors that meet unfulfilled team needs, expressing aspects that are not in the
natural focus of the group (i.e., divergent communication).

We ground our reasoning in leader substitute theory (Kerr & Jermier, 1978) which
suggests that individual, task, and/or organizational characteristics can reduce, neutralize, or
substitute a team’s need for different types of leadership. Importantly, some substitutes for
leadership – “a person or thing acting or used in place of another” (Kerr & Jermier, 1978: 395) –
can affect specific leadership behaviors without eliminating the need for all leadership behaviors
(Dionne, Yammarino, Howell, & Villa, 2005). In the following, we explicate how substitutes for
leadership, in terms of specific communicative acts, may change across shifting social contexts
(i.e., team phases) to explain the relative importance of task-, relations-, and change-oriented
leadership behaviors over time.

**Task-Oriented Leadership Behavior**

This type of communication focuses on directly task-related activities (e.g., problem-
solving or clarifying contributions) and the monitoring of team’s progress (e.g., time
management or procedural planning). The literature suggests that teams become more task-
oriented as they are approaching a (project) deadline (Gersick, 1988, 1989; Morgeson et al.,
2010). For example, when individuals come together to work on a project, they usually possess
limited knowledge and expertise about the specific task at hand. In other words, although they
may bring a considerable amount of general expertise and practical skills, their project-specific knowledge still has to be developed.

According to leader substitute theory (Kerr & Jermier, 1978), these circumstances during early team collaboration evoke a receptiveness for task-oriented advice, suggesting an association with emergent leadership in earlier team phases. First, team members who engage in task-oriented communication such as problem-solving or procedural planning may facilitate sense-making processes and the development of shared mental models (Lehmann-Willenbrock, Meinecke, Rowold, & Kauffeld, 2015). Second, task-oriented communication helps the team overcome the natural focus on relations-oriented challenges (Gersick, 1988, 1989) in earlier team phases. Third, task-oriented communication signals problem-solving competencies to others that raise the expectations about useful future contributions, thus likely being used to establish leadership from early on.

Research has provided substantial evidence for the importance of task-oriented behaviors for emergent leadership during the first meeting(s) of problem-solving teams. Lonetto and Williams (1974) obtained emergent leadership ratings from 62 groups working on a (one-time) experimental problem-solving task. The authors found that consensual leaders (i.e., team members that were nominated as informal leaders by the others) used more task-oriented communication, such as giving or evaluating information. Similarly, Morris and Hackman (1969) analyzed the transcripts of 108 groups working on different tasks in a laboratory setting and reported that emergent leadership was positively associated with task-related behaviors such as repeating or seeking evaluation of information and proposing solutions. Lastly, Yukl and Mahsud (2010) summarized research on leadership across a range of situations and recommended that leadership should clarify objectives, priorities, standards, and policies as well as monitor task work closely when team members find themselves in ambiguous settings without clearly defined processes and roles.

Over time, as team members become more knowledgeable, the leader substitute perspective (Kerr & Jermier, 1978) suggests a declining need for direction. In light of an
approaching deadline, teams naturally tend to focus on activities that directly contribute to the project goal (Gersick, 1988, 1989; Morgeson et al., 2010). Thus, although task-related behaviors at this stage can still be beneficial for team performance, their relative importance for leadership may decline (House & Mitchell, 1974). Notably, this does not mean that task-related behaviors are superfluous for leadership at later stages of the team work; it only suggests that compared to other leader behaviors, this type of communication decreases in relevance as teams become more mature. In summarizing our theoretical argument, we hypothesize:

Hypothesis 1: The relative importance of task-oriented communication (compared to relations- and change-oriented communication) for predicting emergent leadership decreases over the course of a team’s lifecycle, such that task-oriented communication is more positively associated with emergent leadership in earlier than in later team phases.

RELATIONS-ORIENTED LEADERSHIP BEHAVIOR

This type of communication aims to increase the quality of relations within a team through recognition of team members (e.g., offering praise or active listening) or the proactive integration of others into the work process (e.g., inviting team members to engage in the discussion or asking questions to involve quiet participants). The group development literature points out that teams tend to focus on relationships in the initial “storming” phase and then concentrate on the task (Tuckman, 1965; Tuckman & Jensen, 1977).

However, this perspective overlooks that the final meeting of teams before the project deadline may constitute a rather stressful situation, such that leadership is needed to maintain positive relationships (Morgeson et al., 2010). In other words, when group cohesion is at risk, more attention should be paid to the affiliation needs of team members (Zaccaro et al., 2001). Thus, in terms of the relationship between emergent leadership and communicative conduct, demanding emotional circumstances such as high time and performance pressure suggest an increasing team need for relational communication in later team project stages. Thus, it is likely that individuals who engage in relational behaviors in challenging interpersonal settings are perceived as influential for shaping team processes. To summarize, we hypothesize:
Hypothesis 2: The relative importance of relations-oriented communication (compared to task- and change-oriented communication) for predicting emergent leadership increases over the course of a team’s lifecycle, such that the positive link between relations-oriented communication and emergent leadership is stronger in later than in earlier team phases.

**CHANGE-ORIENTED LEADERSHIP BEHAVIOR**

This type of communication aims to challenge the status quo and to facilitate the creation and implementation of innovative ideas. This behavioral category is different from task-related behaviors in that it is focused on actively facilitating change and getting the team going towards a particular goal (Yukl et al., 2002; Yukl, 2012). The group development literature has pointed out that teams often suffer from inertia in early team phases, meaning they make little progress due to a lack of proactive initiative (Gersick, 1988, 1989). Change-oriented communication can unlock team members’ solution-focused energy and thus help teams to overcome periods of apathy (Ericksen & Dyer, 2004; Gersick, 1988, 1989). Considering the characteristics of early team phases, team members should possess a high receptivity for change-oriented communication, meaning that people engaging in these behaviors are likely being ascribed leadership. Providing support for this idea, Lonetto and Williams (1974) obtained emergent leadership ratings from 62 problem-solving groups working on a (one-time) problem-solving task and found that consensual leaders (i.e., team members that were nominated as informal leaders by the others) gave more action proposals. However, over time, as teams need to concentrate on implementing the initially generated ideas, change-oriented behaviors may lose importance as they distract the team from their task focus. Hence, we hypothesize.

Hypothesis 3: The relative importance of change-oriented communication (compared to task- and relations-oriented communication) for predicting emergent leadership decreases over the course of a team’s lifecycle, such that change-oriented communication is more positively associated with emergent leadership in earlier than in later team phases.
METHODS

PARTICIPANT AND DESIGN

We collected our data at the beginning, middle, and end of an eight-week consulting project for a large automobile manufacturer in 42 self-directed project groups. Students of an international university in Germany could deliberately sign up for the project work as part of their elective advanced studies. The setting was intended to show the daily work of consultancies, meaning that students worked as junior consultants in a highly competitive setting between teams but not within teams because the company representatives evaluated the project results on a team-level. Team performance was directly related to rewards (i.e., material rewards and temporary job positions at the automotive manufacturer). The project worked concerned a real-world problem faced by the automotive manufacturer’s management (e.g., defining factors to increase employer attractiveness, developing strategies to deal with a skills shortage) with the best solutions being implemented in the company. As usual in consultancy settings (Kauffeld et al., 2015), the teams received a high amount of complex and confidential company information and thus had to sign a non-disclosure agreement.

The 136 junior consultants were randomly assigned to the groups consisting of three to five members ($M = 3.26, SD = 0.54$) with the exception that team members should not know each other before the project. Given that the project was optional, students from different subject areas and fields signed up, resulting in a setting in which we could ensure that people did not work together before, such that teams neither had a pre-established hierarchy nor a formal leader. Participants were 53.7% male, on average 20.27 years old ($SD = 1.23$) and had an international background (i.e., 30 nationalities). In the first session, we informed the groups that we intended to videotape three of their group meetings and collect questionnaire data as part of a research project. The groups voluntarily decided to take part in the study and provided their informed consent before the first meeting.
INTERACTION CODING

To collect the group members’ verbal behavior, we videotaped group meetings in weeks 1 (first meeting), 5 (midpoint meeting), and 7 (last meeting before the final project presentation). Meetings lasted between 13 and 67 minutes (\(M_{t1} = 38.22, SD_{t1} = 14.45; M_{t2} = 42.19, SD_{t2} = 15.96; M_{t3} = 39.09, SD_{t3} = 13.67\)). Four extensively trained research assistants conducted the interaction coding of all verbal behaviors taking place in the 129 videotaped group meetings using the Interact software (Mangold, 2010). The software allows to (1) cut the videos into sequences, (2) note who was speaking (i.e., group member A, B, C, D, or E), and (3) assign a corresponding behavioral code. In doing so, coders can work directly from the real-time recording without having to transcribe the interactions verbatim.

To code team members’ verbal behaviors at the level of concrete communicative acts, we first assigned behavioral codes using the Advanced Interaction Analysis for Teams coding scheme (i.e., act4teams, see Kauffeld & Lehmann-Willenbrock, 2012; Lehmann-Willenbrock & Allen, 2014; Lehmann-Willenbrock, Meinecke, Rowold, & Kauffeld, 2015; Meinecke, Lehmann-Willenbrock, & Kauffeld, 2017). This coding scheme was developed to capture team’s complete meeting communication and allows for a comprehensive analysis of verbal behaviors in social contexts because every utterance is coded into one behavioral category (i.e., mutually exclusive codes), and all utterances made during the team meeting must be coded (i.e., collectively exhaustive coding scheme). The unit of analysis is an utterance or sense unit, that means the smallest speech segment that expresses a complete thought (Bales, 1950). Importantly, the behavior must be directly observable, meaning it cannot be defined in terms of attributions or outcomes (e.g., “communicating an inspiring vision” would not be a sufficient coding category because “inspiring” is not observable but must be interpreted by the coder). To illustrate, the sentence “The problem is that the company’s traditional recruitment channels do not work anymore, let’s develop something completely new!” would be coded into two sense units, with
the first part being a problem statement and the second part being an expression of interest in change. Because meeting length varied, the number of codes per category was divided according to the number of minutes for which each participant was present and multiplied by 60 to standardize the frequency of each verbal category per person per hour. Overall, our analysis was based on data sets of $N_{t1} = 39,966$, $N_{t2} = 56,504$, and $N_{t3} = 43,622$ verbal behaviors. To establish interrater reliability, the four research assistants double-coded a complete video from the data set with an expert coder. All coders received a satisfying Cohen’s kappa value (Cohen, 1960) of at least $\kappa = .60$.

In the second step, we assigned the behavioral codes from the coding scheme to our three theory-based behavioral meta-categories (Yukl et al., 2002; Yukl, 2012). The three meta-categories and their component verbal behaviors are shown in Table 5.1. We collapsed the component verbal behaviors across dimension to form meaningful higher order constructs (i.e., task-, relations-, and changed-oriented meta-categories) and used the aggregated measures in our analysis.

**Task-oriented behaviors.** This meta-category captures the directly task-related communication through statements such as identifying and describing problems or solutions, outlining connections with problems or solutions, communicating knowledge about the company, referring to specialists, weighting costs and benefits of a solution, clarifying and summarizing contributions of others or visualizing content. Moreover, task-oriented behaviors refer to procedural statements that contribute to task monitoring through statements such as time management, discussing procedures, raising procedural questions, or delegating tasks during the discussion.

**Relations-oriented behaviors.** This meta-category refers to verbal acts that aim to enhance relationship and supports a positive social climate within the team. Specific verbal

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6 To ensure the exhaustive coding of all statements, the act4team scheme also comprises additional codes (e.g., for negative and off-topic statements or emotional expressions such as laughter) that were used during the coding process but were not relevant for our theoretical derived meta-categories. We thus do not consider these codes in our analysis.
statements used to operationalize this category are statements that express recognition of others, such as providing support to suggestions of others, active listening, or offering praise. Additionally, the category comprises statements that encourage others to participate in the discussion such as asking for the option of others or addressing quiet participants.

**Change-oriented behaviors.** This meta-category is operationalized through pro-active statements promoting action such as signalizing interest in change and in trying out innovations, emphasizing the personal responsibility of every team member to initiate change, and planning concrete actions to implement new strategies, initiatives or concrete tasks. Furthermore, the articulation of a vision or goal can manifest in the definition of the team’s objective, pointing out the topic of the team discussion, or judging what is more or less important (i.e., prioritizing) when engaging in task work.

**Emergent Leadership Votes**

We measured emergent leadership with four items adapted from previous research (Cogliser, Gardner, Gavin, & Broberg, 2012). In line with our definition of leadership being essentially an ascription by peers, we used round-robin ratings, meaning that every team member rated each other on a six-point Likert scale (1 = completely disagree, 6 = completely agree). Example items are “Team member A [B, C, D, E] has taken a leadership role in our team” or “Team member A [B, C, D, E] has tried to influence the team”. Cronbach’s alpha for the scale ranged from $\alpha = .87$ to $\alpha = .97$. To calculate the emergent leadership value for one person, we used the mean of all other team members’ emergent leadership rating for that person. The correlations between emergent leadership ratings and age ($r_{T1} = .06; \ r_{T2} = .08, \ r_{T3} = .05$), as well as sex ($r_{T1} = .08; \ r_{T2} = .03, \ r_{T3} = -.05；1 = \text{female}; \ 2 = \text{male}$), were not significant and thus not included as control variables.
<table>
<thead>
<tr>
<th>Task-oriented verbal behavior</th>
<th>Relations-oriented verbal behavior</th>
<th>Change-oriented verbal behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary objective: To achieve a high-quality solution for the project</strong></td>
<td><strong>Primary objective: To increase the quality of relations</strong></td>
<td><strong>Primary objective: To initiate innovation and promote change-related actions</strong></td>
</tr>
<tr>
<td><strong>Performing the team task</strong></td>
<td><strong>Recognizing team members</strong></td>
<td><strong>Envisioning goals</strong></td>
</tr>
<tr>
<td>- Description: Solving problems and sharing/clarifying task-related knowledge</td>
<td>- Description: Using praise and other forms of recognition to show appreciation towards other team members</td>
<td>- Description: Articulating visions or goals to build commitment to actions</td>
</tr>
<tr>
<td>- Behavioral codes: Identifying and describing problems or solutions, outlining connections with problems or solutions, communicating knowledge about the company, referring to specialists, weighing costs and benefits of a solution, clarifying and summarizing contributions of others, visualizing content</td>
<td>- Behavioral codes: Active listening, providing support to suggestions of others, offering praise by making positive remarks</td>
<td>- Behavioral codes: Defining / pointing out the goals or mission, prioritizing tasks and procedures in line with team or project goals</td>
</tr>
<tr>
<td><strong>Monitoring the team task</strong></td>
<td><strong>Integrating team members</strong></td>
<td><strong>Facilitating change</strong></td>
</tr>
<tr>
<td>- Description: Ensuring that the work progresses as planned</td>
<td>- Description: Addressing others to actively involve them in the team and encourage participation</td>
<td>- Description: Encouraging and supporting the generation of creative ideas</td>
</tr>
<tr>
<td>Behavioral codes: Time management, discussing procedures, raising procedural questions, delegating tasks during the discussion</td>
<td>Behavioral codes: Involving others through questions, encouraging participation of others</td>
<td>Behavioral codes: Signaling interest in change and in implementing innovations, pointing out each team member’s responsibility for initiating change and innovation, engaging in action planning to implement ideas or innovations</td>
</tr>
</tbody>
</table>

*Note.* To code the meeting interaction process, each statement is annotated with exactly one behavioral code.
RESULTS

Table 5.2 displays the descriptive statistics and inter-correlations between verbal behaviors for times 1, 2, and 3, and leader emergence, respectively. At the beginning of the project, the correlation coefficient between emergent leadership and change-oriented leadership behaviors was the highest \( r = .39, p < .01 \), followed by task-oriented verbal statements \( r = .29, p < .01 \). Emergent leadership and relations-oriented communication were not significantly associated at time 1 \( r = .09, p > .05 \). At the middle of the project, emergent leadership was positively associated with task-oriented behaviors \( r = .43, p < .01 \), followed by relations- \( r = .34, p < .01 \) and change-oriented communication \( r = .26, p < .01 \). At the last session before the final presentation, emergent leadership showed the highest positive correlation with task-oriented statements \( r = .30, p < .01 \), followed by relations-oriented \( r = .23, p < .01 \) and change-oriented communication \( r = .22, p < .05 \).

Table 5.2. Descriptive statistics and correlations for the three behavioral meta-categories and leader emergence at times 1, 2 and 3.

<table>
<thead>
<tr>
<th>Time (T)</th>
<th>Mean</th>
<th>SD</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task-oriented behaviors [1]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>135.93</td>
<td>81.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>187.06</td>
<td>127.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>141.60</td>
<td>78.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relations-oriented behaviors [2]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>74.32</td>
<td>42.34</td>
<td>.39**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>107.03</td>
<td>58.25</td>
<td>.67**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>71.85</td>
<td>37.16</td>
<td>.48**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Change-oriented behaviors [3]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>15.82</td>
<td>13.94</td>
<td>.62**</td>
<td>.33**</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>13.70</td>
<td>11.47</td>
<td>.48**</td>
<td>.50**</td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>15.51</td>
<td>12.33</td>
<td>.48**</td>
<td>.38**</td>
<td></td>
</tr>
<tr>
<td><strong>Emergent leadership [4]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>3.89</td>
<td>0.82</td>
<td>.29**</td>
<td>.13</td>
<td>.39**</td>
</tr>
<tr>
<td>T2</td>
<td>4.07</td>
<td>0.96</td>
<td>.43**</td>
<td>.33**</td>
<td>.34**</td>
</tr>
<tr>
<td>T3</td>
<td>4.21</td>
<td>0.89</td>
<td>.30**</td>
<td>.35**</td>
<td>.23**</td>
</tr>
</tbody>
</table>

Note. **p < .01, *p < .05. Verbal behaviors per 60-minute period at time 1 (NT1 = 125), time 2 (NT2 = 123), and time 3 (NT3 = 127). The values refer to the correlations of the behavioral categories at the respective time points. For example, task-oriented communication at time 1 correlates .28 with relations-oriented communication and .29 with leader emergence at time 1, task-oriented communication at time 2 correlates .59 with relations-oriented communication and .43 with leader emergence at time 2, and task-oriented communication at time 3 correlates .33 with relations-oriented communication and .30 with leader emergence at time 3. For reasons of parsimony, demographics are not included in the table; neither age \( (r_{T1} = .06; r_{T2} = .08, r_{T3} = .05) \) nor sex \( (r_{T1} = .08; r_{T2} = .03, r_{T3} = -.05; 1 = \text{female}; 2 = \text{male}) \) was significantly correlated with emergent leadership.
To test our hypotheses, we used multilevel modelling (Ployhart & Ward, 2011) that can handle our three-level data structure of repeated measures (level 1) nested within individuals (level 2) nested within teams (level 3). We chose our analytical approach to take into account that our data comprised multiple measurements of the same persons who were embedded in stable teams. At level 1 we included the fixed effects of (1) task-, (2) relations-, (3) change-oriented behaviors, (4) time, as well as the interaction terms between (5) time and task-oriented behaviors, (6) time and relations-oriented behavior, and (7) time and change-oriented behaviors. For the second level, we used an unstructured covariance matrix to deal with the correlated measurements. For the third level, we added a random intercept to account for the fact the individuals were nested in teams. We standardized the variables prior to analysis and used a restricted maximum likelihood approach with listwise exclusion of missing data.

A significant interaction effect between a behavioral meta-category (i.e., task-, relations-, change-oriented behaviors) and time indicates that the relevance of this type of communication for predicting emergent leadership changes over time. Put differently, this means that the relationship between the category and emergent leadership is not stable but influenced by the time point. Providing no support for hypothesis 1, we did not find an interaction effect between time and task-oriented communication, F(2, 190.44) = 0.88, p = .42, for predicting emergent leadership (see Table 5.3). Yet, in line with hypothesis 2, the data revealed a significant interaction effect between time and relations-oriented behaviors, F(2, 181.04) = 4.68, p < .05, for predicting emergent leadership (see Table 5.3). Furthermore, as stated in hypothesis 3, we found a significant interaction of time and change-oriented behaviors, F(2, 195.57) = 3.99, p < .05 (see Table 5.3). To summarize, task-oriented communication did not predict emergent leadership differently across time. In contrast, the relationships between relations-oriented as well as change-oriented behaviors and emergent leadership varied across team phases.
Because the interaction effect between task-oriented behaviors and time was not significant, we continued our analysis by using the time-invariant estimator for task-oriented behaviors. Specifically, we analyzed in more detail how the relationships between emergent leadership and relations- as well as change-oriented behaviors changed at time 1 compared to time 2 as well as time 2 compared to time 3 (see Table 5.4). Furthermore, we post-hoc tested contrasts to point out how the three behavioral meta-categories jointly predict emergent leadership at times 1, 2, and 3, respectively (see Table 5.5).

**Task-oriented behaviors**

Using the time-invariant estimator of task-oriented behaviors in our post-hoc tests to predict emergent leadership, we found a significant positive association of task-oriented behaviors and emergent leadership, \( r(253.84) = 2.64, p < .05 \) (see Table 5.5). Providing no support for hypothesis 1, this means that task-oriented behaviors was a stable positive predictor of emergent leadership across time.

**Table 5.3. Test of fixed effects (dependent variable: emergent leadership).**

<table>
<thead>
<tr>
<th></th>
<th>Denominator df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>46.52</td>
<td>.06</td>
<td>.81</td>
</tr>
<tr>
<td>Task-oriented behaviors</td>
<td>316.83</td>
<td>5.81</td>
<td>.02</td>
</tr>
<tr>
<td>Relations-oriented behaviors</td>
<td>258.86</td>
<td>4.72</td>
<td>.03</td>
</tr>
<tr>
<td>Change-oriented behaviors</td>
<td>255.91</td>
<td>12.98</td>
<td>.00</td>
</tr>
<tr>
<td>Time</td>
<td>144.28</td>
<td>20.96</td>
<td>.00</td>
</tr>
<tr>
<td>Time * Task-oriented behaviors</td>
<td>190.44</td>
<td>.88</td>
<td>.42</td>
</tr>
<tr>
<td>Time * Relations-oriented behaviors</td>
<td>195.57</td>
<td>3.99</td>
<td>.02</td>
</tr>
<tr>
<td>Time * Change-oriented behaviors</td>
<td>181.04</td>
<td>4.68</td>
<td>.01</td>
</tr>
</tbody>
</table>
Table 5.4. *Estimates of fixed effects.*

<table>
<thead>
<tr>
<th></th>
<th>Est. (SD)</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.32 (.10)</td>
<td>67.01</td>
<td>3.28**</td>
</tr>
<tr>
<td>Task-oriented behaviors</td>
<td>.15 (.06)</td>
<td>253.84</td>
<td>2.64**</td>
</tr>
<tr>
<td>Relations-oriented behaviors</td>
<td>.41 (.09)</td>
<td>127.13</td>
<td>4.76**</td>
</tr>
<tr>
<td>Change-oriented behaviors</td>
<td>.00 (.06)</td>
<td>124.39</td>
<td>0.00</td>
</tr>
<tr>
<td>Time 1</td>
<td>-.51 (.09)</td>
<td>133.37</td>
<td>-5.63**</td>
</tr>
<tr>
<td>Time 2</td>
<td>-.38 (.07)</td>
<td>138.97</td>
<td>-5.14**</td>
</tr>
<tr>
<td>Time 1* Relations-oriented behaviors</td>
<td>-.35 (.11)</td>
<td>213.87</td>
<td>-3.11**</td>
</tr>
<tr>
<td>Time 2 * Relations-oriented behaviors</td>
<td>-.34 (.09)</td>
<td>140.50</td>
<td>-3.61**</td>
</tr>
<tr>
<td>Time 1* Change-oriented behaviors</td>
<td>.21 (.09)</td>
<td>215.06</td>
<td>2.50*</td>
</tr>
<tr>
<td>Time 2 * Change-oriented behaviors</td>
<td>.06 (.09)</td>
<td>154.63</td>
<td>0.66</td>
</tr>
</tbody>
</table>

*Note.* **p < .01, *p < .05. Reference point is time point 3.

**RELATIONS-ORIENTED BEHAVIORS**

A closer look at the estimates of fixed effects (see Table 5.4, time 3 is used as a reference point) revealed that the overall significant interaction effect between relations-oriented communication and time for predicting emergent leadership resulted from a significantly changing relationship between time 2 and time 3, \( t(140.50) = -3.61, p < .01 \). In contrast, the change in the relationship between time 1 and time 2 was not significant, \( t(197.45) = -.10, p = .92 \). The estimates for relations-oriented behaviors reflected this increase, being .07 at time 1, .06 at time 2, and .41 at time 3.

When considered in combination with task- and change-oriented communication at the different time points, relations-oriented behaviors were a significant predictor of emergent leadership at the end of the project \( (t[127.13] = 4.76, p < .01) \) but not at time 1 and time 2, thus providing support for hypothesis 2 (see Table 5.5).
CHANGE-ORIENTED BEHAVIORS

The overall significant interaction effect between change-oriented communication and time for predicting emergent leadership stemmed from a significantly changing relationship between time 1 and time 2, \( t[186.14] = 1.72, p = .09 \), whereas the change between time 2 and time 3 was not significant, \( t[154.63] = .66, p = .51 \). The estimates for change-oriented behaviors indicated a decrease, being .21 at time 1, .06 at time 2, and .00 at time 3 (see Table 5.4).

When considered in combination with task- and relations-oriented communication at the different time points, change-oriented communication was a significant predictor of emergent leadership at the beginning of the project (\( t[134.75] = 3.40, p < .01 \)) but not at time 2 and time 3, thus providing support for hypothesis 3 (see Table 5.5).

Table 5.5. Contrast estimates for times 1, 2 and 3 (dependent variable: emergent leadership)

<table>
<thead>
<tr>
<th>Verbal behaviors</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Est. (SE) df t</td>
<td>Est. (SE) df t</td>
<td>Est. (SE) df t</td>
</tr>
<tr>
<td>Task-oriented</td>
<td>.15 (.06) 253.84 2.64**</td>
<td>.15 (.06) 253.84 2.64**</td>
<td>.15 (.06) 253.84 2.64**</td>
</tr>
<tr>
<td>Relations-oriented</td>
<td>.06 (.08) 133.99 0.73</td>
<td>.07 (.06) 133.20 1.15</td>
<td>.41 (.09) 127.13 4.76**</td>
</tr>
<tr>
<td>Change-oriented</td>
<td>.22 (.06) 134.75 3.40**</td>
<td>.06 (.07) 122.22 0.84</td>
<td>.00 (.06) 124.39 0.01</td>
</tr>
<tr>
<td>Adjusted R-suared</td>
<td>( \eta^2 = .2845 )</td>
<td>( \eta^2 = .2354 )</td>
<td>( \eta^2 = .2244 )</td>
</tr>
</tbody>
</table>

Note. **p < .01, *p < .05. Est. = estimate, SE = standard error.

DISCUSSION

Building on the idea that emergent leadership – “a process that inherently involves time” (Bluedorn & Jaussi: 662) – is granted by group members in a relational process through social interactions (DeRue & Ashford, 2010), this study investigated which types of verbal behavior are positively associated with emergent leadership over time. Particularly, we argue that not all behaviors are equally important for team leadership at all points in time but the relationship between specific behaviors and emergent leadership changes across team phases. This idea is
rooted in the communication literature assuming that the content and meaning of verbal behaviors are strongly influenced by shifting social contexts (e.g., Gerbner, 1956). Using fine-grained temporal interaction analysis, we found that the relationship between emergent leadership and task-oriented communication remained stable, whereas relations-oriented communication gained importance and change-oriented statements lost relevance.

THEORETICAL IMPLICATIONS

Avoiding the criticism of studies that rely on survey proxies to assess group members’ perceptions of leader behavior, we follow the suggestion to use alternative, event-level approaches by investigating actual behavioral events (e.g., Baumeister et al., 2007; Hoffman & Lord, 2013; Kozlowski, 2015; Van Quaquebeke & Felps, 2017). Several scholars have called for more attention to the temporal and interactive nature of emergent leader-follower relationships dynamics (e.g., Dinh et al., 2014; Humphrey & Aime, 2014; Shamir, 2011). Through its method and design, our research addresses these issues and provides a timely response to previous calls for more innovative research on this matter (e.g., Kozloski, 2015). In particular, our results emphasize the importance of including a temporal perspective when investigating emergent leadership in groups.

Early team collaboration. When newly formed teams in our study started working on their project, change-oriented statements demonstrated the strongest relationship with leader emergence. This finding aligns with the competence signaling perspective (Mullen et al., 1989) inasmuch as demonstrating competence through pointing out what needs to be done may lead to higher social influence when groups are formed and individuals compete for informal leadership positions. Furthermore, the results correspond to the idea of functional leadership, such that change-oriented behaviors help the team to create an overall vision for the project work (e.g., Morgeson et al., 2010). Lastly, these results provide support for the core tenets of Gersick’s (1988; 1989) model of group development, according to which escaping a stadium of initial inertia is pivotal for high team effectiveness (Ericksen & Dyer, 2004).
**Middle team collaboration.** As the project proceeded, we observed a slight shift in the relationship between emergent leadership and verbal behaviors, such that change-oriented communication lost importance and task-oriented behaviors became the strongest predictor of emergent leadership. Given that the task focus becomes more prevalent at the mid point of the project (Gersick, 1988, 1989), this finding aligns with a functional perspective on leadership such that emergent leadership is associated with behavior that help the team to accomplish their goals.

**Late team collaboration.** At the end of the teams’ lifespan, relations-oriented statements gained importance for predicting emergent leadership. This pattern is compatible with the business model of innovative processes, in which the ‘front-end’ consists of generating the concept, and the ‘back-end’ consists of product development, adjustments, and launch (Bel, 2010). To ensure the “launch” of the ideas generated in the beginning and avoid emotional conflicts in this stressful period, relationship building might be essential to motivate group members and to facilitate the completion of project tasks. Notably, and contrary to our first hypothesis, task-oriented communication still remained a significant predictor of emergent leadership at the final project meeting. This finding suggests that task-oriented behavior always plays a role for leadership, although the longer a project team works together, the more important deeper relationships beyond the task become to ensure team members’ commitment to the project (Tyssen, Wald, & Heidenreich, 2013).

**Managerial Implications**

Given the increasing number of self-directed project teams in organizations, our findings also have several implications for leadership development and human resource management practitioners. First, our findings can inform leader development programs in the sense that participants can learn to adjust their communicative focus at various points in time to influence a group effectively. Thus, promising avenues for future research would be to investigate whether verbal behaviors relevant to emergent leadership can be learned (cf. Doh, 2003).
Second, (prospective) leaders can use insights into the temporal dynamics of emergent leadership to strategically position themselves in a team by verbalizing visions and innovative ideas in early collaboration phases. Importantly, while individuals seeking to be ascribed leadership may want to show change-oriented behaviors at the start of a project, they should refocus towards task-oriented behaviors as the project work proceeds. At the end of a project, they may want to engage in relations-oriented communication, such as encouragement of others and active listening, in order to establish their leadership role further.

Finally, our findings may encourage human resource management practitioners to reconsider their criteria for rating leadership potential in one-time assessment centers versus longer-term observations. If only short interaction periods within the newly set up group are evaluated to assess leadership potential, individuals who show a lot of change-oriented behaviors may indeed be particularly suitable for a leadership position. However, if an individual’s long-term performance ratings (e.g., as discussed in appraisal interviews) are taken into account when promoting an individual to a leadership position, the effectiveness of communication – in terms of relationship orientation and the feasibility of solutions – may be pivotal to be accepted as a leader (Riggio, Riggio, Salinas, & Cole, 2003).

LIMITATIONS AND CONCLUSION

Project groups in organizations usually collaborate in settings comparable to those in our study: Experts from different fields come together to work on novel tasks that are rarely structured, under conditions of time and performance pressure (e.g., Kauffeld et al., 2015). As such, our use of an international sample working on an unknown task presents a strength for our study’s real-world applicability to international business and education. However, it remains to be seen how our results extend to monocultural project teams. For example, a previous study showed that U.S. teams tend to produce more solution-oriented and positive socioemotional communication, while German teams focus more on problem analysis and complain more (Lehmann-Willenbrock, Allen, & Meinecke, 2014). This suggests potential differences in the
linkages between verbal communication and emergent leadership when considering monocultural teams in different settings. Moreover, our study focused on verbal communication rather than nonverbal expressions. Future research could consider both verbal and nonverbal behavior in order to provide a more comprehensive understanding of leadership ascriptions in self-directed teams (Reh, Van Quaquebeke, & Giessner, 2017).

In conclusion, we encourage future research to consider leadership as a social, co-constructed phenomenon by taking into account contextual conditions when studying (emergent) leadership in dynamic group settings. A better understanding of how social influence via verbal (and nonverbal) communication unfolds in initially leaderless teams may be a first step to improve outcomes for individuals, teams, and organizations. We hope that this research inspires both human resource practitioners and researchers to rethink emergent leadership from a temporal and dynamic perspective.
CHAPTER 6

GENERAL DISCUSSION
The studies presented in this dissertation applied a wide range of methods to empirically investigate how learning and leadership processes unfold as dynamic, inherently social phenomena in organizational groups. Chapter 1 embedded the research presented in this dissertation within the context of current organizational challenges, such as an increasingly age-diverse workforce, a growing awareness of ethical conducts, and the trend towards organizing work in self-managed groups (Ben-Menahem, von Krogh, Erden & Schneider, 2016; Frese, 2008; Leibold & Voelpel, 2006; Ng & Feldman, 2015; West, 2012).

Furthermore, I presented social identity theory (Tajfel & Turner, 2004) and the social identity model of leadership (SIMOL; Hogg, 2001; van Knippenberg, 2011) as theoretical frameworks that motivated the research presented in this dissertation.

Chapters 2 and 3 shed light on the role of (dis-)similar group members in affecting what is learned in organizational training groups. Both chapters took into account group members’ age diversity but differed in their time perspective on learning in training groups. Specifically, Chapter 2 examined what types of knowledge are exchanged, and when the different types of knowledge are exchanged, over the course of a longitudinal training program in an organization. Chapter 3 analyzed employees’ knowledge sharing behavior as affected by the perceived group psychological safety climate in a one-day training intervention.

Chapters 4 and 5 shifted the focus of attention towards leadership as a relational, dynamic process that is shaped by the interactions between leaders and followers in organizational groups. Chapter 4 presented empirical evidence indicating that leaders perceived as ethical influence their followers’ pro-organizational behavior through changing followers’ moral identity, but only in conditions of high leader group prototypicality. Chapter 5 added to this perspective by analyzing the fine-grained interaction behaviors of emergent leadership in self-managed teams over the course of a project.

The present chapter briefly summarizes the findings of Chapters 2 through 5 and discusses their theoretical and practical implications. Furthermore, I point out limitations of the
research presented in this dissertation and derive ideas for future research. Particularly, by integrating the intergenerational learning perspective (Chapters 2 and 3) with the identity rationale (Chapter 4) and the focus on the behavioral micro-dynamics of group work (Chapter 5), I discuss how future research can develop theoretical and practical insights into intergenerational learning at the level of micro-dynamic knowledge exchange acts in organizational groups. I conclude by summarizing how the work presented in this dissertation contributes to the development of a deeper theoretical understanding of learning and leadership processes and helps address contemporary organizational challenges.

**GENERAL DISCUSSION: FINDINGS**

Before integrating the major findings across the four empirical papers to discuss their implications for research and practice, I will shortly summarize the main results presented in Chapters 2 to 5.

**CHAPTER 2: A PHASE MODEL OF INTERGENERATIONAL LEARNING**

The in-depth qualitative study on intergenerational knowledge exchange presented in Chapter 2 was based on 31 interviews conducted over a span of three years in a full-time training program at an automobile company involving young (16–19 years) and experienced participants (41–47 years) and their instructors. We found that both generations possessed distinct expert, practical, social, and meta-cognitive knowledge. Importantly, not all types of knowledge were exchanged equally at all points in time. Providing evidence that learning processes change over the course of a training program, the young and experienced participants exchanged different types of knowledge at different time points. We integrated these findings into a phase model of intergenerational learning comprising three phases: (1) familiarization, (2) assimilation, and (3) detachment. First, during the familiarization phase intergenerational learning processes occurred mostly in the area of expert and practical knowledge. Once intergenerational participants got to know each other better, they entered the assimilation phase during which they emphasized the
exchange of practical, social and meta-cognitive knowledge. Finally, in the detachment phase, participants began to separate from one another and mainly exchanged social knowledge.

Overall, this study indicated that the types of knowledge exchanged in intergenerational groups changed across time, thus emphasizing the importance of longitudinal designs for fully capturing the temporal dynamics of intergenerational learning processes in organizations.

**CHAPTER 3: AGE DIVERSITY AND LEARNING OUTCOMES IN ORGANIZATIONAL TRAINING GROUPS: THE ROLE OF KNOWLEDGE SHARING AND PSYCHOLOGICAL SAFETY CLIMATE**

Chapter 3 also investigated learning in intergenerational groups, again using a field-study design, but shifted the focus towards ad hoc training groups in which the interplay of employees’ diversity perceptions and team climate evaluations are important antecedents for explaining knowledge sharing. Data for this study were gathered via a survey of 211 employees participating in a collaborative one-day training at an automobile company. As hypothesized, the group’s age diversity as perceived by the trainees was negatively linked to learning outcomes, and this relationship was mediated by knowledge sharing. Moreover, providing evidence for the assumption that subjective salience of diversity is pivotal for influencing outcomes, objective age diversity had no effect on participants’ learning outcomes or knowledge sharing activities. Furthermore, psychological safety climate augmented the indirect negative effect of perceived age diversity on learning outcomes through knowledge sharing (moderated mediation model). When participants perceived a high psychological safety climate in the group, their knowledge sharing activities were high, regardless of perceived age diversity. However, when psychological safety climate was low, perceived age diversity was strongly negatively linked to knowledge sharing. Thus, psychological safety climate buffered the negative effects of perceived age diversity on knowledge sharing and learning in organizational trainings. Overall, this study indicated that employees’ learning in intergenerational ad hoc training groups through
knowledge sharing is mostly influenced by (1) whether they perceive the group as being age-diverse, and (2) whether they perceive the group’s psychological safety climate as being negatively affected.

**CHAPTER 4: AN IDENTITY PERSPECTIVE ON ETHICAL LEADERSHIP TO EXPLAIN ORGANIZATIONAL CITIZENSHIP BEHAVIOR: THE INTERPLAY OF FOLLOWER MORAL IDENTITY AND LEADER GROUP PROTOTYPICALITY**

Chapter 4 shifted the research focus from employees’ learning outcomes as affected by their identity-related knowledge sharing activities with dissimilar group members towards employees’ behavior as affected by their leader. Particularly, we analyzed how employees’ perceptions of ethical leadership and leader group prototypicality influenced their pro-organizational behavior through their moral identity. To investigate this identity rationale, we conducted a scenario study with 138 participants and a field study with 225 employees. In the scenario study, participants were randomly assigned to one of four scenarios varying with regard to the content of a vignette (2x2 between-subject factorial design). In each vignette, participants were asked to imagine a leader responsible for their work group. The leader descriptions contained the manipulations. The first factor varied the degree of ethical leadership (low versus high), while the second factor varied leader group prototypicality (low versus high). Data showed that the indirect effect of the ethical leadership condition through follower moral identity on organizational citizenship behavior was significant. Furthermore, the conditional indirect effect of perceived ethical leadership on organizational citizenship behavior through follower moral identity was significant in the high leader group prototypicality condition, but not in the low leader group prototypicality condition.

The findings of the scenario study could be replicated in the field study. Employees rated their day-to-day supervisor’s ethical leadership behaviors and group prototypicality. Furthermore, participants provided us with data about their organizational citizenship behavior
and moral identity. Results confirmed that the indirect effect of perceived ethical leadership on organizational citizenship behavior through follower moral identity was significant. The conditional indirect effect of perceived ethical leadership on organizational citizenship behavior was significant at high and medium values of leader group prototypicality, but not if leader group prototypicality was low.

Overall, this study provided evidence that those leaders who are perceived as representative for the group possess an advantage in terms of influencing their followers’ sense of self, which in turn might result in an increase of followers’ pro-organizational behavior. Thus, identity-related processes are not only important for predicting employees’ behavior when interacting with each other (see Chapter 2 and 3), but also for understanding how leaders can affect followers’ behavior.

**CHAPTER 5: IT’S NOT ONLY WHAT YOU SAY BUT ALSO WHEN YOU SAY IT:**  
**A TEMPORAL ACCOUNT OF VERBAL BEHAVIORS AND EMERGENT LEADERSHIP**

Chapter 5 payed tribute to the fact that leader and follower roles are not always clearly defined but evolve over time. Indeed, conceptual work has argued that leader and follower identities are created through ongoing social interactions (DeRue & Ashford, 2010), and that social influence comes into existence through processes that increase followers’ agreement with the leader’s ideas and suggestions (Hogg, 2001). In an attempt to shed more light on the verbal behaviors contributing to leader emergence in initially leaderless groups, Chapter 5 described the results of a longitudinal interaction analysis study investigating emergent leaders’ behaviors at the micro-level of communicative acts in 42 self-managed teams. 136 junior consultants (three to five members per team) were videotaped at three points in time throughout the course of an eight-week consulting project. The teams worked in a highly competitive setting, with a final presentation in front of the company’s top management at the end of the project. Emergent leadership was assessed with a round-robin design that provided all team members with emergent leadership ratings at the beginning, middle, and end of a project. Multilevel modelling
revealed that task-oriented communication was a stable predictor of emergent leadership, change-oriented communication was important at the beginning, and relations-oriented statements at the end of the project. The results indicate that it is not only important to consider what individuals say but also when they say it to develop a complete understanding of emergent leadership. Overall, Chapter 5 complements Chapter 2 in emphasizing the importance of considering the role of time when explaining emergent phenomena in groups. Furthermore, this study is among the first to investigate group members’ actual behavior (instead of survey proxies) at the event-level to explain how individuals are ascribed leadership in self-managed teams.

THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

The findings summarized above provide several contributions for building and testing theory that takes into account both the (identity-related) group context and the role of time for explaining learning and leadership in organizations. While the specific theoretical contributions of each study are discussed in the respective Chapters 2 to 5, this chapter adopts an integrative lens to point out how a temporal account of the interplay between social identity, learning, and leadership in groups can advance our understanding of intra- and interpersonal processes occurring in organizations. In other words, while each study makes unique contributions to the learning and leadership literature, this chapter focuses on the broader implications of the empirical findings of this dissertation that are relevant to developing group process theory.

Building on prior theorizing, I structure this discussion along the differentiation between cumulative and emergent group-level phenomena (Cronin, Weingart, & Todorova, 2011; Kozlowski, 2015; Kozlowski & Klein, 2000). Particularly, I first discuss how this dissertation’s findings contribute to our knowledge about the link between cumulative phenomena – collective group properties such as the group’s age composition – and learning outcomes in organizational trainings. Second, I turn to this dissertation’s implications for conceptualizing emergent group-level phenomena in organizational research, that is group processes created through interactions between group members and unfolding over time.
COLLECTIVE GROUP PROPERTIES AND OUTCOMES IN TRAINING GROUPS

Collective group properties refer to the group-level accumulation of individual properties, such as a group’s-age composition or gender heterogeneity (Cronin et al., 2011; Kozlowski, 2015; Kozlowski & Klein, 2000). Although such phenomena are only minimally dynamic (Cronin et al., 2011), they may influence within-team dynamics such as the learning processes occurring in training groups. More specifically, and as pointed out in the introduction (Chapter 1), cumulative characteristics have important identity-related consequences for group members that can drive individuals to categorize others into similar in-group members and dissimilar out-group members. As such, group properties merit theoretical consideration (Kozlowski, 2015) for understanding learning processes in organizational groups.

Notably, although diversity attributes have been widely studied in the work team performance context (Guillaume, Dawson, Otaye-Ebede, Woods & West, 2015; van Knippenberg & Mell, 2016; van Knippenberg & Schippers, 2007; Williams & O’Reilly, 1998), there is a lack of research investigating the influence of group properties on learning in human resource development initiatives. This is astonishing because from a theoretical perspective, information elaboration – one of the core processes influencing diversity’s effect on group outcomes (e.g., Hoever, van Knippenberg, van Ginkel & Barkema, 2012; van Ginkel & van Knippenberg, 2008) – might be particularly important to foster employee learning in training groups. Given the substantial financial investments in organizational trainings and the need to continuously develop employees in order to stay competitive (e.g., Miller, 2013), it is pivotal to develop a theoretical understanding of how the group composition influences learning in organizational training groups. The studies presented in Chapters 2 and 3 of this dissertation have taken a first step to reach this aim by conceptually arguing and empirically showing that knowledge exchange as a form of information elaboration constitutes a central mediating process for explaining learning outcomes in age-diverse training groups. Furthermore, the findings highlight the time spent together (Chapter 2) and psychological safety climate
(Chapter 3) as influential boundary conditions for individual learning through knowledge sharing in team settings.

Going forward, as I point out in more detail in the future research section of this chapter, it would be interesting to combine traditional theories linking group composition and outcomes (i.e., social identity theory, the information elaboration perspective, and the integration of both perspectives in the categorization-elaboration model by van Knippenberg, De Dreu & Homan, 2004) with a temporal, behavior-oriented approach that takes into account changes in group members’ perceptions across time (see next section). Based on the findings presented in this dissertation, I am confident that such a conceptual integration could help to understand the within-team process dynamics resulting from relatively static group properties that how and when knowledge is developed in diverse training groups.

EMERGENT PHENOMENA AND GROUP PROCESSES

Emergent phenomena relate to group processes that unfold over time, originate within the individual but manifest collectively and are created through interactions between group members (Kozlowski, Chao, Grand, Braun & Kuljanin, 2013). As such, they “get to the core of team process dynamics directly” (Kozlowski, 2015: 274). Although it is widely acknowledged that (emergent) group processes are inherently dynamic (e.g., Arrow, Poole, Henry, Wheelan, & Moreland, 2004; McGrath, Arrow, & Berdahl, 2000; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Salas, Stagl & Burke, 2004), they are often treated as static in research (Cronin et al., 2011; Kozlowski, 2015; Tannenbaum, Mathieu, Salas & Cohen, 2012). Whereas cross-sectional studies can provide some hints of the relationships between group inputs, processes, and outcomes in groups, this picture might change once groups move forward towards the next project phase. Indeed, the longitudinal studies presented in Chapter 2 and 5 indicate that it is essential to account for different group phases in order to understand the temporal dynamics of learning and leadership in organizational groups. These studies applied two different methodologies – a qualitative (Chapter 2) and a quantitative approach (Chapter 5) – to develop theory that explicitly
incorporates the role of time in organizational group contexts. While both chapters show that theory development incorporating the role of time is a useful endeavor to deepen our understanding of emergent group phenomena, scholars are well advised to carefully select their research method to fit the question at hand (see also Kozlowski, 2015).

On the one hand, the in-depth qualitative analysis presented in Chapter 2 resulted in a new model of intergenerational learning across different phases of a longitudinal training program. This methodology was useful for conceptualizing a model in an area where previous work has been mostly atheoretical and lacked a longitudinal perspective (Kessler & Staudinger, 2007; Pinto, 2011; Ropes, 2013). On the other hand, the quantitative behavioral interaction analysis approach presented in Chapter 5 helped to test theoretical assumptions derived from dynamic team leadership models and leader substitute theory. Thus, instead of developing a new model, this study aimed to integrate different research streams to predict the verbal behavior of emergent leaders in initially leaderless groups. This approach is also referred to as theory elaboration, that is the process of conceptualizing and conducting empirical research using preexisting conceptual ideas as a starting point for developing new theoretical insights by structuring theoretical constructs to explain empirical observations (Fisher & Aguinis, 2017).

On a related note, although Chapter 4 did not explicitly investigate the role of changes over time in a group context, it described the results of an experiment which assumed that followers’ moral identities represent emerging self-constructs. Particularly, the presented experiment captured changes in followers’ moral identities by manipulating their perceptions of ethical leadership and leader group prototypicality. The theoretical rationale for this study reflects a recent trend in identity research to depart from conceptualizing identity as a relatively stable trait-like concept describing enduring qualities and instead emphasize its dynamic nature as a conglomerate of continuously changing self-schemata (Lord, Gatti, & Chui, 2016). Thus, coming back to the topic of emergent group phenomena, an important implication of this thesis is that future theory needs to be more specific about the contextual conditions for emergent social identity processes in organizational groups.
MANAGERIAL CONTRIBUTIONS AND IMPLICATIONS

The empirical work underlying this dissertation was developed in close collaboration with the participating organizations, and the results were used to directly improve the training interventions described in Chapters 2 and 3. Particularly, after presenting the results to the top management of the automobile company, it was decided to (1) train the trainers and (2) establish a change management initiative with the aim of developing a company culture characterized by a high appreciation of age diversity.

First, the trainers participated in a seminar helping them to understand the importance of a psychological safe climate in the training group, and the temporal embeddedness of learning processes between employees from different generations. They developed a definition of their trainer role as a facilitator of interaction processes between trainees. Furthermore, the trainers learned about techniques that can help groups establish an open discussion culture, and they were advised to explicitly map down the knowledge available in the group (see recommendations for practice in Chapter 2).

Second, as advised in the managerial implications section of Chapter 3, the “train-the-trainer” initiative was accomplished by a company-wide change management program including corporate communication activities and supervisor trainings with the purpose of establishing a positive diversity climate. A hospitable climate for diversity might help create a general psychological safe work environment on an organizational level, which in turn can improve employees’ day-to-day learning and performance outcomes (Singh, Winkel, & Selvarajan, 2013).

More broadly speaking, the insights presented in this dissertation can be used to adapt human resource management practices for (1) training employees in diverse learning groups and (2) selecting and developing leaders. First, diverse training groups are a reality of organizational life that is mostly not systematically considered. Instead of trying to design training groups as homogenous as possible or downplay differences between participants, trainers should learn that
diversity can be a potential source of disruption, but can also improve group learning if managed correctly. Composing (age-)diverse training groups does not automatically result in learning from one another but calls for instructors’ or supervisors’ active engagement (Tempest, 2003). In short-term training programs, the trainer’s focus should be on encouraging employees to share their knowledge and establishing a safe discussion climate. Notably, it is not necessary to explicitly discuss the differences between participants if the training only lasts for a short period of time; it can even be detrimental if the salience of diversity attributes is raised without being able to use them for improving the groups’ information elaboration processes (van Knippenberg, De Dreu & Homan, 2004). In contrast, in long-term training initiatives it becomes more important for the group to develop shared mental models to be able to effectively learn from and with each other. Thus, reflecting on the specific knowledge and background of the training group members can help to identify experts on particular topics and deepen the group’s information elaboration processes. Additionally, the long-term character of the program raises the group’s importance for participants’ identity construction processes. Thus, a reflection on the differences and similarities between trainees constitutes an important first step for reducing the likelihood of an identity threat. To conclude, although it is still pivotal to support knowledge sharing and high levels of psychological safety climate in long-term training initiatives, these processes might change over time and call for different reactions of the trainer (see Chapter 2).

Second, Chapters 4 and 5 have a number of practical implications for selecting and developing leaders. Our findings indicate that both formal and informal leaders must be accepted by their followers as capable of representing and influencing the group in order to exploit their leadership potential. On the one hand, our findings may encourage human resource management practitioners to reconsider their criteria for selecting leaders. The most common approaches to assess the leadership potential of candidates is to review their past experience, to ask for references, to conduct interviews and to observe their behavior in an assessment center. The low
reliability of these methods in predicting future success as a leader can be explained by the fact that leadership is a flexible, social, and task-dependent process emerging through leader-follower interactions (Lord et al, 2016). To illustrate, the external recruitment of leaders may not turn out to be successful if followers do not perceive those leaders as being prototypical for their group or if the leader communicates in a way not matching the phase-dependent group needs. An innovative approach would be to allow the group to select their future leader through a short collaboration period or an assessment center evaluated by the group. This could ensure that the group gets along with the leader’s way of interacting with them and that they select a leader with high group prototypicality. However, this procedure might not work well for newly formed teams which do not know yet what the group stands for. In such a setting, it might be important to allow the group to interact intensively with each other and with their leader to develop a shared understanding of group states. Thus, instead of starting to work immediately on the task in the day-to-day environment, it could be useful to incorporate group building exercises that allow group members to learn from each other and form their identity in relation to the group.

On the other hand, beyond the recruitment of new supervisors, (potential) leaders could also be trained to gain the acceptance of the group by convincing followers to see them as representative for the group (see Chapter 4). Furthermore, they could be taught about effective communication strategies that help strengthen their leader position (see Chapter 5). In other words, our findings can inform human resource development activities to include knowledge about group prototypes, group phases, and interaction dynamics. Such knowledge could be advantageous for employees who strive for leadership positions.

To summarize, the findings presented in this dissertation were used to directly improve training programs at the involved organization. Furthermore, the results have a number of broader implications for fostering knowledge exchange in age-diverse training groups as well as selecting and developing leaders in organizations.
LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The empirical studies presented in this dissertation also possess some limitations that may help delineate areas for future research. While the study-specific limitations are discussed in detail in the respective Chapters 2 to 5, I focus in this chapter on one overall area for improvement concerning all four studies, namely the integration of research on cumulative and emergent group phenomena. In other words, this dissertation does not combine research on cumulative group properties (such as age diversity) with research on emergent diversity using quantitative behavioral analysis methods. That means diversity in group interaction processes and group emergent states as a consequence of group diversity characteristics were not considered. Although beyond the scope of this dissertation, such an approach has a high potential for bridging and integrating the diversity and group process literature (van Knippenberg & Mell, 2016).

While diversity attributes are present at the first meeting of any group (i.e., the individual employees are always characterized by these attributes), emergent diversity refers to diversity in group interaction processes and in group emergent states (e.g., mental models) that come into existence when the group starts engaging in conversations. As pointed out before, cumulative group properties such as a group’s intergenerational composition can impact group members’ interaction behaviors and the degree to which group members converge or diverge in their perceptions of group states through inhibiting social identity processes. To illustrate, while a homogenous group often quickly agree on the predominant mental models used in the group, heterogeneous groups may exhibit a less uniform perception pattern, resulting in a higher risk of social tensions and reduced well-being (Arendt, Barysch, Funk & Kugler, 2016; Kunz et al., 2016).

Going forward, I argue that the lacking integration of research in compositional diversity with research on emergent diversity could be overcome by integrating insights from the diversity literature (van Knippenberg et al., 2004) with a micro-dynamic perspective on the interaction
processes occurring in diverse teams (Kozlowski, 2015; van Dijk, Meyer, van Engen, & Loyd, 2017, van Knippenberg & Mell, 2016). Particularly, the research program I suggest in the following focuses on the emergent behavioral processes contributing to successful learning in intergenerational organizational groups.

As mentioned before, diversity scholars have mostly relied on two theoretical perspectives – the social categorization perspective and the information elaboration approach – to develop propositions about the antecedents of performance in diverse groups. Van Knippenberg, De Dreu, and Homan (2004) integrated these two perspectives into an overarching model, the so-called Categorization-Elaboration-Model (CEM). The CEM incorporates the view that social categorization and information elaboration processes always occur simultaneously. Yet, depending on the employee’s affective evaluation of the social categorization – i.e., to what extent is the fact that the other is different from myself threatening my identity? – interpersonal differences might either stimulate or hinder the depth of knowledge exchange processes. This implies that diversity can have both positive and negative effects, and the key to understanding the outcomes of intergenerational learning relationships lies in understanding the interplay of the described two core processes (see Figure 6.1). Whereas Chapter 2 already provided qualitative evidence that knowledge exchange processes change over time and Chapter 3 identified the group’s psychological safety climate as an important boundary condition, the field still lacks insights on how knowledge sharing processes emerge over time on a behavioral level in diverse groups. Yet, this understanding would be important to effectively manage and influence intergenerational learning relationships. Furthermore, the focus on this “black box” of knowledge exchange behavior in intergenerational learning relationships closely fits with repeated calls for studies that shed light on the micro-dynamics affecting processes and outcomes in (generational) diverse teams (e.g., van Dijk et al., 2017; van Knippenberg & Mell, 2016).
Figure 6.1. Future research program: Investigating diversity in group interactions as a black box (expanded CEM-Model).

To summarize, in an attempt to address the limitations of this dissertation, I suggest to extend the CEM for explaining intergenerational learning by focusing on a dynamic perspective of knowledge exchange processes as emergent behavioral phenomena unfolding through social interactions. Thus, going beyond the CEM’s focus on linking team diversity with outcomes, I assume that the model also provides a good starting point for linking groups’ age diversity with groups’ diversity in the nature and development of intergenerational interactions. An empirical research program expanding the CEM in the suggested way would also be an important step to theory elaboration, i.e., the empirical refinement of an existing theory (Fisher & Aguinis, 2017).

CONCLUDING REMARKS

Against the background of demographic shifts, this dissertation analyzed learning (Chapters 2 and 3) and leadership processes (Chapters 4 and 5) related to current organizational challenges such as maintaining and developing employees’ knowledge, ensuring employees’ pro- organizational behavior, and conducting work in self-managed teams.

The four empirical field studies presented here address several gaps in the group and leadership literature, rely on multiple data sources (employee ratings/narratives, objective team composition, supervisor/trainer/mentor ratings/narrative, behavioral interactions) and multiple
forms of data collection (interviews, survey measures, experimental and field study designs, behavioral interaction coding), and showcase a range of analytical approaches (qualitative analysis/Gioia method, moderated mediation index, interaction analysis, multilevel modelling). The findings have important implications for conceptualizing and designing learning in organizational trainings in dependence from the group context to ensure that knowledge is actively shared and integrated. Moreover, the results emphasize the value of theory development and empirical work in understanding leadership as a relational process shaped through the temporal interaction dynamics between leaders and followers. Lastly, the results of this dissertation can be translated into a number of directly applicable practical recommendations that address contemporary organizational challenges. In sum, a temporal group process perspective fits well with the dynamics of (organizational) life: Everything changes and nothing stands still.7

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7 πάντα χωρεῖ καὶ οὐδὲν μένει (own translation of a quote ascribed to the Greek philosopher Heraclitus of Ephesus).
SAMENVATTING

Organisaties staan voor een aantal uitdagingen om hun personeelsbestand effectief te beheren, zoals het onderhouden en ontwikkelen van kennis bij medewerkers in tijden van demografische veranderingen, het zeker stellen van pro-organisatorisch gedrag en het werken in zelfstandige teams. In vier empirische hoofdstukken onderzoekt dit proefschrift leer- (studie 1 en 2) en leiderschapsprocessen (studie 3 en 4) die gerelateerd zijn aan deze organisatorische uitdagingen en dan voornamelijk gericht op de invloed van groepscontext. Bijvoorbeeld worden trainingen in organisaties meestal in groepsverband uitgevoerd, waarbij werknemers kennis met elkaar delen en in discussie gaan en op deze manier hun leeruitsomen beïnvloeden. Gelijktijdig moeten leiders van een groep geaccepteerd worden om hun positie te vestigen en het gedrag van groepsleden te sturen. Kortom, intra- en interpersoonlijke processen binnen de groepscontext hebben belangrijke consequenties voor het begrijpen van hedendaagse organisatorische uitdagingen.

Uitgaand van de sociale identiteitstheorie en de informatie elaboratie visie, onderzoeken studie 1 en 2 processen en randvoorwaarden voor kennisontwikkeling van groepen met leeftijdverschillen. Enerzijds stelt de sociale identiteitstheorie dat kennisontwikkeling bij groepen met leeftijdverschillen belemmerd kan worden, doordat individuen de voorkeur aan anderen geven die worden beschouwd als ‘gelijk’ (ook wel in-group leden) in tegenstelling tot ‘anders’ (ook wel out-group leden). Omdat groepsleden die als ‘anders’ worden beschouwd een potentiële dreiging vormen voor de eigen identiteit, kan de bereidwilligheid om kennis met elkaar te delen minder hoog zijn in groepen met leeftijdverschillen. Anderzijds stelt de informatie elaboratie visie dat groepen met leeftijdverschillen toegang hebben tot meer kennis uit verschillende gebieden, waardoor zij met diepgaande discussies betere kennisverwerking hebben, dit proces bevordert de leeruitsomen. Gebaseerd op 31 longitudinale diepte-interviews met jongere en oudere trainees, die aan een voltijd intergenerationele studie programma bij een autofabrikant deelnamen, kon de eerste studie inderdaad aantonen dat niet alle kennisstypen (vak-,
praktische-, sociale- en meta-cognitieve kennis) in gelijke mate tussen werknemers met verschillende leeftijden over de duur van het bestaan van de groep gedeeld werden. De resultaten toonden aan dat werknemers, in nieuwe leeftijds-diverse trainingsgroepen, wat tijd nodig hadden voordat zij zich zeker genoeg voelden om interacties te hebben met de “out-group” (bv. leden van een andere generatie). Bovendien hadden de werknemers, hoewel een fase van intensieve uitwisseling van kennis optrad, tegen het eind van het programma weer de neiging om zich in subgroepen te verdelen. Voortbouwend op deze bevindingen werd in deze studie een gefaseerd model van intergenerationeel leren in organisatorische groepen ontwikkeld.

Studie 2 draagt bij aan het onderwerp door de randvoorwaarden van kennisuitwisseling te onderzoeken voor korte termijn leeruitkomsten in leeftijds-diverse groepen. 211 werknemers namen deel aan een eendaagse gezamenlijke praktische training en een bijhorende vragenlijst. In deze setting hadden de groepsleden niet veel tijd om met elkaar kennis te maken, waardoor het proces van kennisuitwisseling in groepen met verschillende leeftijden belemmerd werd, omdat sociale identiteitsprocessen optraden die de deelnemers onzeker maakten. De resultaten lieten zien dat waargenomen leeftijdsverschillen maar niet objectieve leeftijdsverschillen tussen groepsleden gerelateerd waren aan negatieve leerresultaten en dat deze relatie gemedieerd werd door kennisuitwisseling. Verder werd vastgesteld dat een klimaat van psychologische veiligheid een buffer vormt tegen negatieve effecten van waargenomen leeftijdsverschillen. Kortom, studie 1 en 2 hebben bijgedragen aan ons begrip van kennisontwikkeling in organisaties als een sociaal proces dat beïnvloed kan worden door (tijdgevoelige) interacties met andere trainees.

Vervolgens gaat dit proefschrift verder door zich te richten op de rol van leiders en hun omgang met organisatorische uitdagingen. In de volgende twee hoofdstukken wordt met de groepscontext rekening gehouden wanneer wordt gekeken naar het effect van leiders op pro-organisatorisch gedrag van volgers (studie 3) en naar de ontwikkeling van groepsleden tot een informele leider in zelfsturende teams (studie 4). Studie 3 gebruikt de sociale identiteitstheorie om te onderzoeken hoe leiders hun volgers sturen door het effect dat ze op de identiteit van de
volgers uitoefenen. Een vignetstudie met 138 deelnemers en een veldonderzoek met 225 werknemers toonde aan dat leiders werden waargenomen als ethisch invloedrijk op het pro-organisatorische gedrag van hun volgers door de morele identiteit van de volgers te beïnvloeden. Verder werden deze identiteitseffecten versterkt als de volgers hun leider typerend voor hun groep vonden, dat wil zeggen, als de leider representatief voor de groep is en wordt gezien als de verpersoonlijking van de identiteit van de groep.

Studie 4 vult dit identiteit-gerelateerde perspectief op leiderschap aan door te focussen op de sociale interactieprocessen waarmee iemand interpersoonlijke invloed verkrijgt, via welke processen iemand naar voren treedt als leider. Deze studie voegt in het bijzonder iets toe aan leiderschapsonderzoek door te bestuderen hoe de totstandkoming van leiderschap gerelateerd is aan taak-, relatie-, en veranderingsgerichte communicatie, terwijl de sociale context verandert tijdens de levensloop van een team. Gedurende acht weken werden, bij een steekproef van 42 zelfsturende teams, gegevens verzameld op drie meetmomenten. Aan de hand van multilevel modelling werd aangetoond dat de totstandkoming van leiderschap door taakgerichte communicatie, in het begin van het project voorspeld werd door veranderingsgerichte communicatie, en op het eind door relatiegerichte communicatie, en op het eind door relatiegerichte communicatie.

Samengevat, dit proefschrift levert nieuwe theoretische en empirische inzichten in de rol van leren en leiderschap als dynamische processen die verankerd zijn in groepscontext. Deze processen kunnen organisaties helpen om te gaan met hedendaagse uitdagingen. De gepresenteerde studies tonen de kracht van zowel kwalitatieve als kwantitatieve benaderingen; ze bouwen op verschillende gegevensbronnen (bv. leidinggevende-/trainer-/mentorgesprekken, beoordelingen van werknemers, informatie van objectieve teamsamenstellingen, en gedragsdata) evenals verschillende vormen van dataverzameling (interviews, vragenlijsten, experimentele en veldonderzoek methodes, video-opnames/ interactie coderingen). De resultaten zijn de uitkomst van verschillende analytische methodes (kwalitatieve inhoudsanalyse/Gioia methode, gemodereerde mediatie index, en micro-level temporele interactie analyse). De bevindingen
hebben belangrijke implicaties voor de conceptualisatie en het ontwerpen van leerervaringen in
organisatorische groepen, op een manier die het actief delen en de integratie van kennis
bevordert. Bovendien benadrukt dit proefschrift de wetenschappelijke waarde van
theorieontwikkeling en empirische analyses in het begrijpen van leiderschap als een relationeel
proces, dat gevormd wordt door de interactie tussen leiders en volgers. De inzichten die
gepresenteerd zijn in dit proefschrift zijn daarnaast erg relevant voor human resource
management professionals die werknemers trainen in diverse groepen en verantwoordelijk zijn
voor de selectie en ontwikkeling van leiders.
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APPENDIX

CHAPTER 3 – MEASURES

Measure of Perceived Age Diversity (Harrison, Price & Bell, 1998)

1. How similar were the participants of the training with respect to age?

Measure of Knowledge Sharing (Faraj & Lee, 2000)

1. I shared my expert knowledge with the other participants.
2. I shared my experiences about processes and courses of action with the other participants.

Measure of Learning Outcomes (Magni, Paolino, Cappetta & Proserpio, 2013)

1. I learned new expert knowledge about the principles of continuous improvement through the training.
2. I gained new knowledge about processes and courses of action according to the principles of continuous improvement through the training.
3. I think that the information and abilities learned in the training will improve my work performance.

Measure of Psychological Safety Climate (van Ginkel & van Knippenberg, 2000)

1. I had the impression the other group members wanted to hear what I had to say.
2. I had the impression the other group members would appreciate discussion.
3. I expected the other members to react positively when I disagreed with them.
4. This group appreciated it when I mentioned new information.
CHAPTER 4 – SCENARIOS

The leader descriptions were based on the scale items of leader group prototypicality (Giessner et al., 2013) and ethical leadership (Brown et al., 2005; similarly employed by van Gils et al., 2015).

High leader group prototypicality

Imagine that you are working for a supervisor named Alex. Alex embodies the norms of your team and is generally a good example of the kind of people who are members of your team. Alex has much in common with the members of your team. That means, Alex generally represents what is characteristic about your team.

Low leader group prototypicality

Imagine that you are working for a supervisor named Alex. Alex does not embody the norms of your team and is generally not a good example of the kind of people who are members of your team. Alex has nothing in common with the members of your team. That means, Alex does not at all represent what is characteristic about your team.

High ethical leadership

Alex is a supervisor who very strongly believes in doing the “right” thing in terms of ethics, without making compromises. Alex likes to be seen as a person who always makes ethical decisions. Alex consistently acts according to ethical values when making decisions. This is the reason that Alex does not tolerate any violations of ethical standards. When faced with dilemmas at work, Alex asks, “What is the right thing to do?”

Low ethical leadership

Alex is a supervisor who doesn’t believe in doing the “right” thing in terms of ethics. That is why Alex often makes compromises regarding ethics. Many people will describe Alex as
a person who never makes ethical decisions. Alex hardly ever acts consistently according to ethical values when making decisions. This is the reason that Alex tolerates violations of ethical standards. When faced with dilemmas at work, Alex says “Get it done by any means.”

CHAPTER 4 – MEASURES

Measure of Moral Identity (scenario study and field study, Stets & Carter, 2012)

Instruction: Please think about what kind of person you are for each pair of characteristics and place yourself along a continuum between the two contradictory characteristics. A value of 1 reflects agreement with one bipolar characteristic, 5 reflects agreement with the other characteristic and 3 places you halfway between the two.

- honest/dishonest
- unfair/fair
- not hardworking/hardworking
- untruthful/truthful
- principled/unprincipled
- caring/uncaring
- selfish/selfless
- helpful/not helpful
- compassionate/hardhearted
- unkind/kind
- stingy/generous
- friendly/unfriendly
Measure of Organizational Citizenship Behavior (scenario study and field study, Williams & Anderson, 1991)

Organizational Citizenship Behavior – Individual:

1. I help others who have been absent.
2. I help others who have heavy work loads.
3. I assist my supervisor with his/her work (when not asked).
4. I take time to listen to co-workers' problems and worries.
5. I go out of way to help new employees.
6. I take a personal interest in other employees.
7. I pass along information to co-workers.

Organizational Citizenship Behavior – Organizational:

8. My attendance at work is above the norm.
9. I give advance notice when unable to come to work.
10. I take undeserved work breaks.
11. I spent a great deal of time with personal phone conversations at work.
12. I complain about insignificant things at work.
13. I conserve and protect organizational property.
14. I adhere to informal rules devised to maintain order.

Measure of Ethical Leadership (field study, Brown, Treviño & Harrison, 2005)

1. Listens to what employees have to say.
2. Disciplines employees who violate ethical standards.
3. Conducts his/her personal life in an ethical manner.
4. Has the best interests of employees in mind.
5. Makes fair and balanced decisions.
6. Can be trusted.

7. Discusses business ethics or values with employees.

8. Sets an example of how to do things the right way in terms of ethics.

9. Defines success not just by results but also the way that they are obtained.

10. When making decisions, asks “what is the right thing to do?”

Measure of Leader Group Prototypicality (Giessner, van Knippenberg, van Ginkel & Sleebos, 2013)

1. My supervisor is an embodiment of the norms of our team.

2. My supervisor is a good example of the kind of people who are members of our team.

3. My supervisor has much in common with the members of our team.

4. My supervisor represents what is characteristic about our team.

5. My supervisor is very similar to the members of our team.

6. My supervisor resembles the members of our teams.
ACKNOWLEDGMENTS

“What you get by achieving your goals is not as important as what you become by achieving your goals.” (Zig Ziglar)

The development of this doctoral thesis is best described by the introductory quote of the American poet Henry David Thoreau. Working on my PhD allowed me to go to places I have never been before, both intellectually and physically. I am deeply grateful for all the inspiring and intelligent people I met along this way, who generously shared their knowledge, enthusiasm and time with me. Without you, this thesis project would not exist.

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