

CHAPTER

# 6

## *Group Faultlines and Team Learning: How to Benefit from Different Perspectives*

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The extent to which teams learn and how they perform partly depends on their group composition. Although there is ample research on the effects of diversity on team functioning and performance (for reviews and meta-analyses, see Jackson, Joshi, & Erhardt, 2003; Mannix & Neale, 2005; Stewart, 2006; Webber & Donahue, 2001; Williams & O'Reilly, 1998), little research has been done on the effects of group composition on team learning. Team learning is a relatively new concept that is starting to crystallize. Likewise, new theories of group composition have been introduced, such as group faultlines (Lau & Murnighan, 1998). Group faultlines are hypothetical dividing lines that split a group into relative homogeneous subgroups based on the group members' alignment along one or more attributes (adapted from Lau & Murnighan, 1998). Group faultlines are assumed to better explain the effects of group composition on team functioning than traditional heterogeneity theories of group composition (Bezrukova, Thatcher, & Jehn, in press).

In this chapter, we further the understanding of the concept of team learning by reviewing past typologies and definitions, by introducing a new learning typology that includes the concept of social learning, and by proposing a model in which we relate group faultlines to these learning types. In this model, we will explore what factors influence the realization of a team's learning potential and examine the role of potential moderators, such as psychological safety and error culture. We propose that a better understanding of how team members interact and how group processes evolve in teams with various group compositions will help fully utilize the team's learning potential.

## TEAM LEARNING DEFINITIONS

In this chapter, we define *team learning* as a process of reflection and interaction in which team members actively acquire, process, and share knowledge and information in order to improve team performance (based on Argote, Gruenfeld, & Naquin, 2001). In this definition, we explicitly link the process of team learning to the goal of task improvement, since we assume that teams are usually oriented toward team performance or outcomes in their efforts to learn from each other. Before we introduce our new team learning typology, we first give a short review of past team learning definitions (see Table 6.1 for a summary).

Although much research has been done on teams and learning in organizations, we know relatively little about learning in teams (cf. Edmondson, 1999). Researchers have defined team learning in different ways; some have emphasized the process of learning (e.g., Edmondson, 1999, 2002; Gibson & Vermeulen, 2003; Tjosvold, Yu, & Chun, 2004), while others have stressed the outcomes of learning (e.g., Ellis et al., 2003; see Table 6.1). Process definitions of team learning often capture aspects such as reflection and action (Edmondson, 1999, 2002; Tjosvold et al., 2004; Gibson & Vermeulen, 2003), sharing and processing knowledge, and making improvements (Edmondson, 2002; Argyris & Schön, 1978; Gibson, 2001; Kolb, 1984). Some researchers have described concrete team learning behaviors associated with these concepts, such as (a) asking questions, (b) challenging assumptions, (c) evaluating alternatives, (d) seeking feedback, (e) experimenting, (f) reflecting on results, (g) detecting, discussing, and correcting errors, and (h) reflective communication (Argyris & Schön, 1978; Edmondson, 1999; Gibson & Vermeulen, 2003; Van der Vegt & Bunderson, 2005). Outcome definitions of team learning are often described in terms of changes in knowledge resulting from team-member interactions (e.g., Argote et al., 2001; Ellis et al., 2003). An emerging field of literature examines the concept of team innovation and the factors that influence it (e.g., Ancona & Caldwell, 1992; De Dreu & West, 2001; Drach-Zahavy & Somech, 2001; Hambrick, Cho, & Chen, 1996; O'Reilly, Williams, & Barsade, 1997), which can be regarded as a team learning outcome.

TABLE 6.1 Overview of Past Definitions of Team Learning

Reference	Label	Definition	Process/ outcome	Learning typology
Argote, Guenfeld, & Naquin, 2001	Group learning	"We define group learning in terms of both the processes and outcomes of group interaction. As a process, group learning involves the activities through which individuals acquire, share and combine knowledge through experience with one another. Evidence that group learning has occurred includes changes in knowledge, either implicit or explicit, that occur as a result of such collaboration" (p. 370)	Process and outcome	Task, process, & social
Edmondson, 1999	Team learning behavior	"...an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results and discussing errors or unexpected outcomes of actions" (p. 353)	Process	Task & process
Edmondson, 2002	Team learning	"Team learning has been defined as a process in which a team takes action, obtains and reflects upon feedback and makes changes to adapt or improve (Edmondson, 1999; Argote et al., 2001)" (p. 2002)	Process	Task, process, & social
Edmondson, Bohmer, & Pisano, 2001	Collective learning process	"Interdependence requires people to communicate and coordinate to create new routines, thereby participating in a collective learning process. This may involve learning about others' roles (Levine & Moreland, 1999), improvising (Orlikowski & Hofman, 1997), and making numerous small adjustments that facilitate technology implementation (Leonard-Barton & Deschamps, 1988)" (p. 688)	Process	Task & process

(Continued)

TABLE 6.1 (Continued)

Reference	Label	Definition	Process/ outcome	Learning typology
Ellis, Hollenbeck, Ilgen, Porter, West, & Moon, 2003	Team learning	"We define team learning as a relatively permanent change in the team's collective level of knowledge and skills produced by the shared experience of the team members" (pp. 821-822)	Outcome	Task, process, & social
Gibson & Vermeulen, 2003	Team learning behavior	"The exploration of knowledge through experimentation, the combination of insights through reflective communication, and the explication and specification of what has been learned through codification" (pp. 203-204)	Process and outcome	Task & process
Hinsz, Tindale, & Vollrath (1997)	Group level information processing	"We defined group level information processing as the degree to which information, ideas or cognitive processes are shared, and are being shared, among the group members and how this sharing of information affects both individual- and group level outcomes. The shared information can relate to the task at hand, characteristics of the group, aspects of group members, the pattern of group interaction, or the context within which the task, group and its members exist" (p. 53)	Process	Task, process, & social

(Continued)

TABLE 6.1 (Continued)

Reference	Label	Definition	Process/ outcome	Learning typology
Liang, Moreland, & Argote, 1995	Transactive memory	"This system is a combination of the knowledge possessed by particular group members and an awareness of who knows what" (p. 385)	System/ Process	Process learning
Moreland & Myaskovsky (2000)	Transactive memory	"... transactive memory systems develop in many groups to ensure that important information is recalled. These systems combine what individual group members know with a shared awareness of who knows what. When group members need information, but cannot recall it themselves or mistrust their own memories, they can turn to each other for help. In this way, a transactive memory system can provide a group's members with more and better information than any of them could recall alone" (p.118)	System/ Process	Process learning
Stasser & Stewart (1995)	Transactive memory	Refer to the work of Wegner (1986) and emphasize the effect of expert roles and role structure in teams as a way to stimulate this transactive memory system	System/ process	Process learning
Sarin & McDermott (2003)	Team Learning	"We define learning as occurring when the processing of experience changes the range of potential behaviors/actions (Huber, 1991)" (p.709)	Process/ outcome	Task, process, & social & learning

(Continued)

TABLE 6.1 (Continued)

Reference	Label	Definition	Process/ outcome	Learning typology
Tjosvold, Yu, & Hui, (2004)	Team learning	"...learning involves understanding new ideas and incorporating them into one's own thinking (Crossan, et al., 1999). (...) Team members reflect on their performance and its consequences, discover cause and effect relationships, and identify weaknesses and strengths in their own efforts. They gain insight into their own behavior, develop and implement changes, and prepare for future challenges" (p. 1224)	Process	Task, process, & social
Van der Vejt & Bunderson, 2005	Team learning behaviors	"We define team learning behaviors as activities by which team members seek to acquire, share, refine, or combine task-relevant knowledge through interaction with one another (Argote, Gruenfeld, & Naquin, 2001: 370). These activities may include asking questions, challenging assumptions, seeking different perspectives, evaluating alternatives, and reflecting on past actions (Edmondson, 1999; Gibson & Vermeulen, 2003). We therefore view team learning behavior as one aspect of a group's 'interaction process' (Hackman & Morris, 1975), or as an example of a group action 'process' (Marks, Mathieu, & Zacarro, 2001)" (p. 534)	Process	Task learning
Wegner (1986)	Transactive memory	"The transactive memory system begins when individuals learn something about each other's domains of expertise" (p. 191)	System	Process learning

*Innovation* can be defined as the initiation or discovery of a technology, process, or idea that is new in the particular context of the organization and which is often followed by the development and implementation of this idea or technology (adapted from Amabile, 1988). Although the team-innovation literature can improve our understanding of team learning as an outcome, unfortunately, a lack of cross-fertilization still exists between this field and the literature field on team learning. We will therefore incorporate this literature in our later review on group composition and team learning.

What, however, makes team learning a group- or team-level construct? First, what is a group or team? A *group* or *team* can be defined as a social system of at least two members who (a) recognize themselves as a group, (b) are recognized by others as a group, (c) have a shared responsibility for a team product or service, and (d) operate in an organization (Hackman, 1987; Alderfer, 1987). In research on group composition and diversity faultlines, the term *group* is mainly used to refer to this definition (e.g., Gruenfeld, Mannix, Williams, & Neale, 1996; Jehn, Northcraft, & Neale, 1999; Lau & Murnighan, 1998). In the literature on team learning, however, the term *team* is mainly used, but often to refer to the same definition. We believe that the integration of these fields and terminologies is an important contribution to the literature, and therefore, we use the terms interchangeably, thereby referring to the previous definition.

The process of learning becomes a group- or team-level process when the ability to acquire knowledge and skills is collectively shared by group members (Ellis et al., 2003). Teams can do this by developing a transactive memory, which ensures that important information is recalled. In this system, the knowledge of individual group members is combined with a shared awareness of who knows what and who has certain abilities and skills (Liang, Moreland, & Argote, 1995; Moreland & Myaskovsky, 2000; Wegner, 1986). By effectively using this system, teams can become more efficient.

To summarize, team learning is a rich concept that can be seen as both a process and an outcome, and past researchers in different fields have discussed and emphasized the different aspects of this concept. In the following sections, we will extend the concept of team learning by proposing a new typology.

## A TEAM LEARNING TYPOLOGY

As previously outlined, most past team learning definitions describe a process of interaction and reflection, in which information or knowledge is being shared, acquired, and combined (e.g., Argote et al., 2001; Edmondson, 1999, 2002; Hinsz, Tindale, & Vollrath, 1997; see Table 6.1). It remains largely unclear, however, exactly *what* this information or knowledge is about, and thus, what the *subject* of learning entails

(Rupert & Jehn, 2006). As Hinsz et al. (1997) pointed out, shared information can be related to the task, characteristics of the group, or patterns in the team's interaction. The broad and undefined scope of subjects that team learning can be about calls for a typology, which further refines our understanding of team learning.

We propose that different aspects of the group process are associated with different types of learning. For instance, past research on group conflict has shown (Amason, 1996; Jehn, 1995, 1997; Pelled, 1996) that group members can have *relationship* conflicts and fight about nonwork issues, such as social events, clothing preferences, and hobbies. Group members can also have *task* conflict, which are disagreements regarding the task being performed, such as writing a report or developing a product (De Dreu & Weingart, 2003; Jehn, 1995, 1997). Recent studies (e.g., Behfar, Mannix, Peterson, & Trochin, 2005; Jehn & Mannix, 2001) have also distinguished *process* conflict as a separate conflict type, which can be defined as conflict about how to accomplish a task and who is doing what (Jehn, 1997; Kramer, 1991).

Corresponding with this conflict typology, we propose a similar framework for distinguishing types of team learning (Rupert & Jehn, 2006). First, we distinguish *task learning*, which we define as the process of improving the team's understanding of the content of the task, by sharing and reflecting upon knowledge, ideas, and insights through interaction with each other, in order to improve team performance. Some of the definitions given in Table 6.1 already refer to task learning; for instance, the definitions that describe "reflecting on results" (Edmondson, 1999) and "activities by which team members seek to acquire, share, refine, or combine *task* [italics added] relevant knowledge through interaction with each other" (Argote, Gruenfeld, & Naquin, 2001: 370).

Consider the example in which a four-person research group is developing a measurement instrument to test some new constructs. The group is composed of a statistician, two experts who know the field in which the concepts have originated, and one researcher who has experience with the methodology. In several meetings, they bring in their specific areas of expertise and discuss conceptual and methodological problems to develop an effective instrument to measure their constructs. This is an example of what we label "task learning," since the team members improve their understanding of the task by interacting with each other and sharing each other's knowledge and expertise about the content of the task.

Some of the past team learning definitions describe *process* activities, such as reflecting on performance (Tjosvold et al., 2004), creating routines, and learning about each other's roles (Edmondson et al., 2001). Gibson and Vermeulen (2003) proposed and found that team members often come up with ideas about how their work should be done, and they labeled this as "experimentation." Additionally, *codification* is the process by which tacit knowledge becomes explicit through, for instance, recording what has been discussed (e.g., meeting minutes;



Gibson & Vermeulen, 2003). These activities, through which members learn about *how* to do their work, we refer to as "process learning." We define *process learning* as the pattern of interaction through which team members create work routines and develop procedures about how to organize their work, such as delegating issues and role definitions. An important aspect of process learning is the development of a transactive memory. By working together, team members get to know each other's abilities, fields of expertise, and knowledge. Based on this information, they develop a system in which important information is recalled and in which members know who knows what, and thus, whom they can turn to with questions, which will make team processes more efficient.

To continue with our example of the research group, process learning would occur when, after a meeting, the research group divides the tasks based on what they have learned about each other's abilities and knowledge. For instance, the group decided that the two researchers who know the literature fields will do some more research and will come up with very detailed descriptions of the constructs. In turn, the statistician and the person having the experience with the methodology will give input and feedback regarding methodological issues. The process through which they learn who is best and most knowledgeable in doing what, and dividing the work based on their information about this, are examples of process learning.

An important omission in most definitions of team learning is learning about other team members as individuals with a personality, hobbies, family life, and so forth. Similarly, the literature on interdependency in teams has predominantly focused on functional and cognitive interdependency, ignoring interdependency between employees that has a more friendly nature (Rispen, 2006). Rispen extended this literature by distinguishing affect-based interdependency, which refers to the interdependency people experience in their search for a feeling of well-being and social acceptance, such as friendship relationships at work. These friendship relationships can have an important impact on individual and group effectiveness and job satisfaction (Rispen, 2006). Also, as a recent review of empirical research on group-personality composition and team effectiveness showed, personality can have an important impact on the team process as well (Halfhill, Sundstrom, Lahner, & Calderone, 2005). We therefore propose that team members can learn about each other's personality, family life, and social relationships at work as well.

Similarly, the literature on family-work balance shows that a supportive environment in which supervisors and colleagues have empathy for the employees' needs to balance work and family responsibilities positively influenced job satisfaction (Thomas & Ganster, 1995) and commitment (Thompson, Jahn, Kopelman, & Protas, 2004). This type of environment, however, negatively influenced absenteeism (Goff, Mount, & Jamison, 1990), work stress (Frone, Yardley, & Markel, 1997) and work-family conflict (Anderson, Coffey, & Byerly, 2002). For effective

team performance to occur, it can therefore be important to take into account personal characteristics such as personality and family situation when interpreting each other's actions. This is what we label "social learning," which we define as the process through which team members get to know each other better as individuals and learn to interpret each other's behavior in the context of personal life and personality. Referring to our example of the research group, social learning would occur when team members show some consideration for each other's personal situation and family life. For instance, the statistician in our example is a woman who has two little children, and she often has to leave at three o'clock to pick them up from school, which means that the team cannot meet in the late afternoon. In addition, this person is often in the office very early and prefers not to be disturbed or have coffee breaks in the morning, since she has to get a lot of work done at that time. Knowledge about these aspects of a team member's personal life can make it easier to interpret the relationships and interactions at work.

In our theoretical model, which we introduce later in this chapter, we link group composition to the different types of learning. Before we discuss this, we first give a short review of the literature on the effects of group composition and faultlines on team learning. We specifically focus on studies that have empirically tested the construct of team learning or related concepts (e.g., innovation, information sharing).

## GROUP COMPOSITION AND TEAM LEARNING: A REVIEW

The extent to which teams have the potential to learn partially depends on how the team is composed in terms of social-category characteristics and informational characteristics. Past diversity research has categorized diversity into these different types of characteristics to provide a better understanding of the effects of diversity in teams on outcomes. We will briefly discuss the difference between these types of heterogeneity and review what is known about their effects on team learning. After that, we will discuss what is known about the effects of faultlines on team learning and propose a model in which we link social category versus informational faultlines to the team learning types.

### *Diversity and Organizational Outcomes*

*Diversity* is a very broad concept, commonly defined as any attribute that a person may use to discover individual differences (Jackson, 1992; Mannix & Neale, 2005; Williams & O'Reilly, 1998). As a result, researchers have begun to classify diversity into similar attributes, such as social-category diversity and informational diversity (Jehn, Chadwick, & Thatcher, 1997; Jehn et al., 1999; Milliken & Martins, 1996; Polzer, Milton, & Swann, 2002). *Social-category diversity* refers

to explicit and often observable differences in social-category memberships, such as race, sex, and age (Jackson, 1992; Jehn et al., 1999; Pelled, 1996). *Informational diversity* refers to differences in knowledge bases and perspectives that members bring to a team, which are likely to arise from differences in educational background, training, and work experiences (Jehn et al., 1999). Since social-category diversity often refers to more visible, readily observable characteristics, and informational diversity is less visible and more job related (Van Knippenberg, De Dreu, & Homan, 2004), we believe that the distinction between social-category versus informational diversity reflects previous diversity distinctions, such as visible versus nonvisible diversity (Jackson, May, & Whitney, 1995; Tsui & Gutek, 1999) and surface- versus deep-level diversity (Phillips & Loyd, 2006; Harrison, Price, & Bell, 1998; Harrison, Price, Gavin, & Florey, 2002).

Researchers have suggested that these two categories of diversity may have a different impact on group processes due to their job-relatedness (Pelled, Eisenhardt, & Xin, 1999; Webber & Donahue, 2001). Researchers in many domains (e.g., organizational and social psychology, sociology, anthropology, education) have studied the effects of gender, race, cultural diversity, age, tenure, educational background, and personality on performance (e.g., Allport, 1954; Blau, 1977; Ely & Thomas, 2001; Hallinan & Smith, 1985). Some scholars endorse the optimistic view of diversity (cf. Mannix & Neale, 2005), arguing that diversity can be beneficial for organizations and can improve team outcomes, which is known as the "value-in-diversity hypothesis" (Cox, Lobel, & McLeod, 1991). In contrast, scholars who endorse the pessimistic view of diversity argue that diversity can create social divisions that can, in turn, lead to social disintegration and poor cohesion, thus decreasing group performance. Research has found support for both arguments, illustrating that diversity appears to be a "double-edged sword" (Milliken & Martins, 1996), increasing the opportunity for productive task conflict and creativity, as well as the likelihood that group members will become dissatisfied and have low identification with the group.

Despite this ample amount of research on the effects of diversity on organizational group outcomes (for reviews and meta-analyses, see Jackson et al., 2003; Mannix & Neale, 2005; Stewart, 2006; Webber & Donahue, 2001; Williams & O'Reilly, 1998), little research has linked group composition to the concept of team learning. Some studies examined the effects of heterogeneity on concepts that are highly related to team learning, such as creative problem solving and innovation (e.g., Jackson, 1992; Drach-Zahavy & Somech, 2001). For instance, Drach-Zahavy and Somech found that teams with members who were heterogeneous in their roles were more innovative than homogeneous teams. In another study, Jackson (1992) found that teams with members who were heterogeneous on functional characteristics outperformed homogeneous teams on tasks that required creative problem solving and innovation. Consistently, other studies showed that heterogeneous teams

generated more arguments (Smith, Tindale, & Dugoni, 1996), detected more novel solutions (Nemeth & Kwan, 1987), and were better able to integrate multiple perspectives (Gruenfeld, 1995; Peterson & Nemeth, 1996) than groups without conflicting perspectives.

Some other studies looked at the effects of group composition on information sharing (e.g., Phillips, Mannix, Neale, & Gruenfeld, 2004; Gruenfeld et al., 1996), which can be regarded as an aspect of team learning behavior (e.g., Edmondson, 1999; Ellis et al., 2003; Hinsz et al., 1997; Table 6.1). For instance, Gruenfeld et al. (1996) examined the effects of member familiarity and information distribution on performance and found that teams in which team members were familiar with each other outperformed groups consisting of strangers when the distribution of knowledge was diverse. In contrast, teams of strangers outperformed teams with members familiar to each other when the distributed information was redundant. This finding is consistent with past research by Shah and Jehn (1993), who found that groups of friends have better conflict-management strategies, which helps them improve task performance compared to groups of strangers.

Although the studies discussed above provide useful insights into the concept of knowledge and information management in groups, most studies did not hypothesize and test the specific link between group composition and team learning. A theoretical model is therefore needed to further our understanding of the complex relationship between group composition and team learning. Before introducing our theoretical model, we first briefly discuss two different approaches to group composition—dispersion versus alignment—and introduce the concept of faultlines.

### ***Dispersion Versus Alignment Theories of Group Composition***

Most past diversity research is based on the dispersion view of group composition (cf. Bezrukova et al., in press), which focuses on the individual distribution of characteristics in a group (McGrath, 1998; Moreland & Levine, 1992) and how this influences group and organizational outcomes. Studies based on this view have often predicted the effect of heterogeneity on group processes (e.g., conflict) through mechanisms explained by social identity and social categorization theory (Tajfel & Turner, 1986; Turner, 1987), the similarity attraction paradigm (Byrne, 1971), and an information/decision making perspective (Gruenfeld et al., 1996; Wittenbaum & Stasser, 1996). This dispersion approach of group composition has been criticized because of the assumption that members' attributes are independent (cf. Bezrukova et al., in press). For instance, if one is examining race, gender is often ignored, leading to the assumption that the experiences of black men in a group would be similar to those of black women in an otherwise identical group. Thus, the heterogeneity concept captures the degree to which a group differs

only one demographic characteristic at a time, while ignoring the interaction with other demographic characteristics (McGrath, 1998).

Alignment theories of group composition, such as group faultline theory (e.g., Lau & Murnighan, 1998) and compositional gaps (Hambrick, Li, Xin, & Tsui, 2001; Li & Hambrick, 2005), however, argue that the interaction of multiple attributes affects group processes more than separate characteristics. Group *faultlines* are defined as hypothetical dividing lines that split a group into relatively homogeneous subgroups based on each group member's alignment along one or more attributes (adapted from Lau & Murnighan, 1998). An example of a faultline group would be a four-person team consisting of two white male technicians and two black female sales managers. In this group, the alignment among members is clear because there are two homogeneous subgroups based on race, gender, and functional background. Group faultline theory predicts that the compositional dynamics of multiple characteristics has a greater effect on group processes and performance than the separate demographic attributes (e.g., Lau & Murnighan, 1998; Thatcher, Jehn, & Zanutto, 2003). Members that are similar on several demographic attributes are likely to align and form subgroups, differentiating themselves from other subgroups in a team (Early & Mosakowski, 2000; Cramton & Hinds, 2005).

Two recent studies theorized about and tested the relationship between group faultlines and team learning. Gibson and Vermeulen (2003) found a curvilinear relationship between subgroup strength and learning behavior, such that teams with moderately strong demographic subgroups displayed more learning behavior than teams with weak or strong subgroups. Additionally, they found that both teams that were highly homogeneous or heterogeneous tended to display more learning behavior, but this was only when they controlled for the simultaneous effect of subgroup strength.

In their experimental field study, Lau and Murnighan (2005) found that gender and ethnicity faultlines explained more variance in perceptions of team learning than single-attribute heterogeneity indices. Although they did not find support for their hypothesis that strong faultlines would negatively impact team members' perceptions of group learning, they found that cross-sex and cross-ethnicity work communications positively influenced perceptions of group learning and were particularly effective for weak faultline groups. Based on this finding, Lau and Murnighan suggested that past research on group effectiveness needs to be revised, since the effectiveness of intragroup communications may depend on whether or not groups have strong faultlines.

As we can conclude from these recent studies, more sophisticated theories are coming up to deepen our understanding of the effects of group composition on outcomes, still little research has been done on the effects of group composition on team learning. We further our theoretical understanding of this relationship, by proposing a theoretical

model explaining the complex relationship between group composition and team learning.

## A THEORETICAL MODEL LINKING FAULTLINES TO TEAM LEARNING

To examine which type of group composition has the highest potential for team learning to occur, we propose a model in which we apply the social-category versus informational distinction to faultlines, and then link these faultline types to the proposed types of team learning (see Fig. 6.1 for an overview of propositions). In this model, we will draw specific attention to the moderating role of psychological safety and error management culture on the relationship between faultlines and team learning (see Fig. 6.2 for propositions).

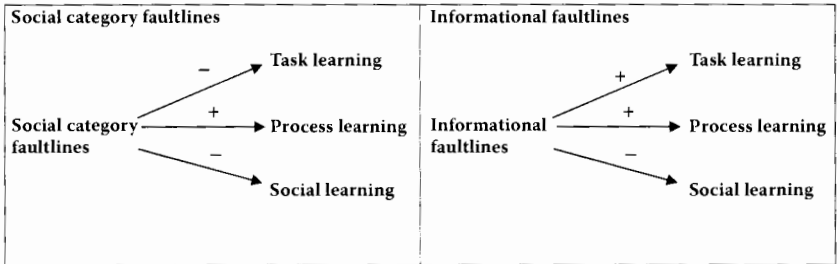


Figure 6.1 Proposed relations between faultlines and team learning.

### *Social-Category Faultlines and Task Learning*

We propose that the bases of the faultline subgroups are crucial to group functioning (Jehn et al., in press). Subgroups formed along social-category characteristics, such as race, gender, or age, are more likely to set in motion mechanisms such as stereotyping and prejudice (Messick & Mackie, 1989). Consequently, members in teams with social-category faultlines may feel less comfortable, and subgroup members are less likely to interact with members from the other subgroup. They may dislike and distance members who belong to the other social-category subgroup (Byrne, 1971). This polarization based on social-category dimensions can prevent subgroup members from sharing task-relevant information across subgroups (Milliken & Martins, 1996), and it will be less likely that group members will take task-related comments of members of the other subgroup seriously. For instance, past research has found that groups heterogeneous on age and race had less frequent and more formal task related communications with each other than members of homogeneous groups (Hoffman, 1985; Zenger & Lawrence, 1989). It

is likely that the inhibited, task-related interactions with members from the other subgroup due to stereotyping and prejudice will prevent team members from displaying task learning.

Moreover, self-verification theory (Swann, Polzer, Seyle, & Ko, 2004) proposes that people seek to confirm their thoughts and feelings about themselves. In groups with social-category faultlines it is more likely that this confirmation of thoughts is mainly taking place within subgroups, rather than across subgroups, creating different thought worlds based on social-category faultlines. During task-related discussions, subgroup members might stick to their opinions since they feel supported by the shared beliefs of their subgroup members (cf. Lau & Murnighan, 1998). For task learning to occur, however, it is important that *all* group members share each other's expertise, knowledge, and information in order to perform the task and that they are willing to adjust and change their ideas, based on the expertise of other group members. Therefore, we expect that social-category faultlines will inhibit a team from engaging in task learning and have made the following proposition:

Proposition 1a: Teams with social-category faultlines will experience *low* levels of task learning.

### ***Social-Category Faultlines and Process Learning***

Team members who have different social-category characteristics may face "interpretive barriers" due to members' different language systems, life experiences, or values acquired from varying socialization experiences (Dougherty, 1992; Jehn et al., in press). Based on certain social groups such as, for instance, men and women, individuals can have different conventions regarding social interactions at work and task accomplishment (Jehn et al., 1999; Von Glinow, Shapiro, & Brett, 2004). In groups in which these social groups are aligned with each other, it is more likely that members of subgroups develop their own routines and procedures to carry out their work. Priorities and work might not be aligned within the team, and thus, they may spend more time arguing who does what, when, and how (Behfar et al., 2005). These process conflicts about who should do what, however, can ultimately improve group members' understanding of how the work should be done. By arguing about the best way to carry out the work and by having discussions about responsibilities, the different roles of group members are being clarified, and better processes can result from these conflicts. So although there may be some polarization and conflict about routines in teams with social-category faultlines, these conflicts can ultimately turn into learning about the process of how to carry out the work. When team members know who is good in what and how tasks are being assigned, coordination should improve as well, since team members can anticipate rather than simply react to each other's behavior (Moreland, 1999). This leads us to the following proposition:

Proposition 1b: Teams with strong social-category faultlines will experience *high* levels of process learning.

### ***Social-Category Faultlines and Social Learning***

As we proposed earlier, differences based on highly visible social-category characteristics, such as race, gender, and age, can evoke negative responses, giving rise to stereotyping and prejudice. These stereotypes and biases can distort the information that group members acquire about each other, which can lead to misinterpretations about each other's behaviors. Consequently, heterogeneity based on social-category characteristics can cause feelings of discomfort, interpersonal tension, and hostility that can even result in relationship conflict (e.g., Alagna, Reddy, & Collins, 1982; Jehn, 1997; Jehn et al., 1997; Pelled, 1996), which will inhibit social learning.

Based on faultline theory (Lau & Murnighan, 1998), we argue that if social-category attributes align, similar members will interact with each other more often and are more likely to form strong subgroupings (Stevenson, Pearce, & Porter, 1985; Prentice & Miller, 2002). The salience of in-group versus out-group can trigger stereotypes and biases about the other subgroup, causing polarization between subgroups (Hogg, Turner, & Davidson, 1990). We expect that the inhibited communication between members from different subgroups based on social categories will inhibit team members from learning about each other's differences in personality, background, and lifestyle. Impressions that team members build about the personality and lifestyle differences can easily become distorted by stereotypes and biases. It will be less likely, therefore, that group members will be open to learn from each other's backgrounds and value the diversity that surrounds them. This leads us to the following proposition:

Proposition 1c: Teams with social-category faultlines will experience *low* levels of social learning.

### ***Informational Faultlines and Task Learning***

Teams with informational faultlines split into relatively homogeneous subgroups based on functional and educational background and/or position. These informational differences are less visible and less prone to interpersonal prejudice and stereotyping. Subgroup formation caused by informational faultlines may result in coalitions of opposing thoughts, which can operate in workgroups as "healthy divides," stimulating effective decision-making processes and team learning (Gibson & Vermeulen, 2003). Research shows that one of the mechanisms through which diversity can lead to better results is by the confrontation of different ideas (cf. Van den Bossche, Van Gennip, Gijsselaers, & Segers, 2006). Van der Vegt and Bunderson (2005) showed that the potential benefits



of diversity were realized through "the cross-fertilization of ideas," which can originate from task conflict; this, in turn, can lead to task learning. Especially when solving complex, nonroutine problems, teams are more effective when they are composed of team members with a variety of skills, knowledge, abilities, and perspectives (Bantel & Jackson, 1989).

The alignment along informational characteristics in teams with informational faultlines stimulates team members to exhibit similar viewpoints within each subgroup and display different opinions across subgroups. In this situation, subgroup members may find social support from other subgroup members due to mutual liking, perceived similarity, and shared experiences (Phillips et al., 2004). Literature on minority influence shows that this social support from other group members can have an important impact on information sharing in diverse groups (cf. Allen & Levine, 1971; Bragg & Allen, 1972). In groups with strong informational faultlines, members may engage in open discussions of different viewpoints across subgroups because they feel supported by their subgroup members (Lau & Murnighan, 1998; Phillips, 2003; Swann et al., 2004). We therefore argue that individuals within informational faultline groups will experience high levels of communication over task-related issues. These task-related discussions will, in turn, improve the team's understanding of the content of the task, since knowledge, ideas, and insights are openly shared through interaction with each other. We therefore propose the following:

Proposition 2a: Teams with informational faultlines will experience *high* levels of task learning.

### ***Informational Faultlines and Process Learning***

As we suggested, informational faultlines are less prone to stereotyping and biases. In fact, they are highly relevant for the work context, and group members get to know each other's fields of expertise and functional backgrounds through interaction with each other. These interactions play an important role in developing expectations about each other's behavior in the workplace.

According to expectancy violation theory, people make inferences about, for instance, values and work attitudes based on characteristics that they know, such as informational differences (Bettencourt, Dill, Greathouse, Charlton, & Mulholland, 1997). Team members in groups with informational faultlines expect to be different along characteristics such as educational and functional background and experience. Since these informational differences often align in teams with informational faultlines, these expectancies are often confirmed, which should lead to positive affect (Rink & Ellemers, in press). When expectations are consistent, there is less confusion about each other's roles and how task accomplishment should proceed in the team. We therefore expect that although there might be different opinions between subgroups about

how the task should be accomplished, there is clarity about each other's roles and work procedures, which will make it more likely that team members will be effective in dealing with, for instance, logistical problems or other process issues (Jehn et al., in press).

Additionally, when the expectations that group members have about each other's functional background and experiences are confirmed, group members are better able to build their transactive memory system, which clarifies who is good at what and how tasks should be divided. Team members know each other's strengths and weaknesses and will therefore be better prepared to divide and delegate the work tasks to enable effective team performance. We therefore expect that team members in groups with informational faultlines are likely to display process learning. We therefore propose the following:

Proposition 2b: Teams with informational faultlines will experience *high* levels of process learning.

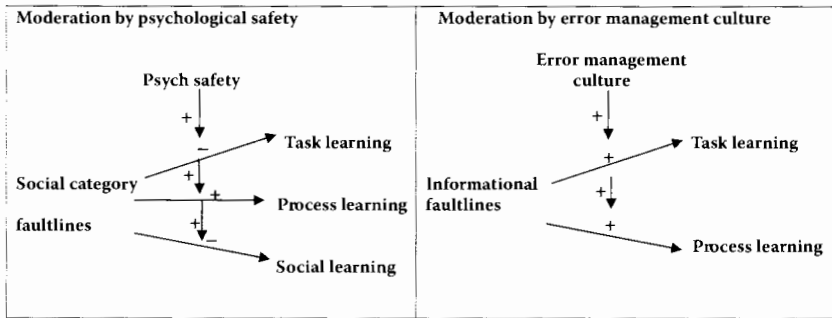
### ***Informational Faultlines and Social Learning***

As we have previously argued, due to expectancy effects, there is less confusion about task accomplishment and procedures. The confirmation of team members' expectancies regarding the alignment of informational characteristics in teams with informational faultlines creates a stable and certain environment, one in which members are more likely to cooperate. This sense of stability and clarity about the environment will give less rise to questions about other members' personal lives and hobbies; it will also inhibit the communication about these subjects. Work-related attributes are likely to dominate social-category differences, and since highly job-related differences are more related to the task, these attributes are more likely to impact task performance (Pelled, 1996; Pelled et al., 1999). Consequently, team learning efforts will be more focused on the task than on social or interpersonal issues. We therefore expect that in teams with informational faultlines, group members will not frequently communicate about lifestyle and personality issues, which leads to less social learning. We now make the following proposition:

Proposition 2c: Teams with informational faultlines will experience *low* levels of social learning.

## THE MODERATING ROLE OF PSYCHOLOGICAL SAFETY AND ERROR MANAGEMENT CULTURE

As suggested in past research (e.g., Lau & Murnighan, 2005), it can be important to consider group beliefs when explaining the relationship between faultlines and team functioning. In our theoretical model we introduce two potential moderators—(a) psychological safety and



**Figure 6.2** Proposed moderation on relationships between faultlines and team learning.

(b) error culture—to further specify the relationship between faultlines and the different types of team learning (see Fig. 6.2 for an overview of propositions).

### *Social-Category Faultlines and the Moderating Role of Psychological Safety*

Edmondson (1999) suggested that team members who are in the position to display learning behavior may feel that they are placing themselves at risk, for instance, by admitting an error or asking for help, because other group members may interpret these behaviors as an indication of incompetence. She therefore argued that it is important for team members to feel that the group is a safe place to express ideas and opinions, and that members will not be punished or rejected for making mistakes. Edmondson introduced this as the concept of *psychological safety*, which can be defined as shared beliefs of team members about how safe the group is for interpersonal risk taking (definition adapted from Edmondson, 1999). Indicators of psychological safety are openness to discuss mistakes and bring up problems, openness for diversity, room to ask for help, and value of each other's skills and differences (Edmondson, 1999). Research has shown that psychological safety is an important condition that facilitates learning behavior (Edmondson, 1999; Tjosvold et al., 2004) and performance (Baer & Frese, 2003).

As we previously argued, teams with social-category faultlines are highly divisive and tend to split into relatively homogeneous subgroups based on characteristics such as age, gender, and race. These groups are likely to suffer from stereotypes and biases between subgroups, which can inhibit task and social learning, in particular. Since the concept of psychological safety does not specify the *content* of the problems or mistakes that people discuss, we propose that it can be about task and process issues, as well as social issues, which, in turn, can influence the different types of learning. Specifically, we propose that psychological

safety can inhibit the negative effects of social-category faultlines on *task* and *social* learning. In a psychologically safe environment, team members are more open to diversity. They value and respect each other's differences, and there is openness to ask for help and to discuss problems. We therefore expect that team members in a psychologically safe climate will be less likely to withdraw task-relevant information, which will tone down the proposed negative relationship between social-category faultlines and task learning. In addition, when the climate of the team is psychologically safe, it is less likely that stereotypes and biases will distort information about other group members, which can lead to misinterpretations and interpersonal tension. Team members are more likely to build accurate impressions of each other, which will lessen the proposed negative relationship between social-category faultlines and *social* learning. We also expect that psychological safety will enhance the proposed positive relationship between social-category faultlines and process learning, since a psychologically safe climate will promote open discussion about routines and procedures across subgroups. Therefore, we argue the following:

Proposition 3a: Psychological safety will moderate the relationship between social-category faultlines and task, social, and process learning, such that the proposed negative effect of social-category faultlines on task and social learning will be *weakened* when team members feel their team is psychologically safe, and the proposed positive effect of social-category faultlines on process learning will be *strengthened*.

### ***Informational Faultlines and the Moderating Role of Error Management Culture***

The concept of psychological safety enhances the quality of social relationships between team members and emphasizes the importance of trust and respect between team members. Since these aspects are particularly relevant and influential for teams in which it is likely that stereotypes and biases may occur, we proposed psychological safety to be a moderator of the relationship between *social-category* faultlines and team learning. Teams with informational faultlines split on more job-related characteristics, and therefore, we propose a more job-related moderator for the relationship between informational faultlines and team learning, which is error management culture.

Van Dyck, Frese, Baer, and Sonnentag (2005) introduced the concept of *error management culture*, which can be conceptualized as a system of shared norms, values, and common practices in an organization regarding individual reactions to errors that is aimed at reducing negative error consequences and increasing potentially positive error outcomes. Examples of concrete behaviors associated with this are communicating about errors, sharing error knowledge, helping each other in error situations, and detecting and handling errors. The ways in which individuals

deal with errors and the content of the errors that they make are often interrelated with members' knowledge about and experience with the specific task. For instance, to continue with our example of the research group, when the statistician has much experience with developing the instrument that the team is working on, it is less likely that the team will make errors regarding the statistical part of the instrument. In addition, when they have a climate in which errors can be openly discussed, it will be more likely that they will successfully deal with errors, increasing the positive aspects and decreasing the negative aspects. We therefore propose that in teams with an error management culture, members communicate about errors and share their knowledge about errors, which will enhance the proposed positive relationship between informational faultlines and task learning. In an environment in which mistakes are being shared, team members will be better able to use each other's knowledge and expertise (Cannon & Edmondson, 2001), which will increase their understanding of the task and, in turn, increase task learning. Similarly, when a team climate promotes open discussion of error detection and handling, team members will be better able to find routines and procedures to improve task accomplishment, which will enhance process learning as well. Teams that have an open climate for sharing knowledge about mistakes will also be better able to develop a transactive memory system in which the team's knowledge about error handling is saved, and that specifies who knows how to handle particular errors, which, in turn, enhances process learning. Since error management culture and informational faultlines are highly work related, we expect that their interaction will have no substantial effect on social learning. We therefore only develop a proposition for the moderating effect of error culture on the relationship between informational faultlines and task and process learning:

Proposition 3b: Error management culture will moderate the relationship between informational faultlines and task and process learning, such that the positive relationship between information faultlines and task and process learning will be *enhanced* when teams have an error *management* culture.

## DIRECTIONS FOR FUTURE THEORY AND RESEARCH

The proposed typology of task, process, and social learning may help researchers to deepen their understanding of the concept of team learning. The team learning typology also suggests new avenues for research on team learning and group composition, which we address in this section. First, the new concept of *social* learning, which we introduced in this chapter, needs to be further crystallized and validated, and future research should investigate how it is affected by group composition and

demographic faultlines. Secondly, our typology may be extended in the future by considering additional types of team learning that refer to other subjects that teams can learn about, such as their relationship with the external environment (e.g., clients, competitors).

Another direction for future research regarding the team typology is to examine the dynamic nature of different types of team learning in groups at different stages. The team learning types might evolve over time, and their impact on team functioning might change depending on the group's stage. For instance, when a group of individuals is recently formed to accomplish a task, it is likely that it starts with some form of task and process learning. The group's common goal is to perform the task, and it is likely that team members will discuss the task and start to develop routines and procedures to accomplish it. Learning about each other's hobbies and lifestyles might be more likely to develop later on in the process of getting to know each other better, for instance, during a happy-hour outing or during lunch. When working together over time, individuals develop a more elaborated and integrated picture of their team members' personalities and personal lives, which facilitates interpreting each other's behavior and work relationships. It might therefore be that social learning is more likely to have its beneficial effects on team functioning when teams are more developed. Future research should examine this dynamic nature of team learning types and investigate how they influence group processes and team performance over time.

The ways that demographic group faultlines influence team functioning is a relatively new researched topic as well. In the theoretical model proposed in this chapter, we distinguished social-category and informational faultlines and linked these faultlines types to the proposed types of team learning. In this model, we made propositions about how faultlines based on different characteristics can potentially influence group processes and team learning. Faultlines in groups can be inactive and go unnoticed, however, having a negligible effect on group processes (Lau & Murnighan, 1998). When testing these propositions, researchers therefore should not only consider the objective demographics of team members, but also examine whether members perceive and behave as if they were members of two separate subgroups. The underlying assumption of current faultline research, which generally focuses on potential faultlines, is that demographic characteristics, such as gender and age, represent meaningful social groups with which individuals identify (Li & Hambrick, 2005; Thatcher et al., 2003). This assumption should, however, be tested. Future research should also determine whether these demographic characteristics are indeed relevant faultline triggers or if there might be other attributes (e.g., family situation, hobbies) or organizational features (e.g., an empowerment policy for senior employees; a positive action hiring policy for women and cultural minorities) or particular occasions (e.g., organized meetings for technicians) that can activate faultlines.

Finally, future research should further investigate which other factors can potentially moderate the relationship between demographic faultlines and team learning. In this chapter, we introduced psychological safety and error management culture as moderators of the relationship between social-category faultlines and informational faultlines; however, other moderators should be taken into account as well, such as group identity and task type (Bezrukova, Thatcher, & Jehn, in press).

## CONCLUSION

Only recently, researchers have begun to conceptualize and examine the concept of team learning. In this chapter, we reviewed past typologies and definitions of team learning and found that in past definitions, the subject of team learning remains largely unclear. To address this shortcoming in past research, we proposed a new team learning typology: task, process, and social learning. This distinction of team learning types may help scholars to deepen their fundamental understanding of the concept of team learning, and identify important factors, such as psychological safety and error management culture, that can facilitate team learning in teams with various group compositions.

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