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Group Faultlines: A Review, Integration, and Guide to Future Research

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Organizations have been searching for ways to harness the benefits of groups while simultaneously reducing process losses associated with groups. The focus on group composition and individual attribute alignment has led to an interest in the topic of faultlines. Faultlines are hypothetical dividing lines that split a group into two or more subgroups based on the alignment of one or more individual attributes and have been found to influence group processes, performance outcomes, and affective outcomes. Using 59 published articles, the authors summarize the current state of the faultlines literature with respect to the following themes: theoretical foundations, faultline measurement, empirical findings, and the contingent role of context. A quantitative aggregation of 34 published empirical articles is used to summarize identified relationships in the literature and shows that the faultlines construct explains variance above and beyond the effect of team diversity measures on group outcomes. The authors provide guidance for future research that should be of interest to scholars in the areas of diversity, teams, power, alliances, subgroups, social networks, intergroup behavior, conflict, learning, and decision making. Future research directions build off the extant findings, such as extending conceptualizations of faultlines and refining the measurement of faultlines. The authors further propose the application of faultlines to the areas of leadership, international studies, and strategic management.

Keywords: *faultlines; group diversity; group composition; subgroups*

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An Introduction to Faultlines

Two teams in a large engineering firm had been working productively together for a number of months. Team A was composed of three experienced male engineers and three relatively new female marketers. The six members of Team B had the same overall demographic makeup as Team A, but the distribution of the demographic attributes differed. The engineers consisted of one experienced female, one experienced male, and one new female. The marketers were composed of one experienced male, one new female, and one new male. Although both teams consist of three engineers, three marketers, three females, three males, three experienced workers, and three new workers, Team A contains a strong dormant faultline and Team B does not. Team A has a strong faultline because the alignment of the demographic characteristics (functional area, gender, experience) creates two relatively homogenous subgroups.

Both teams experienced conflict but were generally productive. However, when the issue of bonus allocation among team members came up, everyone was surprised at how quickly Team A degenerated into two squabbling subgroups. The previously dormant faultline became active as a result of a faultline trigger (the bonus allocation decision). What was previously a relatively productive team now experienced increased levels of conflict and mistrust that decreased satisfaction and performance.

Groups and teams are central to organizational success in meeting economic, social, and technological challenges. One of the key challenges for organizations today is to maximize a group's ability to meet challenges and minimize process losses. Over the past three decades, research on group diversity has focused on the role of group composition in assessing group-level outcomes. Typically, group diversity research has focused on the effects of diversity on group performance by investigating the heterogeneity of a single individual attribute such as age, tenure, or race within a group. Over the past decade, there has been an increasing interest in the meso-level effects of group composition whereby the distribution of multiple attributes is investigated simultaneously. One of the most compelling insights in this area of research is that group faultlines, the alignment of demographic attributes that lead to hypothetical dividing lines, may affect group processes and performance. Lau and Murnighan's (1998) seminal conceptual work on demographic faultlines led to empirical and further conceptual work on this topic. Given the increasing interest in faultline-based subgroup formation and its potential for explaining the dynamics caused by composition distribution (Mathieu, Maynard, Rapp, & Gilson, 2008), we review the literature on faultlines and propose directions for future research.

Faultlines are hypothetical dividing lines that split a group or a team into two or more subgroups based on one or more individual attributes (adapted from Lau & Murnighan, 1998). Faultlines result from the alignment of multiple differences such as race, sex, nationality, age, and educational background (Bezrukova, Jehn, Zanutto, & Thatcher, 2009). For example, Team A in our opening vignette contains a strong faultline among the dimensions of experience, functional background, and gender such that alignment on these dimensions produces two homogenous subgroups (Lau & Murnighan, 1998). Researchers have found that faultlines affect group processes (e.g., conflict, cohesion), affective

outcomes (e.g., satisfaction), and performance outcomes (e.g., decision making, group performance; e.g., Barkema & Shvyrkov, 2007; Bezrukova et al., 2009; Choi & Sy, 2010; Lau & Murnighan, 2005; Li & Hambrick, 2005; Polzer, Crisp, Jarvenpaa, & Kim, 2006; Rico, Molleman, Sánchez-Manzanares, & Van der Vegt, 2007; Sawyer, Houlette, & Yeagley, 2006; Thatcher, Jehn, & Zanutto, 2003).

We first review and integrate the conceptual and empirical findings on a number of themes important to faultline researchers. We organize our review around the topics of theory, measurement, empirical studies, and the role of context in reinforcing or mitigating the effects of faultlines. Because the concept of faultlines was developed to further our understanding of diversity, we use this review as an opportunity to explain how literature on faultlines is similar to, and different from, research on diversity.

Throughout this review, we provide quantitative aggregation results of previous empirical studies (Hunter & Schmidt, 2004) that reflect the strength of the relationships between faultlines and the variables of interest thus far in the literature. Although some faultline authors have argued for the importance of simultaneously considering diversity and faultline measures in studies of faultlines (e.g., Bezrukova, Thatcher, & Jehn, 2007; Lau & Murnighan, 2005), it is important to understand the value of faultlines over and above that of diversity. If including faultlines in models of group processes and outcomes does not explain more than including diversity alone, there is no reason to theorize about and include faultlines in our studies. We use quantitative aggregation results to demonstrate the effects of faultlines over and above the direct effects of diversity measures and extend the results from a recent meta-analysis on faultlines (Thatcher & Patel, in press) to support and guide our discussion on progress in the faultlines literature.

Thatcher and Patel (in press) recently tested a theoretical model using a meta-analysis to address conflicting findings in the demographic faultlines literature. Their meta-analysis is based on 39 studies incorporating 24,388 individuals in 4,366 teams. Not surprisingly, demographic diversity has significant effects on demographic faultline strength. Specifically, age diversity has the strongest relationship with faultline strength, followed by race, sex, tenure, functional background, and education diversity. Stronger demographic faultlines lead to greater relationship conflict, task conflict, and lower team cohesion. In turn, strong demographic faultlines directly reduce team performance and team satisfaction; the negative effects of demographic faultlines on team performance were much stronger than those for team satisfaction. Furthermore, the partial mediation effects of demographic faultlines on team performance and satisfaction through conflict and cohesion were significant. Finally, they find that the effects of faultlines are stronger for studies in lab settings than for studies in field settings.

Our quantitative aggregation extends the meta-analysis by Thatcher and Patel (in press) on several fronts. First, compared to their focus on addressing mixed theoretical findings and empirical issues associated specifically with faultlines, the quantitative aggregation analysis in this article assesses the extent to which faultlines explain additional variance over and above that explained by demographic diversity. If the relative effect size of faultlines is small, then it calls into question its relevance for the broader diversity and team literature

(Joshi & Roh, 2009). Second, we extend inferences by Thatcher and Patel (in press) by considering the effects of the nature of subgroups—evenness of subgroups and number of subgroups. Subgroup structure facilitates or restricts group interactions and the effects of faultlines. Third, the quantitative aggregation results provided here further explain how group-level moderators such as superordinate identity interact with meso-level faultline-related dynamics. Finally, the distinction between dormant and active faultlines is becoming increasingly central to faultlines literature in recent years. We therefore assess the effects of dormant versus active faultlines on group conflict, group performance, and group satisfaction.

A literature search of published and in-press articles and book chapters between 1995 and May 2011 revealed 59 articles that are the basis for both our qualitative review and quantitative aggregation. Details describing our literature search and coding of variables is presented in the appendix. The articles included in this review are noted in the reference list by an asterisk (*).

Following our review of the current state of the field, we describe future theoretical and empirical directions for researchers interested in faultlines by suggesting that ideas from Lau and Murnighan's (1998) initial treatise be empirically explored. In addition, we describe future research directions that build off the extant findings, such as extending faultline conceptualizations and refining faultline measurement. Finally, we investigate how faultlines can be linked to research in other literatures such as leadership, international studies, and strategic management. We believe that the issues discussed here are of particular interest to scholars in the areas of diversity, teams, power, alliances, subgroups, social networks, intergroup behavior, conflict, learning, and decision making.

Faultlines Review: The Current State of the Field

The theoretical development of the faultline concept has led to a debate on the appropriate ways of measuring faultlines and the role of context in reinforcing or attenuating the effects of faultlines on group-level outcomes. As we review the faultlines literature, we do so in the context of the literature on diversity so that we understand not only the current state of research on faultlines but also how faultlines extend our understanding of the diversity research. To this end, we organize our review of the faultlines literature around the general categories of theoretical foundations, measurement, empirical findings, and the group context.

Theoretical Foundations

Lau and Murnighan (1998) draw on social identity and self-categorization theories to explain the underpinnings of group faultlines. Subsequent faultlines researchers have used four additional theoretical streams to explain faultlines: (a) categorization-elaboration model; (b) optimal distinctiveness theory; (c) social, psychological, and cultural distance theories; and (d) cross-categorization model. Each theoretical approach extends faultlines from an inter-subgroup perspective (i.e., distance theory, cross-categorization model) or both an inter-subgroup and intra-subgroup perspective (i.e., optimal distinctiveness theory, categorization-elaboration model).

The literature on diversity is traditionally grounded in social identity and self-categorization theories (Brewer, 2001; Tajfel, 1981; Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), the similarity-attraction framework (Byrne, 1971), and cognitive resource models of variation (Campbell, 1960; De Dreu & West, 2001). Diversity researchers have used these theories to explain how a dispersion of group member attributes influences attitudes and behaviors (Alexander, Nuchols, Bloom, & Lee, 1995).

Much of the diversity literature focuses on how the dispersion of an individual characteristic (such as age) affects group-level outcomes. The focus on the aggregation of atomistic individual characteristics to the group level has led many diversity researchers to neglect the joint effects of multiple types of diversity on group interactions at the meso level and focus only on direct effects of micro-level aggregations on group-level outcomes. Thus, it is likely that the multidimensional nature of individual characteristics has cumulative meso-level interactions that influence group outcomes. By focusing on the alignment of multiple attributes, the literature on faultlines moves us away from the dispersion view of group composition and provides insights to understanding the cumulative effects of group member attributes on group outcomes.

Lau and Murnighan (1998) used the theoretical mechanisms of self-categorization (Turner, 1985; Turner et al., 1987), social identification (Bartel, 2001; Brewer, 2001), and similarity attraction (Byrne, 1971) to explain the formation of faultlines and the effects of faultlines on group processes and outcomes. Self-categorization and social identity theories explain why individuals classify themselves and other team members based on salient characteristics. The similarity-attraction paradigm explains why individuals are likely to align with similar individuals resulting in subgroup formation. Past research has substantiated that demographic attributes provide one means for determining similarity, classification, and identification (Harrison, Price, & Bell, 1998; Horwitz & Horwitz, 2007; Tsui, Egan, & O'Reilly, 1992). The development of subgroups influences the interaction and performance of the group overall. These three theories together (self-categorization, social identity, and the similarity-attraction paradigm) explain why differences matter in a group and how faultlines come to exist. However, the theoretical mechanisms are contextualized at the meso level rather than at the individual level or at the group level as found in the mainstream diversity literature.

Extending the earlier theoretical conceptualization of faultlines, recent work draws on the categorization-elaboration model (CEM), optimal distinctiveness theory, cross-categorization models, and distance theories (social, psychological, and cultural distance) to further explain the mechanisms underlying faultlines. The CEM (van Knippenberg, De Dreu, & Homan, 2004) suggests that the salience of categories is crucial to understanding diversity. Comparative fit, normative fit, and cognitive accessibility explain the level of categorization salience. Comparative fit is the extent to which the categorization of differences reflects both high intragroup similarity and high intergroup differences. Normative fit reflects the extent to which the categorization makes sense to an individual, and cognitive accessibility reflects the extent to which a categorization can be easily retrieved and activated (van Knippenberg & van Ginkel, 2010). The comparative fit component of CEM explains that individuals in strong-faultline groups see high levels of similarity in their own subgroup and high levels of differences in the other

subgroup. The strong subgroup differences explained by CEM explain why faultlines have an influence on group processes and outcomes (e.g., Homan et al., 2008; Homan, van Knippenberg, Van Kleef, & De Dreu, 2007a, 2007b; van Knippenberg, Dawson, West, & Homan, 2011). Thus, the CEM approach is focused on explaining faultlines from both an intra-subgroup and inter-subgroup perspective.

Optimal distinctiveness theory (ODT; Brewer, 1991; Brewer, Manzi, & Shaw, 1993; Hornsey & Hogg, 1999; Pickett & Brewer, 2001) describes the tendency for individuals to seek a balance of uniqueness and similarity. Although this theory may be central to understanding the importance of understanding faultlines (Thatcher, in press), empirical work has yet to substantiate this. Both CEM and ODT focus on the interplay between similarities and differences among members in a group, an implicit assumption in social identity and self-categorization theories. Thus, like the CEM approach, ODT explains both the intra-subgroup and inter-subgroup dynamics that exist in faultlines.

CEM and ODT explicitly acknowledge the importance of both the intra-subgroup and inter-subgroup dynamics. Two other sets of theories used by faultlines researchers focus exclusively on explaining inter-subgroup dynamics: distance theories and cross-categorization models. Social, psychological, and cultural distance theories (Hraba, Hagendoorn, & Hagendoorn, 1989; Jetten, Spears, & Postmes, 2004; Leong & Ward, 2000) are used to explain that the degree of distance (or difference) between subgroups has an impact on group outcomes (Bezrukova et al., 2009; Zanutto, Bezrukova, & Jehn, 2010). Thus, every additional way that one subgroup is differentiated from another makes the distinction between the two subgroups stronger and magnifies inter-subgroup differences.

Cross-categorization models, to some extent, represent the flip side of distance theories. Cross-categorization refers to a situation whereby a diversity attribute that is not clearly distinguishable across subgroups works to reduce the strength of the faultline alignment (Sawyer et al., 2006). For example, groups where a categorization attribute exists in all subgroups (e.g., if Team A in our opening vignette had an Asian member in both subgroups, then race would be a cross-categorization attribute) may not feel large inter-subgroup differences compared to groups where there are no similarities in members across subgroups (Cronin, Bezrukova, Weingart, & Tinsley, 2011; Homan et al., 2007b). Thus, although distance theories explain how large inter-subgroup differences exacerbate the alignment of individual attributes to form faultlines, cross-categorization models explain how the presence of even one similar attribute across all subgroups acts as a mechanism for bridging inter-subgroup differences. Table 1 provides a brief discussion of each of the theories used in faultlines studies and a list of the studies that use the theories.

The central driver of faultlines is the underlying composition of individual characteristics. As the theoretical foundations of faultlines are based on the extent to which there are intra-subgroup similarity and inter-subgroup differences, it is important to consider the composition of the attributes that have been used in faultlines research.

Faultline Composition

Consistent with initial studies on diversity, the first studies of faultlines investigated demographic attributes as the driver of faultlines (e.g., Lau & Murnighan, 2005; Shaw, 2004).

Table 1
Review of the Main Theoretical Perspectives Used in Faultlines Research

Theory	Brief Description of Theory	Extension of Lau and Murnighan's (1998) Theory	Cites from Conceptual Articles	Cites from Empirical Articles
Social identity theory	Group membership based on multidimensional individual characteristics leads to in-group self-categorization and enhancement such that individuals favor the in-group at the expense of the out-group (Tajfel & Turner, 1986)	N/A	Cramton & Hinds, 2005; Flache & Mäs, 2008a, 2008b; Lau & Murnighan, 1998; Rink & Jehn, 2010; Thatcher, in press	Bezrukova et al., 2007; Bezrukova et al., in press; Earley & Mosakowski, 2000; Halevy, 2008; Kalbus, 2000; Kunze & Bruch, 2010; Thatcher et al., 2003
Self-categorization theory	A person sees himself or herself as a member of a social category, which has implications for the sense of self and leads to depersonalization and various in-group and out-group identities	N/A	Flache & Mäs, 2008a, 2008b; Hambrick et al., 2001; Jehn & Rupert, 2008; Lau & Murnighan, 1998; Thatcher, in press	Barkema & Shvyrkov, 2007; Bezrukova et al., in press; Choi & Sy, 2010; Jehn & Bezrukova, 2010; Lau & Murnighan, 2005; Li & Hambrick, 2005; Minichilli et al., 2010; Molleman, 2005; Pearsall et al., 2008; Polzer et al., 2006; Rico et al., 2007; Thatcher et al., 2003; van Knippenberg et al., 2011
Optimal distinctiveness theory (ODT)	Individuals desire to attain an optimal balance of assimilation and distinction *within* and *between* social groups and situations (Brewer, 1991)	Provides rationale for why faultlines are an equilibrium outcome in groups. If group members recursively engage in distinctive social identifications and self-categorizations, then a group increasingly becomes fragmented and faultlines may not be sustained. ODT helps explain why subgroups do not disintegrate further.	Bezrukova & Uparna, 2009; Nishii & Goncalo, 2008; Rink & Jehn, 2010; Thatcher, in press	Gibson & Vermeulen, 2003; Phillips et al., 2004

(continued)

Table 1 (continued)

Theory	Brief Description of Theory	Extension of Lau and Murnighan's (1998) Theory	Cites from Conceptual Articles	Cites from Empirical Articles
Categorization elaboration model	Explains how categorization and elaboration effects influence a workgroup's performance in relation to diversity. It combines the predictions of self-categorization theories with the predictions of the information/decision-making approach used in diversity studies. Thus, diversity can have both positive (elaboration) and negative (categorization) effects on performance.	Explains how faultlines could potentially facilitate positive outcomes. Elaboration facilitates deeper understanding of intra-subgroup characteristics, and categorization deepens the understanding of inter-subgroup differences. Teams can simultaneously engage in differentiation and integration.	Thatcher, in press; van Knippenberg & van Ginkel, 2010	Bezrukova et al., 2010; Gratton et al., 2007; Homan et al., 2007a; Tuggle et al., 2010; van Knippenberg et al., 2011
Distance theories	The degree to which one group believes other groups (based on spatial, temporal, or social distance) are similar.	Explains the importance of considering the extent of differences between subgroups (e.g., inter-subgroup differences).		Bezrukova et al., 2009; Bezrukova et al., in press Chrobot-Mason et al., 2009; Gokakkar, 2007; Greer & Jehn, 2007; Homan et al., 2010; Lau & Murnighan, 2005; O'Leary & Mortensen, 2010; Polzer et al., 2006; van Oudenhoven-van der Zee et al., 2009; Zanutto et al., 2010
Cross-categorization models	Cross-categorization of diversity dimensions may reduce strong alignments necessary for subgroup formation and thereby contributes to enhanced group functioning by decreasing conflict and enhancing information elaboration.	Describes how some similarities across subgroups may provide a bridging effect in groups with faultlines. Such bridging effects could help overcome liabilities of faultlines such as increased communication and coordination costs.		Cronin et al., 2011; Hart & Van Vugt, 2006; Homan et al., 2007b; Homan et al., 2008; Kunze & Bruch, 2010; Sawyer et al., 2006

For example, Thatcher et al. (2003) focused on faultlines created from alignment on the attributes of years of work experience, type of functional background, education major, sex, age, race, and country of origin.

Following the tradition of diversity researchers, some faultline researchers have distinguished between faultlines based on social category attributes (i.e., race, sex, age) and informational attributes (e.g., function, education, tenure; Bezrukova et al., 2009; Bezrukova, Thatcher, Jehn, & Spell, in press; Bezrukova & Uparna, 2009; Molleman, 2005; Zimmermann, 2011). Other researchers have examined faultlines derived from nondemographic attributes such as personality characteristics or types (e.g., narcissism, Type A personalities; e.g., Gratton, Voigt, & Erickson, 2007; Molleman, 2005), work location (Cramton & Hinds, 2005; Gokakkar, 2007; Gratton et al., 2007; Polzer et al., 2006), and the level of "familiness" in family-owned firms (Minichilli, Corbetta, & MacMillan, 2010). Finally, because the faultline construct is focused on the alignment of variables, it is possible to simultaneously investigate the alignment of different types of attributes. For example, Rico et al. (2007) examined faultlines based on joint alignment of work experience (informational attribute) with conscientiousness (personality attribute). Because many faultline studies have investigated the alignment of multiple attributes and because there has been no consistency around the combination of attributes that have been studied, it is impossible to draw any conclusions about faultlines based on a particular attribute combination.

The empirical studies included in our quantitative aggregation analysis reflect that the most commonly used attributes in faultline composition are sex (8 studies), race (6 studies), functional background (8 studies), educational background (11 studies), tenure (8 studies), age (14 studies), geographic work location (3 studies), and personality (3 studies). This basic count shows that age is the attribute that is most commonly used in studying faultlines, followed by educational background, and sex. The attributes that are not demographic in nature (e.g., personality, geographic work location) have been the least studied in the composition of faultlines. We believe that the focus on demographic characteristics in faultline studies is natural given that Lau and Murnighan's (1998) conceptualization focused on demographic faultlines. However, as reflected in the trajectory of studies on diversity over the past two decades (Joshi & Roh, 2009), we believe future work on faultlines will further investigate faultlines composed of nondemographic attributes. In addition, as faultlines reflect alignments of attributes in groups, faultlines researchers will be able to investigate specific combinations of demographic and nondemographic attributes.

In summary, the faultlines concept was initially developed using the social identity and self-categorization theories that have also been used extensively in team diversity research. The theoretical mechanisms of optimal distinctiveness, categorization elaboration, distance, and cross-categorization have been used recently by other faultline researchers to emphasize the relevance of intra-subgroup solidarity and inter-subgroup differentiation that are crucial to the faultline concept. Although initial faultline conceptualizations focused on demographic attributes, we see an increasingly complex mix of attributes used to create faultlines. At this point, there is not enough overlap in the studies with respect to faultline composition to say which combination of attributes making up a faultline has the strongest effect on group

outcomes. Furthermore, the way in which faultlines are measured may have an effect on how faultline composition influences outcomes, a topic to which we turn to next.

Faultline Measurement

Although the theories that underlie faultlines have some similarities with the theories that explain diversity, the measurement of faultlines differs greatly from that of diversity. The measurements of diversity focus on the distribution of a single attribute at the group level. The distribution is often measured as the heterogeneity or concentration of a given attribute within a group. Harrison and Klein (2007) refer to this as the variety measure of diversity. In addition to the popularly used measure of heterogeneity to assess the team-level distribution of particular attributes, Harrison and Klein (2007) propose the diversity measurements of separation (or dispersion of individual values and beliefs) and disparity (or relative distribution of resources among team members). Regardless of whether the variety, separation, or disparity measure of diversity is used, diversity measurement generally focuses on the distribution of one attribute, whereas faultline measurement is concerned about the alignment of one or more attributes.

The empirical approaches to measuring faultlines have broadly focused on two aspects: faultline strength and faultline distance. Faultline strength measures the degree of alignment among group members across several attributes (Thatcher et al., 2003). Faultline distance is the extent to which subgroups diverge as a result of accumulated differences between subgroups (Bezrukova et al., 2009). Much of the empirical work in the field setting has focused on the dormant nature of faultlines, whereas experimental work has focused on active faultlines assessed through manipulation checks. Dormant faultlines are defined as "potential faultlines based on demographic characteristics," and active faultlines exist when "members actually perceive subgroups based on the demographic characteristics" (Jehn & Bezrukova, 2010: 24).[1]

Measuring faultline strength. Following Lau and Murnighan's (1998) introduction of the faultline concept, researchers focused on developing different ways of measuring a faultline. Faultlines are either empirically inferred or created in lab settings. In lab settings, researchers create groups where there is an alignment of attributes based on individual characteristics. In these situations, the presence of faultlines is typically inferred through manipulation checks. In field settings, subjects cannot be assigned to groups by researchers; therefore, the measurement of faultlines is empirically derived and results may be influenced by how faultlines are operationalized.

One of the most widely used measures of faultline strength (for dormant faultlines) is the fau index from Thatcher et al. (2003), in which a multivariate clustering approach is used to measure the percentage variance explained by attribute alignment across the strongest group split. Several alternative empirical measures of faultlines have been proposed in recent years. The different measurement suggestions can be classified into variance decomposition approaches (e.g., Gibson & Vermeulen, 2003; Li & Hambrick, 2005), clustering approaches (e.g., Barkema & Shvyrkov, 2007; Bezrukova et al., 2009; Lawrence & Zyphur, 2011), and cross-classification approaches (e.g., Shaw, 2004; Trezzini, 2008; van Knippenberg et al.,

2011). Although much of the literature continues to focus on group-level faultlines, Lawrence and Zyphur (2011) recently introduced an organizational-level measure of faultline strength using latent class analysis that was previously used at the team level by Barkema and Shvyrkov (2007).

Measuring faultline distance. Faultline studies have mainly focused on measuring faultline strength, but recently many researchers have also incorporated the concept of faultline distance when measuring dormant faultlines (Bezrukova et al., 2009; Bezrukova et al., in press; Zanutto et al., 2010). Faultline distance is the extent to which subgroups diverge as a result of accumulated differences between subgroups (Bezrukova et al., 2009). Trezzini (2008) proposes an alternate measure of faultline distance based on the attribute cross-classification approach. Although faultline distance was not initially discussed in Lau and Murnighan (1998) as a distinct feature of faultlines, it has been shown to be relevant for faultline-based groups. Faultline strength and faultline distance are the two conceptualizations around which empirical research (especially field studies) on faultlines is based, and we refer to them throughout this review.

The disagreement on a universal measure stems from several issues. First, although Lau and Murnighan (1998) provide rigorous theoretical underpinnings for faultline strength, they do not provide direction on the measurement of faultline strength. Drawing on their theoretical explanations, Thatcher et al. (2003) used a multivariate clustering approach that was flexible enough to accommodate continuous and categorical attributes. However, drawing on the concept of alignment, Shaw (2004) and Trezzini (2008) propose that classification-based approaches provide a better operationalization of Lau and Murnighan's (1998) conceptualization than multivariate clustering approaches. Recently, extending Shaw's (2004) measure of faultlines, van Knippenberg et al. (2011) propose a multiplicative measure of faultlines based on relative variance explained for an attribute by the remaining attributes. In addition, there are different interpretations on the number of subgroups that could exist in a faultline setting. Thatcher et al.'s (2003) measurement approach is designed to maximize faultline strength that exists when there are two subgroups (Lau & Murnighan, 1998). Although much of the prior empirical and experimental work assumes two subgroups, both Shaw (2004) and Trezzini (2008), departing from Lau and Murnighan's (1998) implicit assumption of two subgroups, suggest that there could be multiple subgroups, and their measurement approach allows for the presence of more than two subgroups.

Lawrence and Zyphur (2011) propose an organizational-level operationalization of faultlines that supports their argument that the faultlines concept should not be limited to the group level. However, before applying Lawrence and Zyphur's (2011) measurement approach, we encourage researchers to engage in theoretical development of organizational-based faultlines as there are significant differences between dynamics at the group and organization levels. Overall, because of multiple interpretations of Lau and Murnighan's (1998) work, there is a lively debate on how faultlines should be measured. Table 2a summarizes the variety of ways that faultlines have been measured in field settings and provides a list of advantages and disadvantages for each method.

Dormant versus active faultlines. Another important issue with respect to measurement is differentiating between dormant and active faultlines. As described earlier, dormant

Table 2a
Empirical Operationalizations of Dormant Faultline Measures

Source	Faultline Strength	Faultline Distance	Description of Measure	Advantages	Disadvantages
Thatcher, Jehn, & Zanutto, 2003	X		Thatcher et al. fau index: ratio of between-group sum of squares to total sum of squares derived from multivariate clusters based on strongest group split	Simultaneously measures variance within and between subgroups Attributes on different scales can be used Widely used measure	Sensitive to scales of measures Limits number of subgroups to two
Gibson & Vermeulen, 2003	X		Subgroup strength: standard deviation in overlap across the different pairs of attributes in a team	A simple and intuitive measure	Does not account for multidimensional alignment as proposed by Lau & Murnighan (1998) No measure of number or breadth of faultlines *SD* may not reflect covariance
Shaw, 2004	X		Shaw's FLS-Index: Multiplicative function of intra-subgroup and inter-subgroup alignment	Simultaneously measures inter- and intra-subgroup heterogeneity	According to Trezzini (2008), the measure is ad hoc and biased when distributions are skewed
Barkema & Shvyrkov, 2007	X	X	Latent class analysis	Measures several faultline attributes such as strength, distance, number of subgroups, and distribution of subgroups	Requires larger group size and may lead to unstable results in small teams
Trezzini, 2008	X	X	Polarized multidimensional diversity index: multidimensional polarization approach; based on Taylor and Rae's (1969) XC model: based on attribute cross-classification	Can measure several attributes of faultlines such as inter-subgroup disparity, number of homogeneous subgroups, and degree of subgroup evenness Uses two-way cross-cutting relationships to simultaneously test alignment of attributes	Biased by group size Does not address maximal group strength Does not measure width Can handle only categorical variables; continuous ones need to be categorized (can be ad hoc)

(continued)

Table 2a (continued)

Source	Faultline Strength	Faultline Distance	Description of Measure	Advantages	Disadvantages
Bezrukova, Jehn, Zanutto, & Thatcher, 2009	X	X	Multivariate cluster analysis using Euclidean distances between subgroup means of the strongest splits	Simpler and intuitive measure of faultline distance	Subject to variations based on differences in clustering algorithm Sensitive to scales used for measurement
Zanutto, Bezrukova, & Jehn, 2010	X	X	Summarizes earlier Thatcher et al. (2003) measure of faultline strength and provides methodological description of faultline distance (Bezrukova et al., 2009)	An easy to use measure based on traditional cluster analysis	Different clustering algorithms could lead to different measures Sensitive to scales used for measurement
Lawrence & Zyphur, 2011	X		Moving from group level to organization level, latent class cluster analysis could be used to identify subgroups at the organization level	More robust than traditional cluster analysis Helps identify individual group membership Multiple subgroups can be identified	Requires large group samples (> 30 members) Organization-level faultlines do not directly relate to micro-level theoretical propositions by Lau and Murnighan (1998)
van Knippenberg et al. (2011)	X		The degree to which diversity attributes converge; the operationalization based on multiplication of round-robin estimates of variance explained (R^2) by $n - 1$ attributes among n attributes	Extends Shaw's (2004) measure of faultlines to accommodate continuous and categorical attributes Provides an intuitive measure ranging from zero (no faultlines) to one (complete faultline)	The estimates are inflated based on number of dimensions and artificial correlation among attributes (e.g., higher age would strongly correlate with longer tenure) Requires a mixing of R^2 (continuous measure) and pseudo-R^2 values Potential endogeneity in prediction of variance by remaining attributes

faultlines are potential faultlines based on some set of attributes, and active faultlines exist when members actually perceive subgroups based on the set of attributes. This distinction between dormant faultlines and active faultlines is similar to that made in the diversity literature between objective (e.g., actual) diversity and perceived diversity (Riordan, 2000).

Faultline researchers find that the presence of dormant faultlines has consequences even when faultlines are not activated (Chrobot-Mason, Ruderman, Weber, & Ernst, 2009), and there is evidence from one study (Zanutto et al., 2010) that there is a high correlation between dormant and active faultlines. Faultlines may become active via a "faultline trigger," an event or situation that makes a previously dormant faultline an active faultline (Rink & Jehn, 2010). This description of a faultline trigger suggests that triggers are important in ongoing workgroups. In our introductory vignette, the dormant faultline in Team A became active, or triggered, when the team members needed to allocate a set bonus amount among team members. A recent multicountry, multiorganization qualitative study by Chrobot-Mason et al. (2009) found that most faultline triggers could be described as one of the following five types: differential treatment, different values, assimilation, insult or humiliating action, or simple contact. Apart from Chrobot-Mason et al.'s (2009) study, only one study investigates faultline triggers in the way Lau and Murnighan (1998) originally conceptualized (e.g., an event or task makes a previously dormant faultline active). Polzer et al. (2006) found that faultlines based on location were triggered in virtual teams when team members tried to find a common time for a chat meeting. This trigger is an example of an assimilation trigger. A number of studies (through experimental manipulation or study design decisions) examine faultlines in specific situations in which faultlines are active but not necessarily triggered. For example, studies have examined faultlines affected by actual or perceived different values (e.g., bogus personality feedback—Homan et al., 2008; diversity beliefs—Homan, Greer, Jehn, & Koning, 2010) and assimilation (e.g., integrating existing factions—Li & Hambrick, 2005). Although these studies examine situations that are considered triggers by Chrobot-Mason et al. (2009), the groups in these studies did not exist before the trigger was introduced. In other words, the trigger did not cause the faultline to become activated. However, it is interesting to note that these active faultline conditions map onto the typology of triggers described by Chrobot-Mason et al. (2009).

Other researchers have used experimental conditions to produce active faultlines that do not fit well into one of the categories of triggers described by Chrobot-Mason et al. (2009). Examples of these experimental conditions are task content (Halevy, 2008; Pearsall, Ellis, & Evans, 2008), reward structures (Homan et al., 2008), conflict experiences (Hart & Van Vugt, 2006), seating arrangements (Homan et al., 2007b), and team entitlement configuration (Jehn & Bezrukova, 2010). The experimental conditions of task content and reward structures are good examples of task-related triggers described by Lau and Murnighan (1998). Not only do we not yet understand the full complement of faultline triggers, but researchers have not yet conducted longitudinal studies that would enable us to understand whether there are differences among groups with faultlines that are dormant, faultlines that are active, and faultlines that began dormant and were triggered to become active. Finally, it is important to note that Jehn and Bezrukova (2010) recently proposed a scale for measuring active faultlines in a group (see Table 2b), but most researchers have created active faultlines using experimental manipulations (see Table 2c for an example).

In summary, there is still some flux around the appropriate way to measure faultlines. Although the Thatcher et al. (2003) fau index and its extensions (Bezrukova et al., 2009) are

Table 2b
Empirical Operationalizations of Active Faultline Measures

Source	Faultline Strength	Faultline Distance	Description of Measure	Advantages	Disadvantages
Jehn & Bezrukova, 2010	X		A scale-based measure consisting of both scale items and open-ended questions asking the group members about the extent to which they perceive separate subgroups based on demographic alignment	Existing measures of faultline focus on its dormant nature without accounting for group member perceptions	Susceptible to respondent bias and social desirability bias

Table 2c
Experimental Operationalizations of Faultlines

Source	Examples	Process of Manipulation	Advantages	Disadvantages
Faultline strength	Assigning two white females and two Asian males per group	Random assignment to a group conditional on criteria necessary to create faultline strength, for example, randomly assigning two white females and two Asian males to each group to create a faultline based on gender and race	Manipulation checks ensure faultlines are perceived Temporal and contextual proximity in treatment and outcomes ensures validity of context	Based on group life cycle theory, there may not be enough time for behaviors to reflect faultlines Most of the studies are conducted in a university setting where norms of behavior are contagious and therefore may attenuate or exacerbate the effects of faultlines
Faultline distance	Assigning two young females and two older males per group	Random assignment to a group conditional on *distances among criteria* necessary to increase faultline distance, for example, randomly assigning two older females and two younger males to each group to increase faultline distance based on gender and age	Manipulation checks ensure faultlines are perceived Temporal and contextual proximity in treatment and outcomes ensures validity of context	Group members may have varying perceptions of faultline distance In lab studies, there may not be enough time for subgroup distances to influence interactions

the most widely used measures, researchers are utilizing other approaches. This lack of agreement is not surprising as there continue to be discrepancies around the best ways of theoretically interpreting and empirically measuring diversity, and research on diversity has been around for decades longer than that on faultlines (e.g., Harrison & Klein, 2007; Joshi & Roh, 2009). This discussion goes beyond statistical approaches, as it is also important for researchers interested in faultlines to specify whether they are investigating dormant or active faultlines. For the most part, researchers conducting field studies have investigated dormant faultlines, and researchers conducting lab studies have investigated active faultlines (for an exception, see Jehn & Bezrukova, 2010). Despite the different approaches to measuring faultlines, empirical results show that faultlines have an effect on group processes and outcomes over and above the effects of diversity, a topic to which we turn next.

Empirical Studies of Faultlines

The majority of studies on the effects of group diversity have investigated group performance, group attitudes such as satisfaction, group processes such as conflict and cohesion, and emergent states such as trust and respect (Harrison & Klein, 2007; Jackson, Joshi, & Erhardt, 2003; Joshi & Roh, 2009; Milliken & Martins, 1996; van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998). The most commonly studied outcomes of faultline studies are group performance, group satisfaction, and intragroup conflict (Thatcher & Patel, in press). The theories underlying faultline alignment predict that subgroup formation influences the overall performance of the group above and beyond that predicted by diversity alone.

As time and energy are spent bridging the chasm created by a strong faultline, there is less time and focus spent on meeting the group's goals (Li & Hambrick, 2005), subgroups become competitive with one another (Brewer, 1996; Halevy, 2008; Hornsey & Hogg, 1999), and communication hindrances prevent necessary knowledge exchange (Halevy, 2008; Lau & Murnighan, 2005; Sawyer et al., 2006). Strong faultlines have been found to negatively influence group performance (Homan et al., 2008; Jehn & Bezrukova, 2010; Li & Hambrick, 2005; Thatcher et al., 2003; Zanutto et al., 2010) and group-level bonuses and stocks (Bezrukova et al., 2007; Bezrukova et al., in press). Perceptions of performance are also negatively affected by faultlines (Kunze & Bruch, 2010; van Oudenhoven-van der Zee, Paulus, Vos, & Parthasarathy, 2009). Other researchers have found that strong faultlines have a negative effect on behaviors that affect group performance such as group learning (Gibson & Vermeulen, 2003; Jehn & Rupert, 2008; Lau & Murnighan, 2005), information elaboration (Meyer, Shemla, & Schermuly, 2011), group functioning (Molleman, 2005), and the riskiness of decision making (Barkema & Shvyrkov, 2007; Rico et al., 2007). Additional group-level outcome variables that have been found to be negatively affected by faultlines are creativity (Pearsall et al., 2008), group-level organizational citizenship behaviors (Choi & Sy, 2010), and attention to entrepreneurial issues (Tuggle, Schnatterly, & Johnson, 2010). Overall, groups with strong faultlines (regardless of their composition) have low levels of performance consistent with the findings in Thatcher and Patel's (in press) meta-analysis.

The mechanisms underlying faultlines predict a negative relationship between faultlines and overall group satisfaction. Members of faultline-based subgroups are likely to identify

and feel a strong connection to one another but have negative affect toward members who are not part of their subgroup (Hornsey & Hogg, 2000; Pickett & Brewer, 2001). The morale of the overall group may suffer when there is competition between subgroups (Murnighan, 1978). Many studies that have investigated the faultlines–group satisfaction relationship have found the relationship to be negative (Cronin et al., 2011; Jehn & Bezrukova, 2010; Rico et al., 2007; Zanutto et al., 2010). However, results from two studies (Bezrukova, Spell, & Perry, 2010; Lau & Murnighan, 2005) suggest that the social support and strong bonds from subgroups result in high levels of subgroup satisfaction. In some cases, high levels of subgroup satisfaction may have positive spillover effects onto overall group satisfaction. Overall, groups with strong faultlines have lower levels of group satisfaction than groups with weak faultlines, as reflected in Thatcher and Patel's (in press) meta-analysis.

The three types of intragroup conflict most often examined in group research are relationship conflicts, which are disagreements over non-work-related interpersonal issues, task conflicts that are disagreements over work-related issues, and process conflicts that are disagreements over how work gets done (Jehn, 1997; Pelled, 1996). The literature on coalitions (e.g., Insko & Schopler, 1987; Polzer, Mannix, & Neale, 1998) and the theories underlying faultlines suggest that when there are strong faultlines, team members will have pleasant interactions with members of the subgroup (Bezrukova et al., 2010; Stevenson, Pearce, & Porter, 1985) but experience an increase in conflict and distrust across subgroups (Choi & Sy, 2010; Greer & Jehn, 2007; Hogg, Turner, & Davidson, 1990; Homan et al., 2007a; Pearsall et al., 2008).

The majority of studies investigating the relationship between faultlines and relationship, task, and process conflict have found positive and significant relationships (Bezrukova et al., 2007; Li & Hambrick, 2005; Pearsall et al., 2008; Polzer et al., 2006; Thatcher et al., 2003; Zanutto et al., 2010). Molleman (2005) and Jehn and Bezrukova (2010), who do not distinguish between types of conflict, found that demographic faultlines were strongly related to intragroup conflict. Kalbus (2000) explained that the absence of faultlines resulted in a flawed process when choosing a county superintendent because of the lack of conflict. However, Lau and Murnighan (2005) found that strong faultlines decreased relationship conflict. Choi and Sy (2010) found that many types of faultlines (tenure–age, age–race) increased the presence of relationship conflict, but faultlines based on tenure–race were negatively related to relationship conflict. The results of Thatcher and Patel's (in press) meta-analysis reflect that strong faultlines are positively correlated with relationship conflict and task conflict.

Other group-level constructs that have been found to be negatively related to faultlines are group cohesion, trust, respect, and liking (Cronin et al., 2011; Molleman, 2005). Three studies have found there to be high levels of cooperation within subgroups (Bezrukova et al., 2010; Hart & Van Vugt, 2006; Phillips, Mannix, & Neale, 2004).

Table 3 reflects the correlations from our quantitative aggregation results between faultline strength and distance with the group processes and outcomes (performance, satisfaction, and conflict) that have been studied most extensively. Faultline strength is positively correlated with all conflict types and negatively correlated with group performance and satisfaction. Faultline distance also reflects negatively on group performance and satisfaction. More importantly, Table 3 shows that faultline strength explains more variance than diversity measures alone for performance (9%), satisfaction (10%), task conflict (10%), process conflict

Table 3
The Effects of Faultline Strength and Faultline Distance on Group Processes and Outcomes

	Faultline Strength								Faultline Distance							
	% Variance Explained[a]	Cohen's f^{2b}					95% CI around r		% Variance Explained	Cohen's f^2					95% CI around r	
			k	K	N	r	Lower	Upper			k	K	N	r	Lower	Upper
Task conflict	.10	.26	7	504	2,733	.41	.17	.55			n/a	n/a				
Process conflict	.09	.29	10	890	4,558	.38	.18	.57			n/a	n/a				
Relationship conflict	.07	.41	7	767	4,157	.37	.21	.54			n/a	n/a				
Group performance	.09	.40	34	2,487	12,432	–.29	–.35	–.16	.07	.27	3	339	2,472	–.18	–.33	–.04
Group satisfaction	.10	.31	24	1,296	6,253	–.27	–.41	–.11	.07	.38	2	246	1,693	–.31	–.50	–.13

Note: k = effect sizes; K = number of groups; N = number of group members; r = sample-size-weighted mean observed correlation.
a. Based on stepwise metaregression. For each study included in the study, the measures of diversity (e.g., age, gender) are included in Step 1. In Step 2, the faultline measure is entered in the regression. The change in adjusted-R^2 is reported.
b. Cohen's $f^2 = \dfrac{R^2_{diversity,faultline} - R^2_{faultline}}{1 - R^2_{diversity,faultline}}$.

(9%), and relationship conflict (7%). Faultline distance explains more variance than diversity measures alone for performance (7%) and satisfaction (7%).

Overall, empirical studies on faultlines reflect that faultline strength and faultline distance tend to have a negative effect on many types of performance outcomes, including supervisor-rated performance, decision-making quality, and archival team outcomes such as bonuses and stocks. Furthermore, affective outcomes such as satisfaction were negatively influenced by faultline strength and distance. Group processes such as relationship conflict, task conflict, and process conflict were also affected by faultline strength. The quantitative aggregation results show that faultline strength and faultline distance have significant effects on group outcomes above and beyond the effects of team diversity. These effects are robust to the specification of faultlines as either dormant or active faultlines. This suggests that faultlines matter in teams, and it is important that researchers understand the conditions under which faultlines will be attenuated or enhanced. In the final section of our review, we discuss the aspects of the group and the context of the group that may influence group outcomes when faultlines exist.

Group Context

The context of the group and the context that surrounds a group may affect the extent to which a faultline influences outcomes. Joshi and Roh's (2009) recent meta-analysis of diversity found that team-, occupation-, and industry-level contexts were contingencies in the relationship between diversity and performance. In this section, we describe two general contextual categories that are important to faultline researchers: group characteristics and group-level moderators of the faultline–outcome relationship. In addition, we assess whether the relationship between faultlines and group outcomes is contingent on whether a faultline is dormant or active.

Group characteristics. The group characteristics of group size, evenness of subgroup size, and number of subgroups are important for the study of faultlines. Although relatively few empirical studies have investigated these characteristics, there have been a number of conceptual arguments supporting the study of these characteristics, as discussed here. Although studies on diversity and faultlines control for group size, group size may have important theoretical implications for faultline strength because strong faultlines require homogeneity of subgroups (Lau & Murnighan, 1998). When the overall group is very large, it is unlikely that subgroups can be homogeneous across multiple attributes (Hart & Van Vugt, 2006). Thatcher and Patel (in press) found that group size had an inverted-U effect on faultline strength, confirming that groups that are very large are unlikely to have strong faultlines.

Another group characteristic that will influence faultline strength and distance is the extent to which a faultline creates subgroups of an even size. When the overall group has an even number of members, there is the potential for subgroups to contain the same number of individuals. Subgroups with an uneven number of members could have an imbalance in relative distribution of power, resources, and abilities (Lau & Murnighan, 1998). Therefore,

Table 4
The Relationship between Group Characteristics and Faultline Strength and Faultline Distance

	Faultline Strength						Faultline Distance					
					95% CI around *r*						95% CI around *r*	
	k	*K*	*N*	*r*	Lower	Upper	*k*	*K*	*N*	*r*	Lower	Upper
Evenness of subgroups	34	1,135	5,513	.29	.11	.43	32	339	2,472	.29	.13	.44
Number of subgroups	35	562	3,433	–.39	–.48	–.20	32	246	1,693	–.35	–.50	–.20

Note: *k* = effect sizes; *K* = number of groups; *N* = number of group members; *r* = sample-size-weighted mean observed correlation.

extending the concept of disparity from the diversity literature (Harrison & Klein, 2007), the evenness of subgroups could have important implications for inter-subgroup dynamics. Thatcher et al. (2003) control for the evenness of group size, and Earley and Mosakowski (2000) observed that subgroups were of different sizes in their qualitative analysis of teams. O'Leary and Mortensen's (2010) systematic examination of subgroup size in teams distributed across two locations finds that there are differences in team and subgroup outcomes depending on whether subgroups are of an even size. Nishii and Goncalo (2008) and Hart and Van Vugt (2006) theorize that the evenness of subgroup size may influence the relationship between faultlines and creativity, and faultlines and group fissures, respectively.

Few empirical faultline studies have investigated the effects of having more than two subgroups on faultline strength and distance. However, both Shaw (2004) and Trezzini (2008) argue that it is important to investigate the number of subgroups that exist within a group as higher numbers of subgroups are likely to lead to weaker faultlines (Lau & Murnighan, 1998; Nishii & Goncalo, 2008). Polzer et al. (2006) found that groups split across two geographic locations had the highest levels of conflict (and weakest levels of trust), groups split across three locations had moderate levels of conflict and trust, and groups split across six locations had the lowest levels of conflict (and highest levels of trust).

To corroborate the above discussion, the quantitative aggregation results presented in Table 4 reflect the correlations among the evenness of subgroups, the number of subgroups, faultline strength, and faultline distance. The evenness of subgroups was correlated with both stronger faultlines ($r = .29$) and more distant faultlines ($r = .29$). Finally, when there are more subgroups, faultlines are weaker ($r = –.39$) and less distant ($r = –.35$).

Group-level moderators in empirical faultline studies. Researchers interested in diversity and group composition have been investigating moderators of the diversity–outcomes relationship for decades. As Joshi and Roh (2009) point out in their comprehensive review and meta-analysis, the moderators can generally be grouped into three categories (team context, organization context, and industry or occupational context). The results of their meta-analysis revealed that the effects of diversity on performance outcomes were stronger after accounting for industry-, occupation-, and team-level contexts.

Identifying moderators of the faultlines–outcomes relationship has been a popular area of research. Moderators represent boundary conditions in the context of the faultlines–performance or faultlines–group process relationships. One set of moderators that has been examined revolves around individual beliefs or characteristics such as openness to experience (Homan et al., 2008), salience of subgroup differences (Homan et al., 2008; Meyer et al., 2011), and prodiversity beliefs (Homan et al., 2007b; Homan et al., 2010). The salience of subgroup differences reinforce the negative effects of faultlines, whereas openness to experience and prodiversity beliefs mitigate the negative effects of faultlines. Another set of moderators examines group-level beliefs or behaviors such as superordinate identity (Bezrukova et al., 2009; Homan et al., 2008; Jehn & Bezrukova, 2010), social information exchange (Jehn & Rupert, 2008), and cognitive integration (Cronin et al., 2011). These moderators mitigate the negative influence of strong faultlines on performance and affective outcomes.

Group-level structural variables have also been explored as moderators. For example, the moderators of informational diversity (Homan et al., 2007a), faultline distance (Bezrukova et al., 2009; Bezrukova et al., 2010; Zanutto et al., 2010), team tenure (Barkema & Shvyrkov, 2007), and group entitlement configuration (Jehn & Bezrukova, 2010) have been explored. These studies found that greater informational diversity (Homan et al., 2007a) and overlapping team tenure (Barkema & Shvyrkov, 2007) help develop superordinate identity and thereby mitigate the effects of faultlines on group performance. On the other hand, faultline distance (Bezrukova et al., 2009) and group entitlement configuration (Jehn & Bezrukova, 2010) exacerbate the negative effects of faultlines on group performance. A number of task-based variables have been considered as potential moderators in relationships between faultlines and performance. Task autonomy (Molleman, 2005; Rico et al., 2007), cultural alignment (Bezrukova et al., in press), shared objectives (van Knippenberg et al., 2011) and meeting informality (Tuggle et al., 2010) have been found to mitigate the negative effects of faultlines on performance. Finally, a number of leadership-based moderators have been proposed in recent studies: team leader behavior (Gratton et al., 2007), transformational leadership (Kunze & Bruch, 2010), and leadership role structure (Gratton et al., 2007). Kunze and Bruch (2010) show that transformational leadership mitigates the negative effects of age-based faultlines. Suggesting a more contingent leadership style to mitigating the negative effects of demographic-based faultlines, Gratton et al. (2007) recommend that leaders use task orientation during the early stages of group formation and relationship orientation in the long term.

Table 5 reflects the correlations between faultline strength and group processes and outcomes when the relationships are moderated by superordinate identity and faultline distance. Because superordinate identity and faultline distance have been studied in more than three published studies, we are able to assess the extent to which they act as moderators in our quantitative aggregation. Superordinate identity reverses the positive relationship between faultline strength and the three conflict types such that there is less conflict in faultline groups with a superordinate identity. When superordinate identity is included as a moderator of the faultline strength–conflict relationship, it explains more variance than diversity measures alone for task conflict (5%), process conflict (6%), and relationship conflict (5%). A superordinate identity also transforms the negative relationship between faultline strength and group performance or satisfaction into a positive relationship (cf. Table 3) and explains more variance

Table 5
The Effects of Moderators on Group Processes and Outcomes

	Faultline Strength × Superordinate Identity								Faultline Strength × Faultlines Distance							
							95% CI around *r*								95% CI around *r*	
	% Variance Explained[a]	Cohen's f^2	*k*	*K*	*N*	*r*	Lower	Upper	% Variance Explained	Cohen's f^2	*k*	*K*	*N*	*r*	Lower	Upper
Task conflict	.05	.32	6	76	567	–.38	–.67	–.08			n/a	n/a				
Process conflict	.06	.30	10	216	1,167	–.39	–.59	–.13			n/a	n/a				
Relationship conflict	.05	.29	7	189	749	–.38	–.62	–.14			n/a	n/a				
Group performance	.07	.26	34	500	2,494	.44	.22	.69	.08	.30	3	339	2,472	–.41	–.49	–.33
Group satisfaction	.07	.37	24	238	1,165	.41	.22	.63	.07	.37	2	246	1,693	–.58	–.74	–.42

Note: *k* = effect sizes; *K* = number of groups; *N* = number of group members; *r* = sample-size-weighted mean observed correlation.
a. Based on stepwise metaregression. For each study included in the study, the measures of diversity (e.g., age, gender), faultline measures, and moderators are included in Step 1. In Step 2, the interaction effect of the faultline measure and moderator is entered in the regression. The change in adjusted-R^2 is reported.

than diversity measures alone for performance (7%) and satisfaction (7%). Faultline distance exacerbates the negative effect of faultline strength on both group performance and satisfaction and explains more variance than diversity alone for performance (8%) and satisfaction (7%). Overall, in conjunction with faultline strength, the moderators explain significant variance after controlling for the effects of diversity on group outcomes.

Dormant versus active faultlines. Table 6 reflects the correlations between faultline strength and the group processes and outcomes when faultlines are dormant or active (for a description of how we coded dormant and active faultlines, see the appendix). The results reflect that dormant and active faultlines have similar effects on conflict types and group outcomes whereby the relationship between faultlines and conflict types is positive, that between faultlines and group performance is negative, and that between faultlines and group satisfaction is negative. However, the differences in the significance of the effect sizes based on correlations (Table 6, last column) show that the relationships are stronger when the faultlines are active than when they are dormant. Table 6 also shows that over and above the effects of group diversity, dormant faultlines explain additional variance with respect to group performance (12%), group satisfaction (12%), task conflict (8%), process conflict (9%), and relationship conflict (8%). Similarly, in addition to the effects of group diversity, active faultlines explain additional variance with respect to group performance (10%), group satisfaction (10%), task conflict (5%), process conflict (10%), and relationship conflict (5%). These results suggest not only that the conceptualization of faultlines is empirically viable, but also that in the broader context of the group diversity literature faultlines explain group-level outcomes in a statistically valid and theoretically meaningful way.

To summarize, there are aspects of the group context that are particularly relevant for research on faultlines. Group characteristics such as group size, the evenness of the groups, and the number of subgroups within a group contribute to intra-subgroup and inter-subgroup dynamics, key aspects of faultline strength and distance. We encourage faultline researchers to explicitly consider these aspects of the group in their investigations on the effects of faultlines. We also find great interest in characteristics of the group, task, and organizational context that may mitigate or enhance the effect of faultlines on outcomes. Some of these characteristics may trigger a dormant faultline to become active; other characteristics may focus group members on the overall group rather than on subgroups. Regardless of whether faultlines are dormant or active, they clearly have an impact on group outcomes.

As the results from this review show, many advances have been made regarding our understanding of how faultlines influence group processes and outcomes. The theoretical extensions and quantitative aggregation results show that faultlines have a significant effect on group processes, group performance, and satisfaction, over and above the effects of diversity. Extending the early work on faultlines, several theoretical (i.e., ODT, CEM, distance theories, and cross-categorization) and measurement extensions have been proposed over the past decade. However, both theoretical and empirical progress has been fragmented. To enhance future progress, researchers must reconcile the faultline literature with the broader diversity literature, develop a more comprehensive theoretical framework, and build consensus on a valid and reliable set of faultline measures. Our review of the research is just the beginning, and we believe there are many exciting opportunities for future research on faultlines.

Table 6
The Effect of Activation on Group Processes and Outcomes

	Dormant Faultline ($r_{dormant}$)								Active Faultlines (r_{active})								
							95% CI around r								95% CI around r		
	% Variance Explained[a]	Cohen's f^2	k	K	N	r	Lower	Upper	% Variance Explained	Cohen's f^2	k	K	N	r	Lower	Upper	$[(r_{active}) - (r_{dormant})]$
Task conflict	.08	.21	5	331	1,653	.26	.11	.39	.05	.24	2	173	1,080	.37	.15	.56	.11**
Process conflict	.09	.32	6	701	3,763	.27	.14	.43	.10	.37	5	219	955	.44	.29	.67	.17**
Relationship conflict	.08	.23	3	304	1,422	.36	.25	.47	.05	.26	4	463	2,735	.45	.23	.68	.09**
Group performance	.12	.39	21	2,353	8,078	–.44	–.60	–.14	.10	.36	9	913	4,354	–.51	–.76	–.21	–.07***
Group satisfaction	.12	.47	11	720	3,167	–.39	–.58	–.15	.10	.33	6	578	4,098	–.52	–.69	–.29	–.13***

Note: k = effect sizes; K = number of groups; N = number of group members; r = sample-size-weighted mean observed correlation.
a. Based on stepwise metaregression. For each study included in the study, the measures of diversity (e.g., age, gender) are included in Step 1. In Step 2, the dormant (or active) faultline measure is entered in the regression. The change in adjusted-R^2 is reported.
**$p < .01$. ***$p < .001$.

Future Research Directions

Although the majority of faultlines research has been undertaken by those interested in diversity and teams, we believe that future studies on faultlines will be of interest to those involved in research in the areas of power, alliances, subgroups, social networks, intergroup behavior, conflict, learning, and decision making. We hope that our suggestions for future research on faultlines engage researchers whose primary research interests lie elsewhere but who see the potential integration of faultlines to further their research.

In this section, we begin by revisiting some of Lau and Murnighan's (1998) original propositions that have not yet been empirically examined. We then discuss future research possibilities that build off the extant findings such as extending the conceptualizations of faultlines and refining faultline measurement. Finally, we investigate how faultlines can be linked to research in other literatures such as leadership, international studies, and strategic management.

Missed Research Opportunities

Sensemaking. One aspect of the original faultline conception that has been largely absent from the literature on faultlines is the idea of sensemaking. Lau and Murnighan (1998) explain that when given a particular task, strong and clear faultlines should result in "shorter sensemaking processes" because subgroup members share common mental scripts. Although researchers in experimental settings have manipulated faultlines so they are active (Homan et al., 2008; Zanutto et al., 2010), it is unclear how the sensemaking process is developed, reinforced, or weakened through subgroup and group-level routines and exchanges. In addition, conceptual and empirical clarity about sensemaking in strong-faultline and weak-faultline groups requires greater attention. Experimental and field studies to assess sensemaking in groups with faultlines are encouraged.

Attribute alignment clarity. Attribute alignment clarity has not been investigated because faultline researchers focused their attention on the faultline strength construct. Attribute alignment clarity is not defined by Lau and Murnighan (1998), but we suggest that attribute alignment clarity is the extent to which alignment on a particular characteristic is unambiguous. For example, attribute alignment clarity exists when there are gender-based subgroups because all group members are either female or male.

Individuals have multiple identity structures (e.g., gender, education, age, organization, family role), and many individuals have intraindividual crossover attributes (e.g., mixed race, second-generation immigrant, dual citizenship, functional experience in multiple disciplines). The specific characterization of attributes by either the researcher or the subgroup members alters the extent to which a faultline exists or is perceived to exist. For example, the classification of a biracial woman (e.g., Asian and Caucasian) as Asian may create one faultline configuration, and the classification of this same woman as Caucasian may create a different faultline configuration. Many biracial individuals feel they belong to a separate category altogether, akin to a blended classification (Benet-Martinez, Leu, Lee, & Morris, 2002).

Furthermore, individuals have certain self-concepts and identity motives that lead them to identify with particular groups of people (Cooper & Thatcher, 2010). For example, an individual with a collective self-concept is likely to desire strong identification with the overall group (e.g., choosing to identify as a "biracial" person), whereas an individual with a relational self-concept may feel compelled toward subgroup identification (e.g., choosing to identify as either an Asian or Caucasian). Thus, individuals who are in the same group may experience the effects of faultlines differently. Groups with increased intraindividual functional diversity (e.g., an individual with experience in both accounting and operations) could experience similar alignment issues. Thus, future researchers may wish to conceptually and empirically distinguish between faultline groups with high category overlap and faultline groups with low category overlap. Limited clarity in the classification of individual attributes could result in weaker faultlines, and such individuals could act as a bridge (e.g., cross-categorization) across subgroups to help overcome coordination and communication costs resulting from faultlines.

Faultlines over time. The proposition that the salience of demographic faultlines would decrease over time as long-term groups overcome the liabilities of faultline strength has not been fully investigated. Gratton et al.'s (2007) observations partially support this proposition; they describe teams that initially had faultlines on the basis of surface-level characteristics (gender, age) and later developed faultlines based on Type A personality attributes. Although the demographic characteristics became less salient, faultlines formed on the basis of other attributes over time. Previous studies on diverse teams suggest that surface- and deep-level diversity could have temporally contingent effects on the nature of faultlines over the course of group evolution (Harrison, Price, Gavin, & Florey, 2002). However, there has been no systematic, longitudinal study of subgroup formation as a result of faultlines that describes how the initially dormant faultline triggers an active faultline and then changes or stays the same over time. Alternatively, faultlines that are not present initially may develop over time as group members realize differences resulting from deep-level diversity attributes. There is a great need for this type of research.

Power. The majority of the work on faultlines has investigated how demographic faultlines affect group processes and outcomes. These studies assume that if demographic attribute alignment results in homogeneous subgroups, then subgroups have equal power. O'Leary and Mortensen (2010) provide evidence that asymmetry in subgroup size influences distribution of resources and abilities. Increased asymmetry between two subgroups leads to differences in team identification, limited development of transactive memory, increased conflict, and low coordination across the larger group.

We believe that future researchers need to take into account the context of their study and more explicitly understand power dynamics. Returning to Team A in our opening vignette, we see the presence of a strong and distant faultline resulting in two subgroups divided by gender, functional background, and experience. Imagine that the organization in which this team works has an organizational culture that strongly values engineering skills. Using current faultline theories, we would predict that the subgroups have equal power. Neither the

strength nor distance measurement approach currently used captures the implied power that the subgroup of engineers has relative to the subgroup of marketers in Team A. It is unclear whether outcomes associated with this type of team would be positive or negative. On one hand, the low-power subgroup may contribute little in the way of substantial input to team decisions, and thereby lower performance. On the other hand, this type of team may have positive team outcomes if the low-power subgroup defers to the high-power subgroup. In the latter situation, the negative effects of faultlines are avoided (e.g., group processes are more positive) and the positive effects of subgroup identity are present (e.g., the inexperienced marketers take solace in their shared experiences as a low-power subgroup). Similar arguments could be made with respect to status accorded to race and gender in a society.

Member entry and exit. New member entry into groups is another promising area for future research. It is important to know whether there are any generalizable effects of new member entry into faultline-based subgroups. Recently, Summers, Humphrey, and Ferris (in press) suggested that team member changes lead to alterations in team coordination, role change, and information transfer. Flache and Mäs (2008a) show in a simulation that the effects of strong faultlines depend on the timing of when team members first interact with other team members; empirical validation of this would be interesting. With team member changes, the level of subgroup identity or cross-group categorization may change significantly. Alternatively, based on the relative distance of new member characteristics from the characteristics of existing team members, the mechanisms described by ODT and CEM could strengthen or mitigate faultline dynamics. Member entry and exit may also change the characteristics of the group with respect to group size, evenness of subgroups, and number of subgroups resulting in potentially different faultline compositions. Future research in this area may wish to look at how the introduction of a new member or loss of an old member changes the faultline composition and affects group processes.

Overall, although faultlines literature has made strides on the theoretical front by integrating additional theories (e.g., ODT, CEM) and developing measures of faultlines, there is significant potential in testing and extending some of the original propositions from Lau and Murnighan (1998). We now turn our attention to describing opportunities for extending extant findings on both conceptual and measurement fronts.

Extant Findings and the Opportunities They Present

Like most new areas of research, the findings on faultlines are not always consistent, and many areas of inquiry are still preliminary (e.g., some variables have been investigated in only one study). There are many aspects of faultlines research that are not covered in Thatcher and Patel's (in press) meta-analysis or in the research discussed in this review up to this point. Thus, in this section, we discuss areas of faultlines research where more work needs to be done.

Faultline activation and evolution. Some researchers have investigated the effects of both dormant and active faultlines on group processes and outcomes (Jehn & Bezrukova, 2010;

Zanutto et al., 2010). The theories of self-categorization and social identity are relevant for both dormant and active faultlines, but in the case of active faultlines, identity salience becomes an important mechanism in explaining how faultlines affect groups (Homan et al., 2008; Meyer et al., 2011). Flache and Mäs (2008b) show that strong differences in opinion may lead to active faultlines in a simulation. Rink and Jehn (2010) argue that the salience of faultlines may depend on the extent to which category-based identifications are important for the self-esteem of team members. The results of our quantitative aggregation show a similar pattern of results for the effects of both dormant and active faultlines on group conflict, performance, and satisfaction. This suggests that both dormant and active faultlines influence group processes and outcomes. However, because the majority of studies investigating dormant faultlines have been in the field and the majority of studies investigating active faultlines have been in the lab or conducted on student groups (Thatcher & Patel, in press), we still do not have a good understanding of the ways that active faultlines may influence ongoing work teams differently than dormant faultlines.

Faultline researchers may wish to borrow from literature on group evolution (Palla, Barabási, & Vicsek, 2007) or network evolution (Doreian & Stokman, 1997) to investigate faultline evolution in teams. A network evolution perspective could inform us of the micro aspects of subgroup formation to explain how individuals align to form "rival" networks (Doreian & Stokman, 1997). The sequential process through which individuals may align in dyads, triads, and cliques to form subgroups could help us understand the processes leading to faultline development. Methodologies from network clique formation could further illustrate the micro processes of individual alignment over time (Provan & Sebastian, 1998). Finally, network cliques could explain how subgroups limit intra-subgroup mobility through potential internal norms and routines.

Faultline triggers. Another area of interest is that of faultline triggers. Chrobot-Mason et al.'s (2009) rigorous qualitative study provides us with five general categories of triggers: differential treatment, different values, assimilation, insult or humiliating action, and simple contact. Future research could explore the extent to which some triggers are more harmful to groups than others. For example, faultline triggers based on different values may not reflect an ideal working situation but may be tolerable. On the other hand, insults and humiliating actions may be more potent triggers that cause irreparable harm to the overall group. Different triggers may also influence subgroups and the overall group in different ways. Although contact may result in relatively superficial faultlines that can be easily overcome, differential treatment may result in high-strength, high-distance faultlines, making them difficult to overcome. Another area of exploration is the extent to which triggers have an equal influence on both subgroups. For example, risky decisions may trigger an existing age-based faultline as older individuals tend to be more risk averse. Finally, it would be interesting to know whether there is a difference between groups that begin with an active faultline already in existence (e.g., negotiating parties with different interests, the two sides of a merged company; Hambrick, Li, Xin, & Tsui, 2001) and groups that initially have no faultline but experience a trigger (e.g., risky decision).

Team context. With the increased use of virtual teams, technology, and telecommuting, researchers need to consider the potential for faultlines to form around attributes other than the deep-level, informational, and surface-level attributes discussed above. Polzer et al. (2006) found that active faultlines were triggered when virtual teams experienced difficulties finding a common time to communicate because of time zone differences. Although Earley and Mosakowski (2000) did not explicitly study faultlines, their examination of teams revealed the formation of location-based subgroups. Differences in geographic location not only create communication challenges but also result in differences in assumptions, preferences, cultures, information access, and constraints (Cramton & Hinds, 2005; Gokakkar, 2007; Zimmermann, 2011). Contextual situations that are understood in one location (e.g., lengthy business lunches) may be misunderstood by group members in other locations (e.g., attributions of laziness because of a lack of understanding about traditional work structures). As virtual teams become more common, there is increased potential for the development of geographic-, culture-, time zone–, and language-based faultlines.

Furthermore, work values reflected in aspects of temporal preferences, use of technology, and communication preferences may be interesting to investigate as the basis of a faultline. For instance, a faultline that produces one subgroup that prefers to complete work early and one subgroup of team members that prefers to complete things right at the deadline may be more detrimental to group processes and outcomes than faultlines based on demographic attributes.

Faultlines may also result from unequal access to workplace programs. For example, Gokakkar (2007) found that the option of individual mobility (rotation to the other subgroup) led to a weaker negative relationship between location-based faultlines and knowledge sharing than when the individual mobility option did not exist. Another example is that of telecommuting. Researchers have shown that telecommuting, or working from someplace other than one's home office via technology, has resulted in perceptions of injustice by coworkers (Thatcher & Bagger, 2011). Faultlines that are formed on the basis of injustice perceptions may have extremely negative consequences for the team. Furthermore, the industry environment affects work demands and stressors that in turn could influence an increased need for affiliation under uncertainty. For example, job type may be an important moderator of the faultline–outcome relationship; groups in stressful jobs such as nursing, medical fields, policing, and control tower dispatch may benefit from the positive social support and cognitive integration found in faultline-generated subgroups. Some authors have theorized that for outcomes that require psychological safety (e.g., creativity), faultlines may be beneficial (Bezrukova & Uparna, 2009).

Measurement issues: Which measure should be used? Given the diversity of measures on faultline strength, future studies may focus on a relative comparison of measures. Converging on a common measure of faultline strength would increase the reliability and validity of faultline studies and ensure coherence around faultlines from both a conceptual and a measurement standpoint. Using a common data set, future studies could assess the nomological validity of faultline measures using the most commonly tested antecedents to and consequences of faultlines. Such studies could assess how closely certain faultline strength measures explain outcomes.

Measures such as subgroup size, the number of subgroups, and individual membership in subgroups could be incorporated in future studies. Although latent class approaches readily provide such measures, they are less applicable in the context of small groups as latent class approaches require at least 30 members (Nylund, Asparouhov, & Muthén, 2007). An alternative to the cluster analysis–based approaches used to develop measures of faultline strength or distance are methodologies used in genetic micro-array research. Micro-array analysis focuses on studying a large number of attributes from a very small number of subjects (Allison, Cui, Page, & Sabripour, 2006). Addressing the presence of several attributes from a small number of members could be useful in developing such faultline measures. Traditional cluster analysis methods may have limited validity when the number of individual attributes is greater than the number of group members (Dupuy & Simon, 2007). The micro-array analysis approach might be especially useful as we begin to investigate intraindividual attributes in combination with the interindividual demographic and personality attributes that have been the center of attention thus far.

Measurement issues: Faultline depth. In addition to faultline strength and faultline distance, an additional dimension for future consideration is faultline depth. Although faultline strength and faultline distance relate to a two-dimensional plane, faultline depth refers to average attribute covariance in a subgroup. Faultline strength refers to the extent of alignment among attributes. Faultline distance refers to the divergence between the subgroups. Faultline depth is the degree of alignment among attributes within a subgroup. For example, Minichilli et al. (2010) explored faultlines among top management team members in family firms. It is likely that the subgroup with family members would have multiple, overlapping alignments (e.g., brother, uncle, comanager) resulting in an integrated subgroup (Sharma & Irving, 2005) and great faultline depth. The alignment of the non-family-member subgroup may have weak covariance among the aligned attributes and may be focused on differentiating itself from the family-based subgroup. In other words, a nonfamily subgroup member may feel quite different from the members in the family-based subgroup but may not establish a strong identity with his or her own subgroup. To visualize faultline depth, take a cross-sectional view below the group surface and imagine the covariance among aligned attributes. The average of the covariances would denote depth or shallowness of the subgroup. When examining faultline depth, one subgroup may be very deep and one may be very shallow, resulting in different intra-subgroup and inter-subgroup dynamics.

Measurement issues: Dependence among attributes. One of the critical assumptions in the broader faultlines literature is that faultline attributes are independent. This assumption is not always true. For example, older individuals are likely to have more years of relevant work experience and longer organizational tenure than younger individuals. Alternatively, females and minorities may have shorter organizational tenure or work experience because of labor market imperfections. Clearly, by not accounting for such dependencies across attributes, the effects of individual attributes on faultline strength are overestimated and their ensuing effects on group performance and group processes could also be overestimated. We suggest that future studies with large groups use methodologies such as local dependence in latent class cluster analysis to control for such interdependencies (Clogg, 1995; Patel, Thatcher, & Bezrukova, in press). Micro-array methodologies could also provide guidance on controlling for the interdependence of attributes in small groups.

Novel Ways to Extend the Original Faultline Concept

Some of the work done in the past few years has pushed the boundaries of the faultlines concept. We discuss a few of those topics in this section and describe how future research can continue to extend the original faultline concept.

Positive effects of faultlines. Like those who have argued for the "value in diversity" hypothesis, there may be positive effects of faultlines. Bezrukova and Uparna (2009) provide a conceptual argument suggesting that faultlines may lead to more creativity. Gibson and Vermeulen (2003) found that moderate subgroups led to the facilitation of group learning. Bezrukova et al. (2009) find that team identification can increase performance when groups have strong information-based subgroups. Bezrukova et al. (2010) and Spell, Bezrukova, Haar, and Spell (2011) find that strong faultlines moderate the relationship between perceived injustice and individual outcomes, suggesting that the psychological support provided by subgroups has positive benefits on individuals. Thatcher and Patel (in press) found that although strong faultlines led to low levels of performance and satisfaction, the effects of faultlines on satisfaction were less strong than those on performance. As a whole, these findings suggest that the subgroup structure may provide some benefits to individuals, subgroups, and groups. Possible conditions that may result in positive faultline effects are when there is a clear division of labor or when competitive subgroups are desirable. We challenge researchers to develop and test models of faultlines that examine potential positive effects of faultlines.

Subgroup identification. Another interesting avenue to explore is the role of subgroup identification in the creation or activation of faultlines. Although the theories of self-categorization, social identity, and optimal distinctiveness underlie faultlines, it is important to consider the extent to which an individual actually identifies with the attribute being used to determine whether a faultline exists, as described in CEM (van Knippenberg et al., 2004). Individuals may strongly identify with a particular aspect of their self, disidentify with a particular aspect, or have a neutral identification with that aspect (Elsbach & Bhattacharya, 2001; Pratt, 2000). The potential identification opportunities become quite interesting in the case of individuals with intraindividual crossover characteristics. Imagine a six-person group consisting of three Asians, two Native Americans, and an individual who is biracial (Asian and Native American). There are three potential race-based faultline conditions: (a) one strong faultline resulting in two subgroups of three people each (biracial person aligns with the Native American); (b) one strong faultline resulting in two subgroups, with one subgroup consisting of four people and one subgroup consisting of two people (biracial person aligns with the Asians); and (c) one strong faultline and one weak faultline resulting in three subgroups (Asian group of three, Native American group of two, biracial "group" of one). By not aligning with either subgroup in the third condition described above, the biracial individual may act as a cross-cutter, thereby deactivating the racial faultline.

This discussion is not merely a theoretical exercise. Many individuals are biracial, age no longer defines an individual's opportunities, and gender roles are increasingly blurred. In addition, individuals may have multiple educational and functional experiences. Individuals with multiple degrees or many different job experiences may influence faultline configuration

and the extent to which a particular faultline will be activated. Individuals work in organizations with other individuals who may be a spouse, a child, a relative, or a friend. Dual-role identities (e.g., coworker, spouse) and the salience of those identities may influence faultline configurations and the strength of those configurations, as reflected in Minichilli et al. (2010). Although Lau and Murnighan (1998) use social identity and self-categorization theories to explain the activation of faultlines, we argue that having a good understanding of an individual's identification tendencies may help researchers provide better predictions of where active faultlines are likely to develop.

Asymmetric perceptions across subgroups. Central to the idea of strong faultline-based teams is that the subgroups are relatively homogeneous (Lau & Murnighan, 1998). Based on this subgroup homogeneity, faultline researchers have assumed that these subgroups would have similar perceptions of team-based interactions. For instance, researchers assume that two faultline-based subgroups would have similar conflict experiences in team interactions. However, Jehn, Rispens, and Thatcher (2010), in their recent work on conflict asymmetry, found that there are differences in conflict perceptions by team members, and the asymmetry in perceptions has an effect on both individual and group outcomes. Asymmetry may also be relevant for subgroups. Asymmetry in subgroup perceptions of conflict might lead to strong resentment and frustration across the subgroups, making effective communication difficult (O'Leary & Mortensen, 2010). When one subgroup does not perceive conflict, attempts to resolve conflicts perceived by the other subgroup may not be taken seriously. Future research should take into consideration the extent to which faultline-based subgroups have asymmetric perceptions and examine the extent to which these asymmetries might influence outcomes.

The Intersection of Faultlines and Other Literatures

Although there are many potential literatures that may benefit from an integration of faultlines research, it would be impossible to include them all here. Rather, we focus on three areas: leadership, international studies, and strategic management. All three of these research areas provide opportunities for multilevel studies and push the boundaries for faultlines beyond colocated work teams. At the group level, leaders could play a critical role in managing faultlines to increase benefits and mitigate process losses. Alternatively, using the concept of faultlines in international studies, at the global level, and in strategic management, at the industry level, could help the literature move beyond its initial group-level focus.

Leadership. There are several potential avenues for leadership researchers to investigate topics at the intersection of faultlines and leadership. For example, there is evidence to suggest that certain forms of leadership can help diverse teams work together effectively (Kearney & Gebert, 2009). Likewise, it seems feasible that leadership is an effective moderator of the faultlines–outcomes relationship. Gratton et al. (2007) provide some anecdotal evidence suggesting that task–leadership and relationship–leadership orientations should be altered depending on the probability that faultlines will emerge. When there are dormant faultlines, a

task-focused leadership style may be best in newly formed teams so that leaders can focus the attention of group members on the task. Initially, a relationship focus would exacerbate dormant faultlines as team members are likely to make snap judgments based on stereotypes. Over time, Gratton et al. (2007) encourage leaders to switch to more of a relationship-focused style of leadership. On the other hand, leaders' categorization tendencies may trigger a faultline. For example, a group may have a dormant faultline based on the attributes of age and education level. A leader that takes pride in her or his education level may subconsciously activate the faultline. There are numerous questions researchers can investigate relating to leadership and faultlines.

International studies. The area of cross-cultural studies can be used to guide future research in the area of faultlines. First and foremost, researchers can draw from the pioneering work of Hofstede (1997) and the researchers who have followed in his footsteps (e.g., House, Hanges, Javidan, Dorfman, & Gupta, 2004). The cultural dimensions (e.g., power distance, collectivism, future orientation) developed by these researchers may be used as the basis for faultlines. Although these researchers initially conceptualized the cultural dimensions at the societal level of analysis, empirical work shows that these dimensions also capture individual-level differences (Hofstede, 1980; Kashima & Hardie, 2000). Conceptualizations of these cultural differences at either level of analysis could be used as the basis for faultline inference.

At a more macro level, faultlines could be conceptualized as the alignment of nations on social, geographic, political, or economic attributes. We see evidence of these alignments in the names of subgroups that are given to countries (developed vs. developing; haves vs. have-nots; democracies vs. others; BRIC [Brazil, Russia, India, and China] countries as the new up-and-coming economies). These faultlines and the extent to which governments and business institutions identify with these subgroups may influence trade rules and investment decisions (Rajan, 2010). The substantial increases in investment and trade among countries belonging to the Association of Southeast Asian counties (ASEAN) over the past 25 years is testament to the idea that membership in a subgroup matters (ASEAN Secretariat, 1997). Future research investigating how such alignments are formed, transformed, dissolved, or strengthened could inform the relationship among faultlines, world institutions, and business in the increasingly global world.

Strategic management. The majority of studies on faultlines have investigated the effects of faultlines on group-level outcomes. Integrating faultlines research into strategic management pushes us to consider other possibilities. For example, van Knippenberg et al. (2011) recently found that faultlines in top management teams had a negative effect on objective organizational performance unless the top management team had shared objectives. In addition, Li and Hambrick (2005) and Barkema and Shvyrkov (2007) focus on the relationship between faultlines and firm-level outcomes. Introducing the idea of family–membership faultlines in top management teams, Minichilli et al. (2010) assess the effects of faultlines on return on assets.

Strategic groups within an industry represent subgroups of firms (Barney & Hoskisson, 1990). Prior studies have focused on the effects of strategic group membership on firm performance and intrastrategic group dynamics (DeSarbo, Grewal, & Wang, 2009). However, limited research

has focused on the role of interdependence between strategic groups. Specifically, using the theoretical underpinnings of faultlines, researchers may be able to explain why some strategic groups drift close to each other (e.g., form an alignment) and affect overall industry competitive forces. Furthermore, there are times when firms change strategic group membership, and the literature on faultlines will benefit from a theoretical explanation of the conditions that facilitate membership change. Lawrence and Zyphur's (2011) measurement approach may help in facilitating this work, but significant theoretical development of faultlines at the organizational and strategic group levels needs to be undertaken.

There are numerous possibilities for conducting future research on faultlines. We have highlighted some of Lau and Murnighan's (1998) propositions that have not yet been researched. We have also provided some suggestions for conceptual and measurement extension based on current findings. Finally, we propose that researchers extend faultlines into other areas of research inquiry such as leadership, international studies, and strategic management.

Conclusion

In conclusion, faultlines, as a meso-level group construct, have become increasingly important in studying group dynamics. Our review of the literature shows that much progress has been made in investigating attributes of faultline composition, providing theoretical arguments that underlie the value of faultlines, and furthering aspects of faultline measurement. Progress has also been made in assessing the effects of group faultlines on the variables of intragroup conflict, group performance, and group satisfaction. We show that these effects are above and beyond those assessed for group diversity alone. Researchers have only recently started investigating the effects of faultlines on other group-level processes and outcome variables as well as individual and firm-level outcomes. Faultline researchers have also begun investigating moderators of the faultlines–outcomes relationship, but there are only two moderators (superordinate identity, faultline distance) that have been examined in some depth, suggesting that our overall understanding of what exacerbates or mitigates the relationship between group faultlines and outcomes is still evolving.

Despite the progress that has been made over the past 13 years, there is still much to learn about faultlines. Lau and Murnighan (1998) explored the roles of sensemaking, attribute alignment clarity, power, member entry and exit, and faultlines over time in their theoretical introduction to faultlines. To date, few studies have investigated these issues. We encourage researchers to build on extant findings to investigate issues associated with faultline activation and evolution, faultline triggers, team context, and faultline measurement. Three areas of interest that have not yet been the focus of much attention in work on faultlines are potential positive effects of faultlines, the role of subgroup identification, and the effect of asymmetric perceptions in faultline-based subgroups. Finally, we suggest that there are numerous ways that the research in faultlines can be integrated with topics that generally fall outside the purview of organizational behavior, such as leadership, international studies, and strategic management. We hope that our review article will jump-start the next wave of faultlines research, and we look forward to what will come.

Appendix

Literature Search and Coding Description

Literature search. To identify published studies on faultlines, we developed a list of keywords, including *faultline*, *subgroups*, *faultline strength*, *faultline distance*, *group* (or *team*) *performance*, *group* (or *team*) *effectiveness*, *group* (or *team*) *cohesion*, *group* (or *team*) *satisfaction*, *diversity*, *identity*, and *conflict*. We then search for refereed articles and book chapters published between 1995 and May 2011 in PsycINFO, Social Science Citation Index, EBSCO, ABI/INFORM, ProQuest Dissertations, Web of Science, and Google Scholar. To triangulate the identified referred articles and book chapters, we also (a) did a backward citation search of Lau and Murnighan (1998), (b) manually searched reference lists of studies citing Lau and Murnighan, (c) and searched through the tables of contents of leading management journals between 1995 and May 2011.[2]

Inclusion criteria. The search resulted in 96 studies. We include only studies that were published in peer-reviewed journals or published as book chapters. This resulted in a group of 59 studies. To differentiate empirical studies from conceptual studies, three independent coders (one of the authors and two graduate assistants) scanned the articles to classify them as either conceptual or empirical articles. An article was classified as an empirical article if it listed statistical relationships among variables in the form of correlations, *t* tests, *F* tests, or effect sizes. Where correlations were not available, *F* test or *t* test values were converted to correlations (Arthur, Bennett, & Huffcutt, 2001). Studies using qualitative analysis, for the purposes of inclusion, were classified as conceptual articles. The interrater agreement was 100%. We identified 34 empirical studies and 25 conceptual studies that matched the search criteria. Of the 25 conceptual studies, 2 studies focused on agent-based simulation, 5 focused on measurement of faultlines, 4 used qualitative data analysis, and 14 were conceptual pieces. The classification resulted in 34 empirical studies representing 2,529 groups with 12,606 individuals.

Coding of empirical studies. One of the authors and two graduate assistants coded the studies. To ensure consistent coding, we developed a coding scheme using definitions in faultline literature. We coded measures related to team identity, team cohesion, and team commitment under the umbrella term of superordinate identity. If studies identified faultlines through scale-based assessment or manipulation checks in lab settings, we coded these studies under active faultlines. The remaining studies were coded under dormant faultlines. The following items were coded using a coding sheet (intraclass correlation coefficients [ICCs] and Cohen's kappa for interrater agreement are in the parentheses): superordinate identity (ICC = .98, κ = .97) and dormant or active faultlines (ICC = .98, κ = .99). We collected data and show the ICCs for the following variables included in our quantitative aggregation analyses: (a) average group size (ICC = .99), (b) number of subgroups (ICC = .96), (c) evenness of subgroups (ICC = .99), (d) faultline strength (ICC = .97), (e) faultline distance (ICC = .98), (f) task conflict (ICC = .99), (g) relationship conflict (ICC = .98), (h) process conflict (ICC = .98),

(i) group performance (ICC = .99), and (j) group satisfaction (ICC = .98). To assess the additional variance explained by faultline measures in addition to diversity measures, we also collected data on the following variables: (a) age diversity (ICC = .99), (b) sex diversity (ICC = .98) (c) race diversity (ICC = .97), (d) education diversity (ICC = .99), (e) tenure diversity (ICC = .97), and (f) functional diversity (ICC = .96). The interrater agreement was 96.15%. A total of 38 discrepancies were resolved through a meeting among the three coders.

Studies included in our quantitative aggregation analysis investigated group-level outcomes (i.e., performance, satisfaction, superordinate identity, or conflict), reported sample sizes, provided correlations or provided the necessary information for computing correlations, and were written in English. When correlations were not reported, appropriate conversion formulas were used for reported parameters, specifically, *t* test values, *F* statistics, and effect size measures. We used the correlation aggregation approach proposed by Hunter and Schmidt (2004).

Notes

1. A more detailed discussion of the differences surrounding measurement of dormant and active faultlines is presented later in this section.

2. The journals included *Academy of Management Journal*, *Administrative Science Quarterly*, *Group Dynamics*, *Group & Organization Management*, *Human Relations*, *Journal of Applied Psychology*, *Journal of Management*, *Journal of Occupational and Organizational Psychology*, *Journal of Organizational Behavior*, *Organizational Behavior and Human Decision Processes*, *Personnel Psychology*, and *Small Group Research*.

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