

EXAMINING AN IMPORTANT ASSUMPTION IN THE FAULTLINE LITERATURE

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ABSTRACT

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Group faultlines are defined as hypothetical dividing lines that split a team into subgroups based on the alignment of team members' attributes. Prior faultline research has almost exclusively focused on the implications of *between*-subgroup relationships assuming that "team members form homophilous ties on either side of a faultline by associating with others in the team who have similar demographic attributes" (Ren et al., 2015, p. 390). However, this important assumption has not been tested. Drawing from social comparison theory and its "similarity hypothesis," I argue that homogeneous, faultline-based subgroups may serve as a hotbed for social comparisons, and comparisons on social power can engender conflict under certain circumstances, triggering within-subgroup conflict. More specifically, consistent with the emerging research that recognizes different types of group faultlines, I outlined a) different dimensions that different faultline-based subgroups are more likely to compare and b) the downstream effects of these comparisons. Hypotheses were tested using multi-wave, round-robin data from multiple intact work teams of full-time employees. Results largely supported my predictions regarding knowledge-based subgroups but not so much for identity-based subgroups or resource-based subgroups. Implications and future directions are discussed.

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INTRODUCTION

A work team is a group whose membership and task are formally recognized by the organization. As organizations continuously employ team-based structures in the workplace, understanding how to effectively manage work teams has far-reaching implications for organizational performance and reputation (Mathieu, Hollenbeck, Van Knippenberg, & Ilgen, 2017). However, team management is a challenging and difficult task. While some work teams are a cohesive group wherein members easily get along and openly share information, for other work teams, members may selectively interact with some but keep their distance from others. When a subset of members of a work team interact differently with each other than with other team members, informal subgroups emerge (Carton & Cummings, 2012), dividing the groups into disconnected parts. Subgroup formation has been linked to a variety of outcomes, including member satisfaction (Cronin, Bezrukova, Weingart, & Tinsley, 2011; Lau & Murnighan, 2005), transactive memory systems (Shen, Gallivan, & Tang, 2016), intragroup conflict (Jehn & Bezrukova, 2010; Molleman, 2005), and team performance (Homan et al., 2008; Jehn & Bezrukova, 2010; Li & Hambrick, 2005; Thatcher, Jehn, & Zanutto, 2003; Zanutto, Bezrukova, & Jehn, 2011).

In one primary research stream on subgroups, scholars studying group faultlines, or hypothetical dividing lines based on the alignment of demographic characteristics in a team, have argued that subgroups typically form based on the natural grouping preferences of individuals (Lau & Murnighan, 1998). Drawing from social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Hogg & Terry, 2000), they argue that the demographic differences and similarities between group members give rise to subgroups formation, which decreases group integration and ultimately lowers group performance and member satisfaction. Although some

empirical evidence supports this theorizing and associates faultlines and subgroup formation with negative team outcomes, other studies found that faultline-based subgroups facilitate positive group processes and outcomes under certain contexts (e.g., Cooper, Patel, & Thatcher, 2014; Gibson & Vermeulen, 2003; Lau & Murnighan, 2005; Meyer, Shemla, & Schermuly, 2011). This inconsistency in the faultline-based subgroups literature becomes growingly troublesome, given that these days managers are increasingly composing their work groups with individuals from diverse demographic attributes and backgrounds (Cohn & Caumont, 2016; Roberson, Ryan, & Ragins, 2017; van Knippenberg & Schippers, 2007). I argue that this inconsistency may be due to three issues in the current faultline research.

First, traditionally, faultline scholars regard all attributes (e.g., sex, age, race, functional background, educational background, tenure) as having the same connotation and contributing to a group faultline in the same way. However, recent research has shown this assumption to be erroneous and has indicated that the alignment of different attributes may give rise to different types of subgroups (Bezrukova, Jehn, Zanutto, & Thatcher, 2009; Carton & Cummings, 2012, 2013; Homan, van Knippenberg, van Kleef, & De Dreu, 2007; Li & Hambrick, 2005). For instance, recent theorizing suggests that the alignment of social categories attributes (e.g., gender, age) is more likely to elicit identity-based subgroups. The alignment of attributes related to knowledge (e.g., functional background, educational background) facilitates information processing within subsets of members and gives rise to knowledge-based subgroups. And the alignment of attributes associated with one's ability to claim resources (e.g., pay, job level) promotes a subgroup's social dominance tendency, motivating resources-based subgroups (Carton & Cummings, 2012). Thus, an accurate examination of faultline-based subgroups necessitates a consideration of the nature of different attributes.

Second, when composing a group faultline, researchers most commonly consider demographic and job-related characteristics (Thatcher & Patel, 2012), which are objective, readily identifiable attributes (i.e., surface-level characteristics; Harrison, Price, & Bell, 1998). This approach may be natural given that Lau and Murnighan's (1998) original conceptualization of faultlines focused on demographic attributes. However, the broader diversity literature has indicated that the effects of surface-level diversity often decrease over time while the differences in the deep-level, underlying differences become more critical (Harrison et al., 1998; van Dijk, Meyer, van Engen, & Loyd, 2017). Thus, to move the faultline literature forward, it is necessary to look beyond demographic attributes and consider underlying, more meaningful differences among group members (Thatcher & Patel, 2012). I argue that a relevant and significant quality concerning workgroup members is one's "capacity to influence," referred to as social power (French & Raven, 1959). Divergence in this attribute may lead to conflict over informal rank orders of members, namely status conflict ("disputes over people's relative status positions in their group's social hierarchy;" [Bendersky & Hays, 2012, p. 323]) and power struggle ("the degree to which members compete over the relative levels of transactional resources controlled by members within the group;" [Greer & van Kleef, 2010, p. 1033]).

Third, the bulk of faultline-based subgroup research has investigated the subgroup phenomenon using dormant faultlines, or "*potential* faultlines based on [homogeneity of] demographic characteristics," rather than perceived, active faultlines, which exist when "members actually perceive subgroups based on the demographic characteristics" (Jehn & Bezrukova, 2010, p. 24; italics added). In other words, most faultline research has investigated the effects of *hypothetical* subgroups (cf. Antino, Rico, & Thatcher, 2019; Jehn & Bezrukova, 2010). This is because faultline researchers typically *assume* that "team members form

homophilous ties on either side of a faultline by associating with others in the team who have similar demographic attributes” (Ren et al., 2015, p. 390). However, a *hypothetical* faultline may or may not be equivalent to a perceived faultline, and presumed subsets of members may or may not be comparable to actual subgroups. Thus, empirical testing is needed to examine whether members of hypothetical (faultline-based) subgroups are indeed free from conflict.

The lack of such empirical evidence is particularly bothersome when considering another prominent theory in organizational and social psychology: social comparison theory (Festinger, 1954). The basic tenet of social comparison theory posits that a) social comparison most frequently occurs among those who are similar, and b) comparison could result in contrastive thoughts and feelings toward the similar others. Put differently, social comparison theory asserts that similarity in individuals’ demographic or job-related characteristics may not motivate subgroup formation but instead may promote comparisons that can engender competition and negative feelings between similar individuals. Faultline and subgroup scholars have so far failed to recognize or evaluate this possibility. The lack of consideration of social comparison within subgroups may be another reason for the inconsistent research findings in the faultline literature.

The purpose of this dissertation is to address these three issues and advance our understanding of faultlines and subgroups. To do so, I integrate subgroup theory (Carton & Cummings, 2012), social comparison theory (Festinger, 1954), as well as bases of social power theory (French & Raven, 1959) to delineate a model (Figure 1) that systematically disentangles the activities *within* faultline-based subgroups in work teams. Consistent with the emerging research, I study identity-based faultline subgroups, knowledge-based faultline subgroups, and resource-based faultline subgroups. I examine subgroup members' dissimilarity in social power

bases (reward, coercive, legitimate, referent, and expert power¹) and its implications for within-subgroup conflict. More specifically, I argue that members of faultline-based *identity* subgroups are more likely to compare on *referent influence*, members of faultline-based *knowledge* subgroups are more likely to compare on *expert influence*, and members of faultline-based *resource* subgroups are more likely to compare on *formal influence* (i.e., reward, coercive, and legitimate influence). Due to the different nature of different subgroups, I argue that while *similar* levels of referent influence and formal influence will *decrease* conflict within identity-based subgroups and resource-based subgroups, *similar* levels of expert influence will *increase* conflict within knowledge-based subgroups.

Overall, this dissertation contributes to literature pertinent to work team diversity, faultlines, subgroup formation, and conflict. First, by explicitly studying relationships *within* faultline-based subgroups, this dissertation is able to examine an essential assumption in the faultline literature, that is, whether hypothetical faultlines predict within-subgroup harmony or within-subgroup conflict and competition. I hypothesize the key lies in the dyadic dissimilarity in social influence. Second, this dissertation contributes to the broader diversity and inequality research. Past studies on diversity and inequality tend to focus on one or the other, draw on different theoretical perspectives, and speak to different academic subcommunities. For example, diversity scholars have primarily focused on individuals' "horizontal differentiation" based on gender, age, education, and functional background (Bunderson & Van der Vegt, 2018). Inequality scholars, on the other hand, have primarily focused on individuals' "vertical differentiation" based on the hierarchy of a socially valued dimension (Bunderson & Van der

¹ Social power bases (French & Raven, 1959) include referent power, expert power, and formal power (i.e., reward, coercive, legitimate power). As discussed in the literature review section later, French and Raven's (1959) social power is best referred to as social *influence*. Thus, thereafter in the introduction, referent power will be called as referent influence, expert power expert influence, and formal power formal influence.

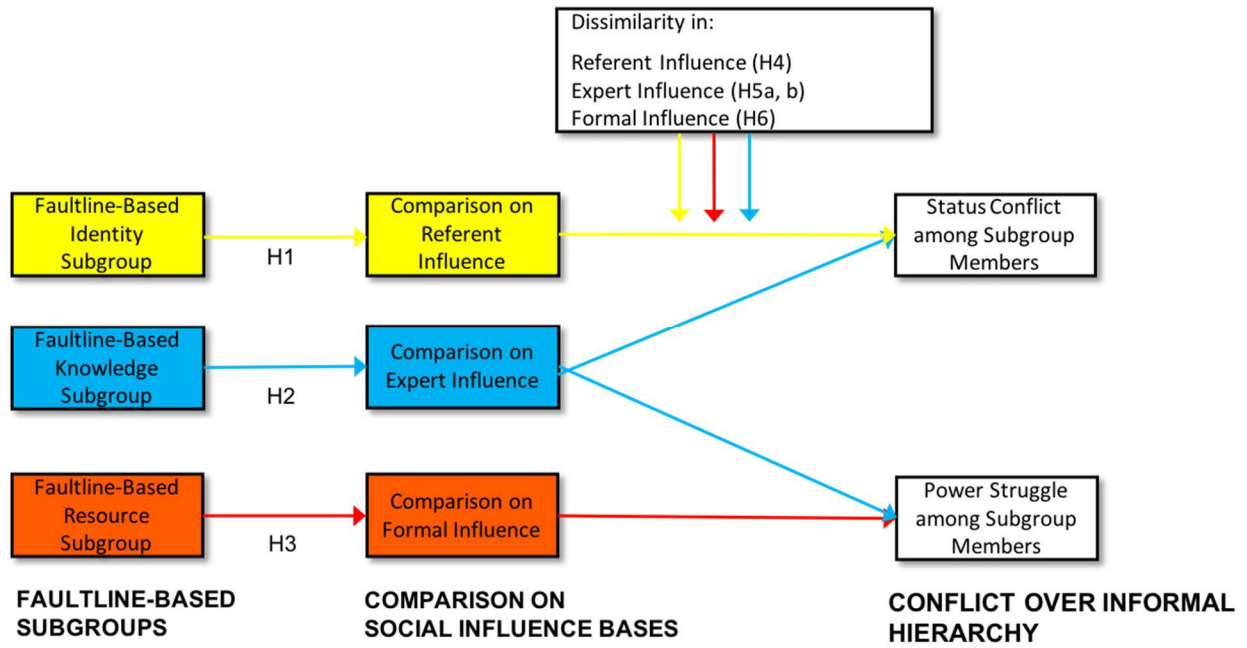
Vegt, 2018), such as power, status, and prestige. Despite mixed research findings in both works of literature, an integrative attempt to simultaneously study both, such as their dynamics and interplay, rarely takes place. Scholars in recent years have also lamented the folly of studying horizontal differences without accounting for vertical differences and vice versa (Bunderson & Van der Vegt, 2018; Greer, Van Bunderen, & Yu, 2017). Thus, by studying the (im)balance of social power between individuals within faultline-based subgroups, this dissertation serves as a critical first attempt for this concern.

Third, this dissertation expands the nomological network of faultline-based subgroups. Since the inception of the faultline model, relationship conflict and task conflict have been two commonly-argued and well-tested underlying mechanisms of group faultlines. However, I argue that faultline-based subgroups, especially when combined with the differences in members' capacity to influence, are more susceptible to conflict over informal hierarchy, namely status conflict and power struggle. In support of this argument, a recent empirical study on group faultlines has shown that status conflict is a more likely outcome of (perceived) faultline-based subgroups than is task or relationship conflict (Antino et al., 2019). Further, compared to other forms of conflict, conflicts over informal hierarchy are distributive in nature, last longer, and are likely intractable (Kapferer, 1969; Lewicki, Saunders, & Minton, 1999; Morrill, 1991; Pruitt & Rubin, 1986; Ridgeway & Walker 1995; Tinsley, Connor, & Sullivan, 2002). Given that power struggle and status conflict are arguably more substantial for group and organizational functioning, examining their implications for faultline-based subgroups is essential.

Finally, studying faultline-based subgroups is not only a scholarly interest but also a practical necessity. Two inevitable trends in today's business world include a) more and more organizations relying on teams to meet social, economic, and technical challenges and b) the

increasingly diversified workforce. Consider these numbers: over 80% of Fortune 1000 companies reportedly use teams to organize the workforce to meet challenges and solve complex problems (Garvey, 2002); the number of working women is projected to grow 0.7 percent annually and will reach 92 million by 2050 (Toossi, 2002); Millennials will surpass Baby Boomers to become the largest U.S. adult generation by 2019 (Cohn & Caumont, 2016), and yet the 55-and-older age group is anticipated to make up 20 percent of the labor force in 2020 and remain 19 percent by 2050 (Toossi, 2002). On the other hand, organizations are increasingly creating workgroups of people with different functional or educational backgrounds (van Kinppenberg & Schippers, 2007). Together, given faultline-based subgroups form based on within-subgroup homogeneity and between-subgroup heterogeneity, the increased workforce diversity suggests the occurrence and even the prevalence of faultline-based subgroups in the future. As such, the development of faultline theory is needed to keep up with reality and assist organizations and managers.

FIGURE 1: Proposed Theoretical Model



LITERATURE REVIEW: FAULTLINES-BASED SUBGROUPS

Given the expanding use of groups in organizations (Garvey, 2002), the effectiveness of teams and groups has become a cornerstone of organizational success. To optimize team effectiveness and decrease process losses, scholars have closely scrutinized how members orchestrate their interactions and dependence (Guzzo & Dickson, 1996; Hackman, 1987; Kozlowski & Bell, 2003; Saavedra, Earley, & Van Dyne, 1993). One topic that has received growing attention is the existence of subgroups, or "the subsets of team members that are each characterized by a unique degree of interdependence" (Carton & Cummings, 2012, p.441), which appear to be common in large teams (Shen et al., 2016).

In the organizational literature, a crucial attempt to the study of subgroups rests in the faultline literature. The faultline model (Lau & Murnighan, 1998) provides initial theorizing regarding how subgroups emerge within work teams. According to these scholars, subgroups typically form based on the natural grouping preferences of individuals, such as demographic differences and similarities between group members. Drawing from social identity theory and self-categorization theory, faultline scholars argue that the existence of subgroups engenders in-group favoritism and out-group conflict, ultimately decreasing group performance and efficiency. Although some empirical evidence supports this theorizing and shows negative outcomes of faultline-based subgroups, other studies discover the opposite. For example, Gibson and Vermeulen (2003) observed that no-faultline groups and weak-faultline groups had lower team learning than did moderately-strong-faultline subgroups. Lau and Murnighan (2005) found that group faultline strength was related to decreased relationship conflict and increased satisfaction and psychological safety. Meyer and colleagues (2011) showed that strong-faultline groups increased information elaboration in certain contexts compared to weak-faultline groups.

This inconsistency in the current faultline literature paints an ambiguous picture of faultline-based subgroups and inhibits a meaningful development of subgroup research. Therefore, further theory development is in need to address these contradictory findings.

Given that the subgroup and faultline literatures are closely intertwined, an objective to advance our understanding of subgroups requires a careful examination of the faultline literature and its underlying assumptions. In the following section, I will first revisit Lau and Murnighan's original model and their empirical testing. I will then discuss the critical development made by other faultline scholars. With a clear understanding of the current state of the faultline literature, I will conclude this chapter with a summary of "areas for opportunity" of the faultline-based subgroup research.

Early Development of Faultline Literature

Lau and Murnighan (1998) proposed group faultline, or a hypothetical dividing line based on the alignment of one or more demographic attributes, potentially splits the group into subgroups. For example, gender faultlines may divide groups into male and female cliques, and age faultlines may separate groups into subgroups of the older and the younger. Further, the more attributes that align with each other, the stronger the faultlines, and thus, the more distinct subgroups will be. For example, two visible subgroups are more likely to form in a group composed of older women and young men than in a group of young women and men.

Lau and Murnighan (1998) noted that although differences and similarities in any individual attributes may give rise to group faultline, they restricted their theorizing to demographic attributes, for two reasons. To begin with, demographic characteristics are the most easily noticed individual differences. Although group members may recognize themselves in many ways, they typically cannot deny their demographic attributes. Members may form an

initial impression based on each other's physical characteristics because members tend to engage in a sensemaking process to understand each other at the early stage of group development (Fiske & Neuberg, 1990). Second, although demographic characteristics may be more critical in the early stage of group development than in the later stage, what happens in the early stage likely carries over to the group functioning phase (due to path dependency; for a review, see van Dijk et al., 2017). For example, subgroups formed early provide initial group norms for members to obey, which reinforces the boundaries of subgroups (Bettenhausen & Murnighan, 1985; Feldman, 1984). Taken together, as a first attempt to develop group faultline research, Lau and Murnighan restricted their theorizing to demographic faultlines.

In their faultline model, Lau and Murnighan (1998) first argued that subgroups are more likely to form when the demographic faultlines are related to the group's task. For example, affirmative action policy may evoke the salience of minority status and activate faultlines based on gender, age, and ethnicity. They argued that once demographics-based subgroups formed, their positions are likely to be strengthened over time. Members who act according to their subgroup norms are likely to receive support from their fellow subgroup members, encouraging them to continue supporting and protecting their subgroup norms and membership. As a result, subgroups likely persist, and strong emotional attachments to subsets likely emerge, which can negatively influence group integration and communication and become potential sources of between-subgroup conflict.

Secondly, Lau and Murnighan (1998) discussed the relationship between the size of a subgroup and the likelihood of opinion vocalization in the entire group. They proposed that subgroups with many members often dominate the group's observable processes to get support for their opinions. Opinions of a small group, in contrast, usually indicate a lack of internal

support and social power. Opinions from a small subgroup are also likely to experience suppression when they do voice their opinions. However, opinion suppression does not imply that the small subgroup agrees with or internalizes the large subgroup's suggestions (Kelman, 1958). Unbeknownst to the dominant subgroup, minority subgroups may hide considerable disagreement and employ covert power tactics (Kabanoff, 1991). As a result, there will be more covert, infrequent conflicts in groups that, when they arise, last longer than members of the large subset might expect.

In their subsequent empirical study, Lau and Murnighan (2005) set forth to test some of these propositions. They examined 79 groups of 504 undergraduates enrolled in an introduction-level business course at a university in Canada. To construct strong versus weak faultline conditions, they randomly assigned students to groups based on their ethnicity (Caucasian versus Non-Caucasian) and gender (Male versus Female). Each group was asked to analyze the same case study where a real estate company experienced a number of management malfunctions (e.g., prevalent inefficiencies, a lack of trust among employees).

Results of this experiment provided construct validity of group faultlines by showing that faultlines went over and beyond single-attribute heterogeneity indexes and explained more variance in important group outcomes, including team learning, psychological safety, satisfaction, and group performance. Second, the results provided empirical support for using social identity theory in the faultline-based subgroup research. Consistent with their original model, Lau and Murnighan argued that when groups split into subgroups based on demographic faultlines, members' identities would be associated more with their subgroups than with the whole group. Then, according to social identity theory, individuals of strong-faultline groups will evaluate their subgroup's members more favorably. By contrast, members of weak-faultline

groups will be more likely to identify with and focus on the entire group since there is no clear categorization of a subset they can easily fit in. Results supported this hypothesis and showed that compared to those in the weak-faultline groups, individuals in the strong-faultline groups perceived fellow subgroup members more favorably.

Third, they extended the original faultline model by hypothesizing the role of group faultlines in cross-subgroup communications. They argued that strong subgroup faultlines increase individuals' awareness of the subgroup boundary as well as individuals' feelings of belongingness to and identification with the subgroups (rather than the entire team). With strong faultlines, what might otherwise be considered constructive information and helpful feedback may be seen as an attack from other subgroups (Bartel, 2001). Thus, in strong faultline groups, between-subgroups communication might not be beneficial but rather generate conflict, scorn, and poor group performance. In weak faultline groups, however, members do not identify themselves with anyone specifically, and thus, between-subgroups communication and interaction may facilitate and improve group outcomes. Results support this hypothesis and demonstrate that cross-subgroup interactions were positively related to group outcomes only in weak-faultline groups, not in strong-faultline groups.

Despite the supportive results, one observation deviates from their original model (Lau & Murnighan, 1998). Based on their original model, strong-faultline groups would experience more group conflict and more negative group outcomes than weak-faultline groups. Results, however, suggested the opposite. Compared with their counterparts in weak-faultline groups, members in strong-faultline groups reportedly experienced more psychological safety and satisfaction and less conflict. Lau and Murnighan (2005) noted that future research is needed to investigate its reason.

Last but not least, it is worth noting that although their original model (Lau & Murnighan, 1998) stressed the importance of the task context in activating group faultlines and associated effects, in their empirical study, group faultlines were found to have impacts even when the group task was neutral and did not make any demographic attributes particularly salient. Thus, Lau and Murnighan (2005) concluded that subgroup identification—even implicitly — could have an impact on group members' interactions. Consistent with this notion, a number of subsequent faultline studies (Bezrukova et al., 2009; Bezrukova, Spell, Caldwell, & Burger, 2015; Bezrukova, Thatcher, Jehn, & Spell, 2012; Carton & Cummings, 2013; Ren, Gray, & Harrison, 2015; Rico, Sánchez-Manzanares, Antino, & Lau, 2012) provided evidence for the significant effects of the group faultlines irrespective of the nature of the task.

Recent Development in the Subgroup and Faultline Literature

Lau and Murnighan's (1998) seminal conceptualization of group faultlines and their empirical testing (Lau & Murnighan, 2005) have inspired scholars' interest in this phenomenon. Over the years, research has expanded the initially theorized attributes (i.e., gender, ethnicity) to test other characteristics, including age, functional background, educational background, and geographic work locations. In fact, researchers have used different combinations of attributes when studying group faultlines, assuming that these characteristics have the same connotation for group faultlines. Based on a synthesized review, however, Thatcher and Patel (2012) lamented that "there has been no consistency around the combination of attributes that have been studied," and "it is impossible to draw any conclusions about faultlines based on a particular attribute combination" (p. 977).

Instead of treating faultiness based on different attributes as identical, scholars suggest that faultline research may benefit from recent development in the broader diversity literature,

such as Harrison and Klein's (2007) typology of diversity attributes. Consistent with this notion, Carton and Cummings's (2012) theory of subgroups provides insights to disentangle the nuance of different characteristics underlying group faultlines. Building on Harrison and Klein (2007), the theory of subgroups argues that three types of faultlines exist based on three kinds of diversity: separation, disparity, and variety. Group faultlines based on attributes denoting separation, or "composition of differences in lateral position or opinion among unit members, primarily of value, belief, or attitude" (Harrison & Klein, 2007, p. 1203), give members a sense of shared identity or shared values. Accordingly, the faultline effects developed by Lau and Murnighan (1998, 2005) should be classified into this category. Social identity theory and self-categorization theory are suitable to predict group outcomes when such faultlines appear.

Carton and Cummings argued that subgroups are also possible based on other types of attributes. For instance, alignment of attributes denoting variety diversity, or "composition of differences in kind, source, or category of relevant knowledge or experience among unit members" (Harrison & Klein, 2007, p. 1203), gives rise to knowledge-based subgroups characterized by common technical languages, cues, slangs, and symbols (Dougherty, 1992; Galbraith, 1974). The alignment of attributes that signal disparity diversity, or "composition of vertical differences in the proportion of socially valued assets or resources held among unit members" (Harrison & Klein, 2007, p. 1203), motivates resource-based subgroups characterized by homogeneity in group members' capacity to claim resources, including power, materials, and authority (Carton & Cummings, 2012).

In sum, there are clearly group faultlines and subgroups that go beyond the nature of social identity. Most recent work has identified three types of subgroups that may emerge in any given work team. These types of subgroups differ in their unique theoretical origins and within-

and between-subgroup interaction patterns. In the next section, I will review the faultline literature and research from the lens of this typology. In doing so, I hope to illuminate the nature of each attribute and the nuance of the faultline they compose.

Identity-Based Subgroups. Identity-based subgroups form because of shared values, beliefs, or a sense of shared identity. Examples include relational subgroups (Niemöller & Schijf, 1980), social subgroups (Phillips, Mannix, Neale, & Gruenfeld, 2004), cliques (Tichy, Tushman, & Fombrun, 1979), and value homophilies (Lazarsfeld & Merton, 1954; McPherson, Smith-Lovin, & Cook, 2001). Relational subgroups and social subgroups are similar. They refer to subsets of members who are familiar with each other, share a social tie, and know each other well. Regarding cliques, Tichy et al. (1979) noted that unlike coalitions, which are temporary sets of alliances that join for an instrumental reason (Thiabut & Kelley, 1959), cliques are relatively permanent and informal associations that serve a broad range of purposes such as social support and a sense of belongingness. Finally, value homophilies are subsets of members based on shared values, attitudes, and beliefs, which can fulfill needs for social support, friendship, and identification.

This type of subgroups is commonly studied from the underpinnings of social identity theory (Tajfel & Turner, 1979, 1986) and social categorization theory (Hogg & Terry, 2000; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The basic tenet of these theories is that subgroup members will feel little personal attachment to out-group members, like in-group members more than out-group members, and strongly favor interacting with those who share their identity. In their seminal work, Carton and Cummings also theorized the likely outcomes of such identity-based subgroups, including identity fragmentation for the entire team. Taken together, an essential feature of the identity-based subgroup is the relationship focus and

orientation. They are social, relational subgroups. Thus, it may not be a surprise that when it comes to outcomes, the most commonly-studied, immediate result is relational conflict (e.g., Adair, Liang, & Hideg, 2017; Choi & Sy, 2010; Jehn, Northcraft, & Neale, 1999; Xie & Luan, 2014).

Having discussed the broader subgroup literature, I next turn to faultlines that are most likely to engender identity-based subgroups. I refer to this type of subgroup as "faultline-based identity subgroups" to differentiate from perceived, actual identity subgroups.

Faultline-based identity subgroups. I argue that group faultlines due to the alignment of gender and age will give rise to identity-based subgroups. First, the organizational diversity literature frequently refers to age and gender as important social categories (e.g., Bezrukova et al., 2009; Harrison et al., 1998; Jehn, Chadwick, & Thatcher, 1997; Jehn et al., 1999; Tsui, Egan, & O'Reilly, 1992; Williams & O'Reilly, 1998). Gender and age are salient and readily identifiable, particularly compared with other demographic characteristics such as job function, education, and tenure (Carton & Cummings, 2013). Research also suggests that individuals have been socialized throughout their life based on attributes such as gender and age (van Knippenberg & Dijksterhuis, 2000). Moreover, people often hypothetically assume age and gender are associated with more underlying qualities, such as values, beliefs, and preferences, that are central to the self-concept and relevant to identity. Thus, these characteristics provide a cognitively accessible and salient basis by which individuals can categorize themselves and others. Social category characteristics tend to influence members' interaction through social identity processes (e.g., Jehn et al., 1999). Taken together, I propose that age and gender faultlines are likely to be associated with identity-based subgroups.

This proposition is consistent with research findings by faultline scholars who create faultlines based on gender and age (e.g., Bezrukova et al., 2009; Carton & Cummings, 2013; Lau & Murnighan, 2005; Choi & Sy, 2010; Jehn & Bezrukova, 2010; Molleman, 2005; Pearsall, Ellis, & Evans, 2008). For example, Bezrukova and colleagues (2009) measured group faultlines based on age and gender in 76 groups workgroups composed of 567 individuals at a Fortune 500 company that concentrated on the business of mailing, document processes, and related technologies. They found that this faultline-based subgroup did identify with their entire workgroup to a lesser degree. Also, the stronger the group faultlines, the worse the team performance. These results support the proposition that faultlines of gender and age give rise to identity-based subgroups.

Further, I highlight that scholars rarely use gender and age to represent knowledge differences in work teams. Although differences in knowledge associated with age and gender certainly exist (e.g., women know more about medicine and cookery than do men, whereas men are more knowledgeable in the domains related to current affairs, sports and games, as well as “Jazz and Blues” music; Lynn, Irwing, & Cammock, 2002), an examination of common teamwork (Cohen & Bailey, 1997; Edmondson, 1999; Homan et al., 2008, 2007; McGrath, 1984) shows that most group tasks do not rely on this kind of knowledge. Empirically, studies demonstrate that diversity in gender and age is indeed unrelated to task conflict but significantly related to relationship conflict (Choi & Sy, 2010; Jehn et al., 1999). Therefore, the operationalization of age and gender as underlying attributes for faultline-based identity subgroups can clearly be separated from faultline-based knowledge subgroups.

Finally, I note that although organizational diversity researchers have employed ethnicity/race as a social category characteristic, ethnicity also entails the nature of “disparity”

diversity (Harrison & Klein, 2007, p. 1203) and may give rise to resource-based subgroups rather than or in addition to identity-based subgroups. This is because inequality research (e.g., social dominance theory [Sidanius & Pratto, 1999]; status characteristics theory [Berger, Fisek, Norman, & Zelditch, 1977; Berger, Rosenholtz, & Zelditch, 1980]) has long theorized and found that on average individuals with certain ethnicity (e.g., Caucasian) are held high and are more likely to be promoted than other ethnic backgrounds (e.g., African-American). In other words, certain ethnic backgrounds are a socially valued asset and strongly associated with the status and authority one receives. Therefore, ethnicity is not ideal for identifying identity subgroups because ethnicity can be an underlying attribute for identity-based *or* resource-based subgroups.

In sum, this evidence together reinforces my decision that identity-based subgroups are most likely to form based on the alignment of gender and age.

Knowledge-Based Subgroups. Knowledge-based subgroups form according to shared mental models and overlapping cognitive schemas and scripts. Examples of this type of subgroup include task-related subgroups, informational subgroups, and cohorts. Task-related subgroups “emerge because the nature of team tasks causes subgroups to form based on specialized knowledge, training, and experience” (Carton & Cummings, 2012, p. 447). Similarly, informational subgroups are formed based on attributes that “vary in how relevant they are to the tasks performed... and in how much impact they may have on task-related employee behavior” (Bezrukova et al., 2009, p. 361). Cohorts refer to a set of employees who “share a similar interpretative framework, define a problem space in similar ways, and share similar cognitive schemas” (Carton & Cummings, 2012, p. 447).

This type of subgroup is primarily studied through the lens of information processing theory (Galbraith, 1974; Hinsz, Tindale, & Vollrath, 1997). This theory originates from the

evolution of organizations literature, which investigates how organizations can better use different, specific domains of knowledge (e.g., marketing, accounting) — such as by developing specialized units — to meet complex and challenging demands. At the heart of information processing theory is the observation that members may have different functional and educational backgrounds in work teams and use unique technical language, cues, and symbols. Members can easily communicate with those who have overlapping cognitive schemas and use the same technical languages and symbols (Dougherty, 1992; Galbraith, 1974). Because individuals can develop ideas and take risks with those in the same knowledge-based subgroup before sharing them with the entire team (Gibson & Vermeulen, 2003), knowledge-based subgroups can result in positive team outcomes.

The essential features of the knowledge-based subgroup are information processing and task orientation. They are task-related subgroups that emerge for the commonality in knowledge and the ease of processing information. Thus, it may not be a surprise that when it comes to outcomes, the most commonly-tested consequences are between-subgroup task conflict (e.g., Choi & Sy, 2010) and team learning (e.g., Gibson & Vermeulen, 2003).

Reviewing past work, Carton and Cummings theorized the implications of such knowledge-based subgroups. On the one hand, without knowledge-based subgroups, unique insights may not surface, and different views may be downplayed or ignored by the rest of the team (Stasser & Titus, 1985). On the other hand, too many knowledge-based subgroups represent too many different mental models, creating difficulty synthesizing them or generating a shared understanding and interpretation in the entire group (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Okhuysen & Bechky, 2009).

Having discussed the broader subgroup literature, I next turn to faultlines that are most likely to engender knowledge-based subgroups. I refer to this type of subgroup as “faultline-based knowledge subgroups.”

Faultline-based knowledge subgroups. Harrison and Klein (2007) highlighted that the same diversity attribute might denote separation, variety, or disparity depending on the context. Therefore they advised researchers to specify and justify the nature of diversity attributes of interest. They noted, however, that for certain diversity characteristics, the conceptualization is “already quite clear” (p. 1208). Two such examples are “educational content (major or specialty) and functional background” (p.1208). These two attributes capture qualitative differences in the categories of knowledge among team members and thus are “variety” diversity. Given that variety-based faultlines motivate knowledge-based subgroups (Carton & Cummings, 2012), I argue that the alignment of functional background and educational content determines the subgroup type to be knowledge-based.

Having said that, a discussion on tenure and educational level (e.g., high school diploma, associate’s degree, bachelor’s degree, master’s degree, doctoral degree) is still noteworthy given that these two attributes have been commonly used for task-related faultline subgroups in the traditional faultline literature (Barkema & Shvyrkov, 2007; Bezrukova et al., 2009; Bezrukova, Thatcher, & Jehn, 2007; Bezrukova et al., 2012; Choi & Sy, 2010; Chung, Liao, Jackson, Subramony, Colakoglu, & Jiang, 2015; Rupert, Blomme, Dragt, & Jehn, 2016; Tuggle, Schnatterly, & Johnson, 2010). Although educational level and tenure unquestionably are job-related attributes, I argue that their “disparity” nature (diversity denoting possession of *valuable* resources such as power, status, and privilege) is more salient than their “variety” nature (horizontal differentiation indicating qualitatively different categories of knowledge). A person's

education level is a socially valued attribute and is often positively related to status and privilege. For example, individuals holding a Ph.D. are often regarded as elites and enjoy privilege and higher status than those with only high school diplomas. Similarly, tenured employees tend to have more knowledge of who knows what and how things get done in a given department. This information is often considered valuable and desirable for new hires. Less tenured employees are often expected to defer to tenured employees (Joshi & Knight, 2015). In short, educational level and tenure are associated more with the quantity (i.e., the nature of disparity; Harrison & Klein, 2007) rather than the quality (i.e., the nature of variety; Harrison & Klein, 2007) of valuable information and knowledge, and can serve as a source of respect, privilege, status, and authority. Thus, educational level and tenure may be better conceptualized as "disparity" diversity attributes.

Resource-Based Subgroups. Resource-based subgroups represent subsets of members that form for strategic gain. Prototypical examples of such subgroups include coalitions (Finkelstein, 1992), alliances (Levine & Moreland, 1998), and blocs (Ulmer, 1965). A coalition refers to “any subset of a group that pools its resources or units as a single voice to determine a decision for the entire group” (Murnighan & Brass, 1991, p. 285). Alliances refer to subsets of members who develop partners “in an attempt to hoard valued resources and establish dominance over other alliances” (Carton & Cummings, 2012, p. 446). Blocs emerge when members in decision-making align to gain higher power that they can have individually (Ulmer, 1965).

This type of subgroup is primarily studied by organizational sociologists and from the perspective of social dominance theory (Sidanius & Pratto, 1999). Social dominance theory argues that social systems are often organized along social hierarchies, with one or more groups

at the top holding a disproportionate level of authority and resources compared to subordinate groups. Within- and between-group processes are characterized by resource distributions that reinforce a social hierarchy (Sidanius & Pratto, 1999).

Uneven distribution of power is a predictor of resource-based subgroup formation. First, when there is a power imbalance, group members may find it more difficult to attend to the collective welfare. Instead, they may expect that they will need to look after themselves (for individuals at the lower level of hierarchy) or exert their power (for individuals at the higher level of hierarchy). Empirically, Mannix (1993) showed that groups with an unequal power balance (versus groups with an equal power balance) were more likely to begin the task by forming subgroups and distributing resources with subgroup members. Second, it has been found that in exchange relationships with unequal distribution of power, high-power holders expect an equity-based resource distribution, whereas low-power holders prefer an equal resource distribution (Komorita & Chertkoff, 1973; Shaw, 1981). This divergent belief about fairness may promote subgroup formation with those sharing similar power levels. Third, low power people are also more likely to interact with each other. There may be a concern that high-power people will take a disproportionate percentage of dividends from the collective gains (Mannix, 1993). This belief will reduce the attractiveness of more powerful group members as coalition members. Subgroupings among less powerful members can put power in the hands of the previous minority and potentially bring needed resources to subgroup members. Confirming this expectation, recent research on abusive supervision recognized the followers' agency in the use of coalition formation to weaken the power imbalance between themselves and supervisors (Wee, Liao, Liu, & Liu, 2017). These authors proposed that followers may rely on coalition formation as a coping strategy to abusive supervision. Two hundred nineteen supervisor-subordinate dyads from a

prominent real estate company in China provide evidence supporting the effectiveness of this strategy. When followers used coalition formation, supervisors were motivated not only to reduce future abusive behaviors but also to engage in reconciliation and mend the strained relationship in the hope of future cooperation.

As shown, this category of subgroup has neither social relational subdivides nor subsets for the sake of smooth information processing. Instead, these subgroups form to serve an instrumental purpose such that members have the leverage needed to acquire resources and achieve their objectives.

Having discussed the broader subgroup literature, I next turn to faultlines that are most likely to engender resources-based subgroups. I refer to this type of subgroup as "faultline-based resources subgroups."

Faultline-based resource subgroups. Business units are considered a large pool of resources (Kramer, 1990; Mannix, 1991; Mannix & White, 1992). Resources-based subgroups form based on the alignment of attributes that denote disparity diversity, or vertical differences in individuals' access to claim resources such as power, materials, authority, and status (Carton & Cummings, 2012). I argue that "disparity" diversity may include formal job level and educational level.

First, research has employed formal job levels as disparity attributes when studying resource-based subgroups. For example, Ren and colleagues (2015) studied faultline-based subgroups in research teams consisting of faculty and graduate students at a university in the United States. They operationalized diversity disparity using team members' professional level (e.g., professors, postdoctoral fellows, doctoral students, undergraduate students). Likewise, Finkelstein (1992) also found that in top management teams, executives' perceived power is

highly correlated with their structural power ($r = .72, p < .01$), such as their positions in an organizational chart. Thus, one's job level is a salient indicator of their discretion to use resources and, therefore, can be conceptualized as a disparity attribute.

Second, individual educational level (e.g., high school degree, two-year college master's doctorate) can also be conceptualized as a disparity variable denoting socially valuable resources and signaling power, status, and prestige. As noted before, individuals holding a Ph.D. are often regarded as elites and enjoy higher admiration and privilege than those with only high school diplomas. In line with this contention, prior theory and research have delineated that educational level is associated with the status and deference that individuals receive from others (e.g., Berger, Cohen, & Zelditch, 1972; Bunderson, 2003; Joshi & Knight, 2015; Klein, Lim, Saltz, & Mayer, 2004). Taken together, differences in formal job level and educational level can be conceptualized as "disparity" diversity.

Finally, it is noteworthy to discuss the possibility of using compensation level as a disparity variable associated with resources-based subgroups. Although compensation levels (cash, bonus, other benefits; Finkelstein, 1992) may also be considered socially valuable resources, regular employees' compensation levels are rarely made public by organizations. Furthermore, most workplaces discourage employee discussions on salary and compensation (e.g., Card, Mas, Moretti, & Saez, 2012) because knowledge of each other's compensation can engender employee distress, envy, and hostile work environments. As a result, employees hardly know each other's accurate compensation level, making peers' compensation an ambiguous and unclear indicator. Thus, compared to individual job level and educational level, I argue that compensation level is less accessible, and therefore, less salient to motivate resources-based subgroups.

In sum, in this dissertation, I will use the alignment of gender and age to operationalize faultline-based identity subgroups, the alignment of educational content and functional background to operationalize faultline-based knowledge subgroups, and the alignment of job level and educational level to operationalize faultline-based resource subgroups.

Areas for Opportunity

Despite a bulk body of research having explored the relationship between faultlines and outcomes, the faultline literature currently paints an ambiguous picture that inhibits scholars and practitioners from drawing definitive statements. The inconsistent findings suggest that there is still untapped potential in our understanding and conceptualization of faultlines. I propose that investigations on the following issues are critical in advancing faultline literature.

First, the original faultline model and common practice in the faultline literature have regarded different attributes as having the same effects. As a result, there is a lack of consistency regarding faultline composition, and “it is impossible to draw any conclusions about faultlines based on a particular combination of attributes” (Thatcher & Patel, 2012, p. 977). Taking Carton and Cumming’s (2012) typology will be helpful in clarifying the potential subgroup types and the associated, distinct group processes and outcomes. Another advancement of Carton and Cumming’s typology is the inclusion of disparity attributes and resource-based subgroups. In recent years, research has argued that faultlines comprised of social categories should be differentiated from job-related attributes. For example, self-categorization processes (associated with social categories) should result in negative group outcomes, whereas information-processing processes (associated with job-related attributes) should result in positive group outcomes. However, empirical studies have shown findings contradictory to this logic (for supportive results, see Jehn et al., 1999; for unsupportive results, see Cox, Lobel, & Mcleod,

1991; Simons, Pelled, & Smith, 1999; for a meta-analysis, see Bowers, Pharmer, & Salas, 2000; Webber & Donahue, 2001). One of the reasons may be that organizational diversity and faultline scholars have largely failed to recognize the “disparity” nature of certain attributes. In other words, social dominance effects of certain attributes might have colored presumed information processing effects, resulting in unexpected outcomes. For example, faultline studies that take an information processing perspective often include education level in their group faultline measures (e.g., Barkema & Shvyrkov, 2007; Bezrukova et al., 2009; Bezrukova et al., 2012; Rupert et al., 2016). However, one’s level of education is a socially valued asset. The higher one’s education level, the more attention, respect, prestige, and status they are likely to garner from others. Education level can be conceptualized as disparity diversity as well.

Second, when creating faultlines, demographics and job-related attributes are the most studied attributes, and attributes that are not demographic in nature have been the least examined in the faultline research. This may be an oversight by faultline scholars. As reflected in the broader diversity literature over the past two decades (e.g., Harrison et al., 1998), demographic faultlines are only a good starting point to understand and unpack the group phenomenon. With the increase in group members’ interactions and in discovering each others’ fundamental beliefs and preferences, the effects of demographic characteristics are likely to decrease, and the effects associated with deep-level diversity are likely to be more critical. Future work on faultlines needs to consider the composition of non-demographic attributes in addition to the traditional demographic ones. In this regard, I propose to study the five bases of social power, or one’s “capacity to influence” (French & Raven, 1959), which have long been considered central to understanding social life and theoretical inquiries of interpersonal relationships (Bruins, 1999; Lewin, 1941; Russell, 1938).

Third, studies often presume that demographic faultlines indicate active subgroups. But in many instances, it is unknown whether hypothetical members perceive the existence of the subgroups or whether members of hypothetical subgroups even get along. Indeed, research has shown that the alignment of demographic differences (e.g., ethnicity, gender) does not necessarily trigger actual subgroupings (Jehn & Bezrukova, 2010); instead, faultline-based subgroup members simply pay more attention to one another (Bhappu, Griffith, & Northcraft, 1997). This attention, according to social comparison theory, may come from comparison activities in that individuals more frequently compare with similar rather than dissimilar others. Interestingly, social comparison theory suggests that comparison could lead to contrastive feelings and competitive behavior. This argument from social comparison theory runs counter to the assumption held by the existing faultline literature, which suggests homogeneous subgroup members are close to each other. Taken together, it is not only necessary to study why hypothetical subgroups are different from perceived subgroups, but it also is essential to investigate whether, or under what conditions, members of such hypothetical subgroups have contrastive effects and intentions for competition. Unfortunately, faultline scholars have failed to recognize or examine these potential social comparison effects when studying homogenous subgroups.

My dissertation plans to attend to each of these three areas for opportunity. Having reviewed the faultline literature, I next turn to social comparison theory. In the next section, I first provide an overview of Festinger's original theorizing. I then discuss its evolution over the past six decades. In particular, I highlight developments concerning the "similarity hypothesis," which is particularly relevant to my dissertation.

THEORETICAL BACKGROUND: SOCIAL COMPARISON THEORY

Festinger Original Theorizing

Festinger's (1954) social comparison theory holds that individuals strive for an accurate understanding of their opinions and abilities and want to improve their opinions and abilities if necessary. An inaccurate belief of one's abilities or opinions can be detrimental and even destructive at times. From Festinger's perspective, individuals are mostly unbiased and dispassionate. They are seeking a "stable," "precise," and "accurate" self-evaluation (Wood, 1989, p. 232).

Festinger argued that individuals would best serve this need by evaluating their abilities against direct, objective standards. However, if objective feedback is unavailable, the next best feedback is knowledge from comparing their performance with others' (i.e., social comparison). For this matter, individuals will compare with those who are *similar* to them on the ability under evaluation rather than with those whose ability is far different, either much better or much worse. For example, to accurately evaluate his progress, a novice chess player will not compare himself to the predominant chess master but may compare himself to another beginner because his ability is closer to another beginner's than to a master's. Together, this is the central proposition in Festinger's theory and was referred to as the "similarity hypothesis" by subsequent researchers.

Having theorized the likely choices of referent others, Festinger delineated the implications of these comparisons. He postulated that if the comparison results in a realization of discrepancies, actions will be taken to reduce the perceived differences. He referred to this process as "pressure toward uniformity." Festinger argued that the effort to minimize the differences or to reduce the pressure toward uniformity would manifest in three ways. One way is to change one's position to reduce the difference. If one's ability is worse than the referent's,

one may work harder to increase his ability to be close to the referent's capacity. For example, a novice piano player may spend considerably more time practicing when he learns that his performance is worse than his peers'. The second way is to change the abilities or performance of the referent other to bring their performance and ability closer to one's own. Such behaviors may include derogating the superior others or engaging in hostile, unfriendly behavior (e.g., gossiping) towards the superior others. The third way to decrease the "pressure towards uniformity" is to stop the comparison with the referents by, for instance, believing the referents too inferior or too superior to be comparable to themselves.

Festinger also discussed factors that determine the strength of these pressures toward uniformity. He argued that any factors that increase the motive to evaluate one's ability will increase the "pressure toward uniformity." First, the self-importance of the ability under comparison can be such a factor. The more crucial an ability is to the person, the greater the drive for accurately appraising it and, therefore, the greater the need to reduce any discrepancy that exists. Second, the more attractive a group to a person, the more essential it is to use that group as a comparison referent, and thus, the stronger the comparison effects will be. Third, the more relevant the ability to a group, the stronger the "pressure toward uniformity" in the group, and thus, the stronger the comparison effects and the stronger the need to reduce the discrepancy. As Festinger argued, groups differ on what he calls the "realm of relevance." For example, a member's capacity to claim resources is a relevant ability for resource-based subgroups discussed earlier (but may not be so relevant for identity- or knowledge-based subgroups). Thus, in resource-based subgroups (but not in identity- or knowledge-based subgroups), there will be greater pressure toward uniformity for the ability to claim resources.

In addition to the similarity hypothesis and the pressure toward uniformity, Festinger highlighted another notion — “unidirectional drive upward.” That is, individuals not only want to evaluate their abilities accurately and reduce discrepancy that exists, but they also strive to better their abilities. Research on the level of aspiration supports this "unidirectional drive upward" hypothesis. Studies show that after informing individuals of similar others' average performance, individuals generally will set their aspiration level slightly above their peers' average.

Social comparison is such a pervasive yet profound act that its basic processes are often taken for granted (Brickman & Bulman, 1977; Wood, 1989). As a critical initial foundation, Festinger's social comparison theory delineated detailed social comparison processes, including the motivation of comparison, the choices of comparison others, and the downstream effects of comparisons. Attesting to its utility and richness is over six decades of active research. This bulk of subsequent research has considerably advanced our understanding of social comparison, which I will turn to next.

Comparison Referent Choices

Festinger's similarity hypothesis reads as follows: “The tendency to compare oneself with some other specific person decreases as the difference between his [or her] opinion or ability and one's own increases.” (Festinger, 1954, p. 120). This seemingly simple proposition has inspired research debates over the years on what “similarity” Festinger referred to. Early research generally interpreted similarity in terms of the target dimension under evaluation. Later researchers, however, have questioned this premise. They argued that early research overlooked the pivotal role of surrounding dimensions (Wood, 1989), or dimensions that are not the focal dimension but are involved in the social comparison process. For example, if the dimension

under evaluation is one's job performance, the surrounding dimensions could be the work experience. Thus, the second interpretation of Festinger's "similarity hypothesis" is that, rather than focusing on the dimension under evaluation, the individual will compare him or herself with someone whose "surrounding dimensions" are similar. I will discuss each interpretation below.

First Interpretation: Comparison on Target Dimension. According to the first interpretation, the phrase "the tendency to compare...decrease as the difference... increases" refers to the similarity of the target dimension under evaluation. That is, when assessing one's ability, one would choose a comparison referent who is similar to herself with respect to the ability under evaluation. This type of study typically conducts rank-order experiments and provides subjects with a range of comparison referents whose scores vary on the dimension under evaluation. Participants are given bogus information regarding their scores and are asked which person's score they would like to see. In support of the similarity proposition, some studies showed that participants chose to compare with those who were close to themselves in the rank order (e.g., Gruder, 1971; Gruder, Korth, Dichtel, & Glos, 1975; Wheeler, 1966; Wheeler, Koestner, & Driver, 1982). However, other studies indicate the opposite pattern. They found that individuals selected comparison others who were dissimilar on the dimensions under evaluation (which is contradictory to the similarity hypothesis) or who were below them (which is contradictory to the upward comparison prediction). Scholars proposed that these inconsistent findings might be reconciled by examining the nature of the dimensions under evaluation, such as the familiarity and the self-relevance of the target dimension (Wood, 1989). For example, when participants are unfamiliar with the comparison dimension, they may prefer to see the most dissimilar scores in the rank order (e.g., the highest and the lowest scores) as an attempt to learn the dimension under evaluation (Deutsch & Krauss, 1965; Thornton & Arrowood, 1966;

Wheeler et al., 1969; Wilson & Benner, 1971). Otherwise, there may be little meaning for one's single score on its own. Research suggests that dissimilar others could be particularly informative for understanding unfamiliar dimensions. Once subjects are familiar with the comparison dimension, they may then select comparison others who are close to themselves to see how close they are (e.g., Wheeler et al., 1969).

Another critical nature of the target dimension is self-relevance. Research indicates that comparisons on self-relevant dimensions are more consequential than comparisons on self-irrelevant dimensions (Pleban & Tesser, 1981; Tesser & Campbell, 1982; Tesser, Millar, & Moore, 1988). For example, when informed their "business acumen" was particularly low, business major students (compared to medical science students or performing arts students) experienced more distress and anxiety and were more likely to engage in counterproductive behavior towards their peers (Salovey & Rodin, 1984). Similarly, children's self-esteem was found to depend on their ability in self-important areas but not in areas that they did not consider important (Hartel, 1986). Research shows that individuals prefer to choose a downward target for self-important comparison dimensions, thereby achieving a feeling of uniqueness and superiority about themselves (Campbell, 1986; Marks, 1984). When the comparison dimension is of no importance to the self, individuals can enjoy others' superior performance (Tesser, 1986).

In sum, one's choice of referent others may change significantly depending on how familiar and vital the evaluation dimension is to the self. An evaluation of the nature of a comparison dimension is essential when studying social comparison.

Second Interpretation: Comparison on Surrounding Dimensions. The first interpretation of Festinger's similarity hypothesis only considers one's standing on the dimension under evaluation. Over the years, scholars have questioned its premises. For instance, Goethals

and Darley (1977) challenged this interpretation by pointing out three limitations concerning the first interpretation. First, it is unclear what information can be gained by choosing to compare with those whose scores are similar in a group of people with varying performance levels. Second, conceptually, there seems to be a paradox that the comparison is supposed to be made to figure out what others' scores are, yet an individual appears to be already able to identify whose scores are similar to theirs. Third, in most of the aforementioned experimental studies, the only knowledge available to participants is their ranking of the target dimension relative to potential referents. In other words, participants could not choose a comparison referent based on other reasons (e.g., surrounding attributes) but on the target dimension.

Another interpretation of Festinger's "similarity hypothesis," therefore, is that, rather than focusing on the dimension under evaluation, the individual compares him or herself with someone *similar to them on the surrounding dimension*. I regard this interpretation as a more meaningful explanation of Festinger's similarity predictions. I will discuss the surrounding dimension in more detail in the next.

Comparisons on related dimensions. Related dimensions refer to those surrounding attributes that predict and are related to the target dimension. Goethals and Darley (1977) brought the related dimensions into a clear conceptualization. They proposed that individuals are more likely to choose referents others who are similar regarding characteristics that are "related to and predictive of performance" (p. 265). This prediction is referred to as related-attributes similarity (Wheeler & Zuckerman, 1977).

Goethals and Darley (1977) reasoned that evaluations concerning one's ability could be obscured if only based on the relative standing of one's own performance and another person's performance. It is ambiguous whether to attribute the discrepancy in one's performance to

internal or external reasons. Related attributes are useful in this regard. More specifically, by narrowing the comparison to those who are similar on related attributes, such comparison will allow one to interpret the comparison results better and take a more effective next step. For example, suppose an assistant professor compares her publications record with that of "a professor emeritus" and finds out that her record is behind the professor emeritus's. In that case, it is unclear to the assistant professor whether the lack of papers stems from her low research capacity or fewer years of work. Therefore, when selecting a comparison referent, she may consider not only the number of publications (the target comparison dimension) but also their experience (dimensions related to the number of publications).

There is sufficient empirical support for the related-attributes hypothesis. Research shows that when information about attributes related to the target dimension is available, participants select comparison others who are similar to themselves on these related dimensions rather than similar to themselves on the target dimension (Miller, 1982; Suls, Gastorf, & Lawhon, 1978; Wheeler et al., 1982; Zanna, Goethals, & Hill, 1975).

In essence, this "related to and predictive of performance" prediction holds that individuals do not solely seek out someone with an ability similar to oneself but instead someone who "ought to" have – due to the similarity in attributes related to the target dimension – a similar ability (Wheeler et al., 1969). Attesting to the utility of this interpretation is that it inspired decades of research on searching for what makes a surrounding dimension "related to the target dimension."

Different Comparison Motives

Festinger's (1954) social comparison theory portrays individuals as rational and unbiased, and the pursuit of an accurate self-evaluation is the fundamental objective of social comparison.

However, both later social comparison research and the broader social psychology literature suggest that individuals harbor other motives in addition to an accurate self-evaluation, including self-improvement and self-enhancement. As reviewed below, empirical evidence indicates that any of these interests prompt social comparisons.

Self-Evaluation Motives. Festinger's argument regarding individuals' self-evaluation motives is consistent with the broader social psychology literature that individuals strive to have an accurate view of the world (Wood, 1989). Research demonstrates that individuals seek out others' information and engage in social comparisons, particularly for accurate self-evaluation (e.g., Scheier & Carver, 1983). Mumford (1983) theorized that in the workplace, when formal performance appraisal is infrequent, individuals seek accurate observation and evaluation of peers' task-relevant competencies. Other studies suggest that individuals strive for an accurate self-diagnosis (Raynor & McFarlin, 1986) even when the comparison is unlikely to be pleasant for them (e.g., Trope, 1986). Taken together, research supports self-evaluation as an underlying motive for social comparison processes.

Self-Improvement Motives. In addition to an accurate self-evaluation, Festinger recognizes that individuals may compare with a slightly upward target due to the unidirectional upward tendency. This recognition is consistent with the literature on achievement motivation (Atkinson & Raynor, 1974) and observational learning (Bandura, 1986). Although objective feedback could provide information regarding whether one's ability is good or bad, individuals tend to define good in comparative terms (e.g., Diener, 1984), which motivates social comparison. Empirically, research shows supportive evidence for the self-improvement motive. For example, studies show that people are more likely to choose a comparison referent whose score is slightly better rather than worse than their own (e.g., Wheeler et al., 1969). Also, when

the comparison dimension is unfamiliar, participants first seek to learn the highest instead of the lowest score (e.g., Arrowood & Friend, 1969; Zanna et al., 1975). Taken together, these arguments suggest that self-improvement is another force that drives social comparison, and the motivation behind this comparison is to attain objectives or a similar level of status as the upward referent other.

Inspiring versus threatening upward comparisons. The modeling literature shows that individuals often adopt the behavior standards of others who are similar to themselves on surrounding dimensions (e.g., college majors, age, experiences) (see Bandura, 1986, for a review). This may be because upward comparisons will boost the focal person's self-efficacy in attaining the goal. For example, an aspiring journalism major undergraduate may feel inspired and motivated when learning that a prominent journalist graduated from the same program.

Upward comparisons with those similar to themselves on surrounding dimensions can also be particularly painful and result in aversive and demoralizing effects. For example, Salovey and Rodin (1984) conducted an experiment where they informed participants, some of whom majored in business, that their business acumen was "surprisingly low." In the subsequent survey, these business majors indeed reported more anxiety and depression and were more likely to disparage their peers. This result may not come as a surprise given that upward comparison exposes the person to his inferiority and thus may wound one's self-esteem. However, considering the inspiring effects, a question arises: When will upward comparisons be inspiring versus threatening? Wood (1989) suggests that one possible explanation lies in whether the similar other—based on surrounding dimensions—is a competitor. If similar others are competitors, learning about their superior performance is threatening and distressing, but if they are not competitors, upward comparisons can be inspiring (Brickman & Bulman, 1977).

Self-Enhancement Motives. Festinger's predictions were premised on individuals' drive for an unbiased, accurate self-evaluation and improvement tendency. However, a growing theme in social psychology (Taylor, Wood, & Lichtman, 1983; Thornton & Arrowood, 1966; Wills, 1981) reveals the third fundamental drive for social comparison—self-enhancement motives, or “motives aimed at protecting or enhancing one's self-esteem” (Wood, 1989, p. 232). Brickman and Bulman (1977) argued that because upward comparisons are likely to be threatening, individuals may avoid such comparisons and instead choose referent others who are worse-off for this matter. Reviewing a bulk body of research, Wills (1981) further theorized that individuals might be particularly likely to select (even imagine or fabricate; Taylor et al., 1983) an inferior referent when their self-esteem is threatened. Subsequently, downward comparisons appear to mitigate anxiety and distress and allow them to feel better about themselves and their situations (Crocker & Gallo, 1985; Gibbons, 1986; Lemyre & Smith, 1985; Taylor et al., 1983).

Beyond the choices of comparison others, Wood (1989) noted another strategy is to increase the superior referent's incomparability using surrounding dimensions, thereby avoiding upward comparison and protecting self-esteem. Specifically, suppose an upward target is dissimilar to oneself on a surrounding dimension. In that case, one can attribute the upward target's superior ability to the dissimilarity in their surrounding dimension, thereby dismissing the comparison (Brickman & Bulman, 1977). Regarding superior others as dissimilar and incomparable, one can “take some of the stings out of defeat or inferiority” (Brickman & Bulman, 1977, p. 162).

Relatedly, there are other ways that one can manipulate the surrounding dimensions to increase dissimilarity with the superior others, thus rejecting comparisons (Tesser, 1986). For instance, one may decrease the time spent with the superior other (Tesser, 1980), physically

distance oneself from the superior other (Pleban & Tesser, 1981), not desire a friendship (Salovey & Rodin, 1984), and depreciate the superior other (Cialdini & Richardson, 1980; Salovey & Rodin, 1984).

In sum, when it comes to comparison, individuals are flexible in using comparisons to suit their various goals. As reviewed, surrounding dimensions are crucial in the social comparison processes, both at the time of selecting a comparison referent and in serving a person's comparison purposes.

THEORETICAL BACKGROUND: BASES OF SOCIAL POWER

French and Raven (1959) defined power in terms of influence and influence in terms of the target's changes in psychology, opinions, behavior, goals, etc. On the basis of this definition, they identified five "important and common" bases of social power: reward, coercive, legitimate, referent, and expertise.

In the following sections, I will first describe French and Raven's theorizing in detail and then identify the differences and dynamics of the five bases of social power. Finally, given that various scholars have defined power in many ways over the years, it is essential to examine the similarities and fundamental differences between those definitions of power and French and Raven's (1959) bases of social power. At the end of this section, I will discuss the similarities and differences with other power-related definitions and theories.

French and Raven's Five Bases of Social Power

French and Raven (1959) defined power as influence that one agent has on the other, which, they noted, must be distinguished from an agent's "control" over the other. "Influence" and "control" are conceptually independent for two reasons. First, control suggests an unambiguous, asymmetrical standing or dependence between two agents (Magee & Galinsky, 2008), but a strong influencing force agent A has on the other agent B does not imply a low influencing force of B over A. Second, when an agent exerts influence on the other, the target may not act in the expected direction depending on other forces induced by other sources. Thus, a strong influence does not mean the agent has control over the target agent.

French and Raven (1959) identified five common yet essential power bases from the relationships between the influencing agent and the target that the influencing agent can use to change the target. These bases can be mapped on two critical dimensions: social dependence and

the importance of surveillance. A power base has high social dependence if its presence is necessary for the change to happen and continue. On the other hand, a power base is high on surveillance when regular monitoring is essential to maintain the initial change. French and Raven (1959) argued that coercive and reward power bases are socially dependent, and a close watch is necessary for the effectiveness of the two power bases. In contrast, legitimate, expert, and referent power are socially dependent and do not require surveillance.

Reward Power. Reward power is the capacity to control and administer rewards for desired behavior. The range of the reward power is limited to those areas where an influencing agent awards the target for complying. A typical example of reward power is a piece-rate bonus a manager uses to induce production. The more the reward that an influencing agent can mediate, the higher the reward power she has. The new state induced by the promised reward will depend highly on the influencing agent's continued surveillance. If the change is not observable or identifiable, the strength of the reward power will decrease.

Further, consistently appropriate use of rewards may increase the influencing agent's reward power over time, while unsuccessful or inappropriate attempts to exert reward power would tend to decrease the reward power on the target. To illustrate, if an influencing agent offers to reward the target for performing a challenging but attainable task and gives the target the promised prize when he finishes the task, this tends to increase the target's perception of receiving future rewards from the agent. In contrast, if the target is asked to perform an impossible task in exchange for a bonus, this will reduce the target's confidence in receiving the current and future rewards promised by this agent. Finally, the influencing agent's utilization of actual rewards (rather than only promises) over time may also increase the attraction toward the influencing agent (i.e., the influencing agent's referent power over the target).

Coercive Power. Coercive power is similar to reward power because it also involves the ability of the influencing agent to control and administer the attainment of valence. However, unlike reward power, coercive power stems from the target's belief that the influencing agent can and will *punish* him if he does not comply. Even if the target does not see the reason for the change, he will nevertheless comply to avoid punishment. An example of coercive power is a manager's capacity to lay off an employee if the employee disobeys workplace policies. Just as reward power, continued surveillance is essential for coercive power, such that the target will conform (i.e., change) to the influencing agent to the extent that the influencing agent is monitoring the change. If the surveillance is removed, changes are likely to discontinue, and the old states may resume.

French and Raven noted that in the case of coercive power, there could be an aftereffect on the target to quit the influencing agent altogether. Thus, French and Raven argued that to achieve conformity, the influencing agent must place a strong penalty and introduce restraints to prevent the target from withdrawing entirely from the influencing agent's scope of coercive power.

Legitimate Power. French and Raven (1959) defined legitimate power as the target's belief that an influencing agent has a legitimate right to influence the target. By legitimate, they mean that the target obligates to change and comply. Legitimate power is similar to the notion of the legitimacy of authority defined by prior scholars (e.g., Goldhamer & Shils, 1939; Weber, 1947).

The conceptualization of legitimacy involves a feeling of "oughtness" that the influencing agent can exert his power and that the target should comply. An everyday basis for legitimate power is the organizational hierarchy structure. If the target accepts the hierarchy

structure of his group or organization as right, the target will also approve the legitimate authority who occupies a superior officer. However, the perceived justice for the person who holds the office also determines the acceptance of the hierarchy. Another basis for legitimate power is role prescriptions and role expectations. For example, a job description usually specifies a role occupant's duties and to whom he is responsible for the tasks described.

Like reward power and coercive power, the range for legitimate power is specifically and narrowly prescribed. The compliance induced by legitimate power is highly dependent on the influencing agent. However, close observation may not be necessary for the change to maintain since legitimate power is based on the target's own beliefs of the "oughtness" of the influencing agent's power base. Finally, because the areas where one can use legitimate power are usually explicitly specified, the attempted exercise of legitimate power outside of its designated areas will be perceived as inappropriate, thereby decreasing the legitimate power as well as the attractiveness of the influencing figure (French, Morrison, & Levinger, 1960; Raven & French, 1958).

Expert Power. Expert power is the target's belief that the influencing agent has superior expertise, skill, knowledge, or abilities in a particular area. This belief changes the target's cognitive structure, and subsequently, the behaviors (Festinger, Gerard, Hymovitch, Kelley, & Raven, 1952).

French and Raven noted that the range of expert power might be more defined than that of referent power. This base of influence is limited to cognitive systems, but the expert's knowledge or skills are also restricted in a particular area. Because the influencing agent's expert power will be limited to these specific areas, any attempted exercise of expert power beyond its

range will undermine the confidence in the influencing agent's credibility, thereby reducing the expert power.

Referent Power. Referent power refers to a target's desire to identify with the influencing agent, which may be established and maintained if the target perceives, believes, and behaves in a way the influencer would approve. Accordingly, the influencer has the capacity to change the target's opinion, beliefs, and behaviors. The stronger the desire for identification, the higher the influencing agent's referent power. The change produced by referent power is socially dependent on the influencing agent, although close observations from the influencing agent are not necessary (Festinger, 1953; Kelman, 1958). Unlike other power bases (i.e., reward power, coercive power, legitimate power), referent power typically has a broader range of influence. Because identification refers to a feeling of oneness with the influencer, they can influence the target in many different areas when the influencer has referent power. French and Raven (1959) noted that the target is sometimes unaware of the referent power that the influencing agent exerts over them.

French and Raven highlight the difference between referent power and other power bases. The basic principle for distinguishing referent power from reward and coercive power is the influencing agent's capacity to mediate the reward and the punishment. Specifically, to the extent that the influencing agent mediates prizes and penalties, it is the case of coercive or reward power. To the extent that the target changes behaviors to gain or maintain identification with the influencing agent, regardless of the influencing agent's capacity to mediate tangible rewards or punishments, it is the case of referent power. Finally, if compliance with the influencing agent is due to the influencing agent's wisdom and expertness, this is the case of expert power. Distinguishing these influence sources is essential. Although they all result in

compliance, the changes in the target's psychology, cognition, and behavior from different power bases are distinct.

In conclusion, French and Raven summarized that a) for all five bases, the stronger the base, the greater the influencing force, b) referent power typically has the broadest range, c) any attempt to exercise a power base outside its range tends to reduce that power, d) a new state of behavior, cognition, or perception resulting from reward or coercive power is highly dependent on the influencing agent and the level of observability of the new state, whereas for legitimate power, expert power, and referent power, the new state is socially dependent, but the continued change does not require an influencing agent's close watch. As discussed, the target in the latter cases complies because of an obligation to the influencer (legitimate power), a belief in the influencer's expertness and information (expert power), or a sense of identification or a desire for such an identification with the influencing agent (referent power).

Classification Attempts of Five Bases

Several scholars have classified five power bases into two broad categories: formal power and informal power (Boonstra & Gravenhorst, 1998; Meliá, Oliver, & Tomás, 1993; Peiró & Meliá, 2003; Yukl & Falbe, 1991). Empirical evidence supports that these two power sources are independent (Munduate & Dorado, 1998; Peiró & Meliá, 2003). Formal and informal bases differ in the origin of power. Formal power stems from a person's position in the prescribed organizational structure and signifies the legitimate authority and the magnitude of reward and punishment one can mediate. Formal power is an attribute innate in the position, thereby being impersonally determined (Peiró & Meliá, 2003). Formal power includes reward power, coercive power, and legitimate power. On the other hand, informal power refers to power bases originating from an individual's characteristics, such as abilities, skills, experience, or charisma.

The target's perception of the agent partly determines the strength of informal power. If the target does not recognize or accept the agent's referent or expert power, one's qualities cannot be translated into an influencing force over the target (Rodrigues & Lloyd, 1998). Informal power includes expert power and referent power.

Research has associated the exercise of informal power bases with positive outcomes, including less conflict and a greater likelihood of using integrative solutions that consider the well-being of both parties. In contrast, coercive power has increased friction and a smaller likelihood of using integrative conflict management strategies (De Dreu, 1997; Emans, 1995; Raven & Kruglanski, 1970). Importantly, the effects of coercive power alone do not indicate that formal power necessarily generates more negative outcomes. Indeed, as Peiró and Meliá (2003) showed, the relationship between formal power (including coercive power, reward power, and legitimate power) and conflict is rather inconsequential.

In addition to the formal-informal category of power bases, Raven, Schwarzwald, and Koslowsky (1998) introduced a classification of harsh and soft bases. Harsh bases rely on the unequal distribution of organizational, formal resources and highlight the dominant party's advantage over the target. Harsh bases tend to be more direct, forceful, and overt. In contrast, the use of soft bases denotes an equal-power, integrative approach toward the target (Koslowsky & Schwarzwald, 2001). Soft bases appear to be more subtle and personal. Raven et al. (1998) also found that compliance induced by soft bases, but not by harsh bases, subsequently increases the target's job satisfaction. Although the distinction between harsh and soft power bases was created initially to classify Raven's (1992, 1993) extended structure of the eleven power bases, for the interest of this dissertation, I will limit the consideration to the five bases initially defined by French and Raven (1959). Accordingly, harsh bases include reward, coercive, and legitimate

power (French & Raven, 1959), while soft bases include expert and referent power (French & Raven, 1959).

Interrelationships among the Five Bases

French and Raven's (1959) original model also inferred the dynamics among different power bases. First, legitimate power gives rise to reward and coercive power perceptions. Second, a proper exercise of reward power over time can increase the influencing agent's referent power by increasing the target's attraction to the agent. In contrast, coercive power decreases attraction and thus referent power. Third, proper use of reward power also implies the existence of expert power in that the influencing agent needs to possess the technical expertise in order to recognize the target's change and contributions. Finally, French and Raven (1959) argued that acceptance of an actor's information and knowledge is not only rooted in the powerholder's competence but also in trust or a desire to identify with the influencing agent. Thus, an increase in referent power adds to the perception of expert power.

The bulk of research on the five bases has studied their distinct effects rather than the interrelation or the dynamics among them. Nevertheless, a handful of studies on the interrelationships among the five bases have indicated the following trends. First, consistent with French and Raven's predictions, meta-analytic evidence demonstrated that legitimate power was positively related to reward power and coercive power (Carson, Carson, & Roe, 1993). In addition to a path from coercive power to reward power, a reverse path from coercive power to reward power was also empirically discovered (Carson et al., 1993). Second, research suggests that formal power (legitimate power, coercive power, reward power) predicts informal power (expert power, referent power) (Carson et al., 1993; Munduate & Dorado, 1998; Rahim & Psenicka, 1996), but the relationships were not particularly strong (Munduate & Dorado, 1998).

Third, a causal relationship of expert to referent power was also empirically discovered (Carson et al., 1993; Munduate & Dorado, 1998; Rahim & Psenicka, 1996). However, contradictory to French and Raven's prediction, these studies did not find supportive evidence for the effects of referent power on expert power.

Taken together, over the years, little systematic attempt has been made to study the dynamics among the five bases of power. It is hard to draw definitive conclusions on the interrelationships among the five bases of power based on a handful of research. Moreover, this handful of research on the interrelationships of power bases has only examined supervisors' power exertion on subordinates, rather than the power uses among peers or subordinates' power uses to influence supervisors. However, research found that the importance of different types of power can vary depending on the relative level of the formal rank of the agent and the target person (Yukl & Falbe, 1990, 1991).

Conceptual Differences from Other Power-Related Definitions and Theory

One of the highly-cited theories of power in recent years is Keltner, Gruenfeld, and Anderson's (2003) Approach/Inhibition Theory of Power. This theory focuses on understanding *the powerholder's own* psychological dynamics, such as their experienced freedom and authenticity, positive emotions, attention to rewards, automatic and direct versus systematic and indirect cognition, objectification of others, unethical behavior benefiting oneself, and agentic pursuit of self-interested goals (Fiske, 2010; Galinsky, Rucker, & Magee, 2015; Keltner et al., 2003; Magee & Galinsky, 2008). Such effects of power do not require the actual use of power or the target to recognize the agent's power. The specified effects manifest as long as the powerholder perceive themselves as possessing high power. As such, scholars highlighted that the processes and outcomes of power delineated by Keltner et al. (2003) are disparate from those

that explain others' reactions (e.g., compliance) to the actor (Blader & Yu, 2017; Keltner et al., 2003). This latter type of power, which is at the center of French and Raven's (1959) theory, is considered "influence" by Keltner et al. (2003) in that the latter type of power emphasizes the effectiveness and efficiency in inducing the target's compliance. The target's perception and belief of this latter type of power play a significant role in determining the strength and the effects of this type of power (Rodrigues & Lloyd, 1998).

Relatedly, one of the commonly used definitions of power is by Magee and Galinsky (2008). They define power as asymmetric control over valuable resources. As the implications of Keltner et al.'s (2003) theory of power, this definition of power is adopted by studies when examining *the powerholder's own* psychological and behavioral manifests. In their seminal work, Magee and Galinsky also highlight another essential hierarchy base—status (Blau, 1964; Mannix & Sauer, 2006; Thye, 2000). They define status as the respect and admiration an individual garners from others (Magee & Galinsky, 2008; Ridgeway & Walker, 1995). Unlike power as an actor-centric attribute, Magee and Galinsky emphasize that status relies more on others' judgments and perceptions and thus involves a conferral process (Blau, 1964; Foa, 1971; Goldhamer & Shils, 1939; Hollander, 1958; Podolny, 1993). Importantly, just like Keltner et al. (2003), Magee and Galinsky differentiated their definitions of power and status from influence constructs. Echoing Keltner's (2003) discussion, Magee and Galinsky maintained that their conceptualization of power does not require changes of any kind in either party as pictured in other definitions (French & Raven, 1959; Russell, 1938; Weber, 1978). Further, they noted that the "capacity to influence" (Cartwright, 1965; French & Raven, 1959) should not be equated to "power" because, empirically, measuring "capacity to influence" should measure the outcomes of the power use.

Interestingly, Magee and Galinsky (2008) noted some connections between their conceptualizations of power and status and French and Raven's five bases of social power. Specifically, French and Raven's reward power and coercive power are related directly to their definition of power (i.e., control over valued resources). Referent power, or the degree to which others want to identify with the influencing agent, overlaps with their description of status (i.e., respect and admiration from others). Legitimate power and expert power, on the other hand, can be a source for both power and status. For example, one typical source of legitimate power is one's position in the formal hierarchy. Thus, if one's formal position provides him with control over valued resources, then he has power; if the position attracts respect and admiration from others, then he has status. Finally, expert power represents one's holding of useful knowledge and expertise, which is directly linked to their definition of power (i.e., control over valued resources). On the other hand, in task-oriented groups (e.g., work groups) and organizations (e.g., firms), members form respect based on one's expertise and competence. Thus, expert power is also related to status.

Although power, status, and influence are related, significant differences in their conceptualization and theoretical formulation clearly exist and separate these constructs. Given that the bases of social power are more about the effectiveness concerning the target's compliance rather than one's psychological experiences of power, French and Raven's bases of social power are probably best to be described as bases of social *influence* (Keltner et al., 2003; Magee & Galinsky, 2008). Put differently, French and Raven identified several common and important sources that an agent can employ to *influence* another person. They are *referent influence*, which is based on the target's desire to identify with the influencing agent, *expert influence*, which is based on the target's belief that the influencing agent has outstanding

knowledge and ability in a given area, and *formal influence*, which is the target's belief that the influencing agent has the right to give orders and administer rewards and punishments. I will thereafter refer French and Raven's theory to *bases of social influence theory* and use the terminology of *referent influence*, *expert influence*, and *formal influence*.

Having reviewed the theories and literature pertinent to this dissertation, I next delineate the theoretical model for when and why faultline-based subgroups may experience problems rather than stay cohesive.

HYPOTHESIS DEVELOPMENT

In this section, I examine the implication of social comparison theory (Festinger, 1954) for faultline-based subgroups. Social comparison refers to “the process of *thinking* about information about one or more other people in relation to the self” (Wood, 1996, p. 521; italics added). Wood (1996) emphasized the importance of conceptualizing comparison according to its process and not defining it in terms of its effects. That is, as long as one is *thinking* about others in relation to the self, the social comparison has occurred, regardless of its manifesting effects. Overall, I argue the possibility of such social comparison in faultline-based subgroups and its implications for conflict and competition within faultline-based subgroups. I contend that social comparison, in certain circumstances, can engender conflict and lead subgroups to experience issues.

According to social comparison research, choices of comparison others and comparison dimensions are intertwined in the sense that they decide each other to a large extent (Goethals & Darley, 1977). I argue that within different subgroup types, there will be social comparison on different social influence bases. Specifically, I argue that members of faultline-based identity subgroups, which form based on the alignment of gender and age, will engage in social comparison, particularly on referent influence. As discussed, gender and age are salient and readily identifiable attributes, and individuals often assume age and gender are associated with more underlying qualities, such as values, beliefs, and preferences. As a result, people tend to like and trust same-gender and same-age others, and this type of subgroup is relational in nature (Carton & Cummings, 2012, 2013). Members of relational subsets should be particularly concerned with each other’s relationship-based influence in the work team, such as each other’s popularity and network in relation to the self. Thus, within faultline-based identity subgroups, I

argue that there will be more social comparison on referent influence than on expert or formal influence. Formally, I hypothesize:

Hypothesis 1 (Subgroup level): Members of faultline-based identity subgroups more frequently compare on referent influence than on expert or formal influence.

I argue that members of faultline-based knowledge subgroups, which form based on the alignment of functional background and education content (e.g., college major), will engage in social comparison, particularly on expert influence. Faultline-based knowledge subgroups form based on shared mental models and overlapping cognitive schemas and scripts. This type of subgroup is task-oriented and informational in nature (Carton & Cummings, 2012), and thus, members should particularly heed each other's competence-based influence. As a task-based influence, expert influence indicates one's perceived expertise. Therefore, within faultline-based knowledge subgroups, I argue there will be more social comparison on expert influence than on referent or formal influence. Formally, I hypothesize:

Hypothesis 2 (Subgroup level): Members of faultline-based knowledge subgroups more frequently compare on expert influence than on referent or formal influence.

Finally, I argue that members of faultline-based resource subgroups, which form based on the alignment of job level and education level, will engage in social comparison, particularly on formal influence. Faultline-based resource subgroups form to pool resources as a single voice to determine a decision that is favorable to them. They form also to hoard valued resources and establish dominance over others (Carton & Cummings, 2012). Regardless, these subgroups emerge for instrumental gains and purposes. Thus, members of faultline-based resource subgroups should particularly pay attention to each other's formal rights to distribute or mediate organizational rewards and punishment. Therefore, within faultline-based resource subgroups, I

argue that there will be more social comparison on formal influence than on referent or expert influence. Formally, I hypothesize:

Hypothesis 3 (Subgroup level): Members of faultline-based resources subgroups more frequently compare on formal influence than on referent or expert influence.

Having theorized the choices of comparison referents and the corresponding dimensions under evaluation, I next turn to the likely effects of these dyadic comparisons, which stem from the degree to which the two parties are dissimilar to each other on the comparison dimension.

Because members of faultline-based identity subgroups tend to assume that they have a shared identity (Carton & Cummings, 2012), I argue that any information contributing to a sense of common fate and shared identity is likely to solidify the subgroup. In contrast, any evidence that questions a sense of shared fate is expected to disintegrate the subgroup. I further argue that the comparison result of *referent influence* most likely change subsequent interpersonal relations of these subgroup members, given the relational nature of this subgroup.

Specifically, referent influence concerns one's popularity and social standing in the group. A high referent influence represents that most members in the team identify with or desire to identify with the focal individual. Accordingly, the focal individual has a great deal of influence to change a wide variety of cognition, psychological states, beliefs, and behaviors of his "fans" (French & Raven, 1959). A low referent influence reflects that most members in the team do not associate with or desire to associate with the focal person. If individuals in the same faultline-based identity subgroup share a similar level of referent influence, regardless of a high level or a low level, this similarity in referent influence likely serves as additional support for shared fate and identity and bonds the subgroup.

In contrast, different levels of referent influence challenge the sense of a shared fate and

shared identity. Given the nature of referent influence concerning prominence and social approval, realizing one's little referent influence relative to the subgroup members tends to threaten one's self-worth and positive self-image, which likely induces anger and envy towards the upward target. On the other hand, realizing one's significant referent influence boosts one's self-esteem and self-importance and induces one's contempt toward the downward comparison target. Festinger (1954) argued that upon realizing a discrepancy, there would be a strong discomfort that drives individuals to restore the comparability of their comparison dimension. Because referent influence fundamentally concerns one's relative social standing, to restore comparability, the inferior may gossip and condescend the superior other or publicly question the credibility of the superior other, attempting to degrade the superior's social standing. The inferior may also look for allies and supporters to increase their own referent influence. These behaviors are associated with the notion of status conflict, defined as disputes over individuals' relative status positions in their group's informal hierarchy (Bendersky & Hays, 2012). As a socially valuable asset, status is a zero-sum resource (i.e., one's position moving up signals the other's position moving down) (Berger, Ridgeway, Fisek, & Norman, 1998; Gould, 2003; Homans, 1961). Thus, one's actions of striving for greater referent influence likely threaten those in a higher social position. Indeed, the prospect of status loss is often considered a significant threat to the individual (Marr & Thau, 2014). To defend and protect his status, the superior will engage in similar behavior, such as discrediting the inferior and looking for allies and supporters. In sum, when the dissimilarity in referent influence is considerable, social comparison should result in more status conflict within the dyad² (see Figure 2).

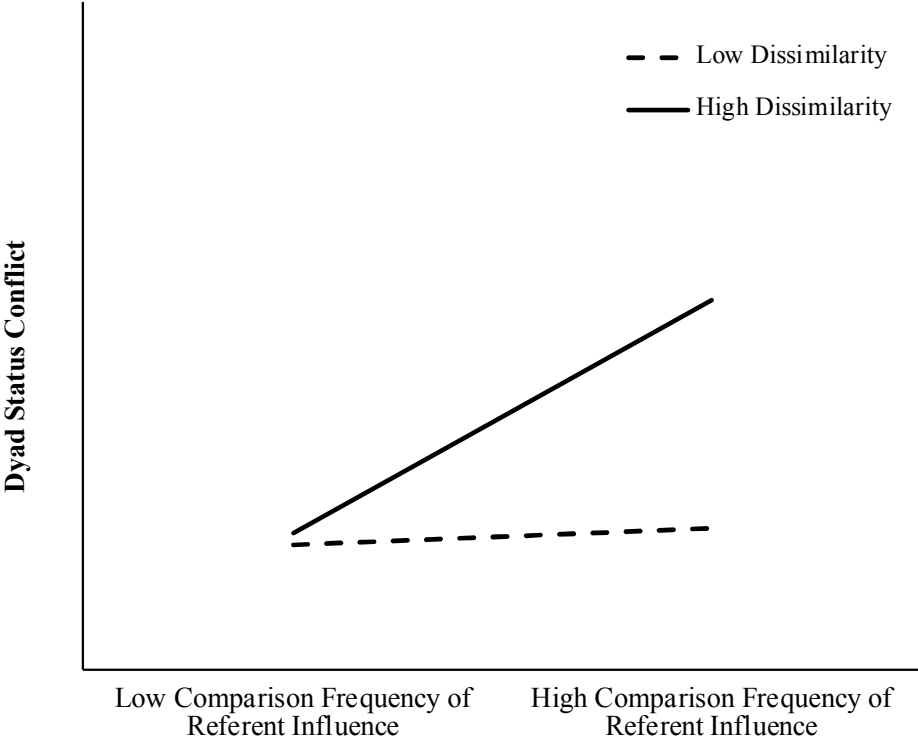
² One may argue that a dissimilar level of referent influence suggests relationship conflict. However, the motivation of relational conflicts is not about one's social standing or relative holdings of valuable resources (Carton & Tewfik, 2016) but is regarding the disagreements about the fundamental beliefs and values between two parties (Jehn, 1995). I acknowledge that other forms of conflict may co-occur with a status conflict particularly because of the relative

Formally, I hypothesize:

Hypothesis 4 (Dyad level): For faultline-based identity subgroup members, dissimilarity in referent influence moderates the relationship between social comparison on referent influence and status conflict, such that social comparison is more positively associated with status conflict when the dissimilarity of referent influence is considerable (vs. small).

tolerance of the other conflict forms compared to an overt status contest (Bendersky & Hays, 2012; Kapferer, 1969). However, because competition on referent influence is fundamentally about one's social status, I argue that the essential conflict form is status conflict.

FIGURE 2: Proposed Interaction for Faultline-Based Identity Subgroup Members



Members of faultline-based knowledge subgroups tend to believe that they share cognitive scripts, use similar technical terms, and have similar mental models (Carton & Cummings, 2012). Because of the task and knowledge nature of this type of subgroup, I argue that comparisons on *expert influence* are most likely to change subsequent interpersonal relations of these subgroup members.

Specifically, a high level of expert influence reflects that most members in the team recognize the focal individual's expertise, thereby granting the focal individual a great deal of influence to change their cognition, beliefs, and behaviors. A low level of expert influence, on the other hand, reflects that most members of the team do not perceive the focal individual as an expert in a given area (French & Raven, 1959). As discussed, expert influence tends to associate with both social status in the group (because individuals of a workgroup assess respect based on judgment around one's competence) and social power (because the person is believed to have valuable assets [i.e., expertise] to the group) (e.g., Magee & Galinsky, 2008). As such, if there is competition over expert influence, it likely manifests in both status conflict and power struggle (i.e., the degree to which members compete over tangible resources; Greer & Van Kleef, 2010, p. 1033).

I argue that similar (vs. dissimilar) levels of expert influence— regardless of both at a high level or both at a low level —is likely to result in conflict. Expert influence level, or perceived competence, tends to link to critical individual outcomes such as promotion opportunities (if one's expert influence is high) and potential layoffs (if one's expert influence is low) (Bycio, Hackett, & Alvares, 1990; McEvoy & Cascio, 1987). Therefore, a clear and unambiguous ranking order of members' expert influence is critical to the individual employees. On the one hand, often in a workgroup, only one or two persons from the same functional

background and educational background will get promoted. Thus, it is essential for those having high expert influence in the workgroup to not only know that he stands close to their peers but also be significantly and clearly better than their peers in order to stand out for the advancement opportunity. On the other hand, if one and the comparison other have similarly low levels of expert influence, it is imperative to establish the comparison other's expertise influence as significantly worse than the focal person to avoid negative repercussions (e.g., being terminated). In sum, because a similar level of expert influence obscures the ranking order that determines important individual outcomes, a realization of similar expert influence with the comparison target likely engenders fight and social competition.

In Festinger's language, when individuals' abilities are similar, and when the ability is associated with important outcomes (e.g., promotion opportunities or the potential layoffs), the drives of "pressure toward uniformity" and "unidirectional upward tendency" will act at conflicts, and individuals will compete with each other. Festinger argued that this occurs because although similarity lessens the uniformity pressure, the unidirectional drive upward pressure is still acting on the individual. Given the importance of demonstrating higher competence, the unidirectional drive upward pressure will be particularly strong. To relieve the pressure of upward tendency, a person needs to be significantly better than the others. However, it is impossible that everyone in a group can be better than everyone else. Festinger noted that the implication is that when individuals' abilities are similar, a state of social quiescence will never be reached, and there will always be social competition concerning who is more competent and more influential.

By contrast, this ranking of expert influence becomes unambiguous and inarguable when two individuals' expert influence is significantly different (e.g., when one is at the top and the

other is at the bottom of the expert influence ranking). Compared to referent influence, expert influence is much more based on observable and objective facts (e.g., sales numbers) and ability. Social competition and rivalry—such as fighting for control over valuable resources (power struggle) or relative social standing (status conflict)—become increasingly pointless when two persons' competence levels are significantly different. To reduce the discomfort associated with the significant discrepancy in expert influence, a most likely strategy for the inferior will be to improve his actual competence, such as by working hard and asking for help. First, in this situation, the pressure toward uniformity and the upward drive tendency are now in accordance with each other (Festinger, 1954). Second, social comparison research has suggested that upward comparison may be inspiring when the comparison dimension is perceived as controllable and attainable (i.e., “when there is something that can be done to improve and or avoid failure” [Buunk & Gibbons, 2007, p. 11]) (Aspinwall, 1997; Lockwood & Kunda, 1997; Major, Testa, & Bylsma, 1991). Expert influence is likely to be perceived as high in controllability and attainability because one's performance is relatively objective and largely depends on one's effort³. Improvement in one's task performance is often perceived as possible. Thus, for the inferior, high performance of the superior other can be motivating and inspiring in that it sets a clear goal and a wonderful height for them to climb up. Compared to engaging in social

³ Unlike expert influence, referent influence tends to be perceived as low in controllability and attainability. First, referent influence is subjective and, thus, depends on a “fit” or a “match” between an individual and a group. A person who fascinates one group of people may be completely disenchanting to another group. Second, referent influence is relatively stable in that it is primarily determined by one's persona or “charisma,” which is formed through many years of one's life. Increases and decreases in referent influence are possible, but require a willingness to change one's long-lasting habits or personality as well as a considerable amount of private, disciplined practice. Further, one's referent influence—the other's desire to identify with the focal person—is likely to form in the early stage of team development and stay into the future. This is because people tend to make swift judgments about others and believe one's personality to be stable. Thus, it is possible that even if someone works hard to increase their personal skills or charisma, they are still perceived as the same as before. In sum, given that one's referent influence is likely to be perceived as low controllability or attainability, the only way to reduce the discrepancy seems to engage in social competition, such as discrediting the superior and forming coalitions (Festinger, 1954).

competition such as power struggle and status conflict with the superior, the inferior is more likely to put in more effort to improve their own competence.

For the superior, because their expert influence is significantly greater than the downward comparison target's, the superior does not need to worry about their social recognition.

Interestingly, Festinger discussed that the "pressure toward uniformity" acting on the superior would likely manifest in a desire to bring others up to a point (e.g., by helping the downward target) where the downward target is close, but not equal to, him. For example, the superior may mentor the downward comparison target, such as setting a clear goal for the downward target to aim for and revealing their footsteps the downward target can follow to achieve the goal.

Festinger noted that once comparability between their expert influence has been restored, however, their relationship should change to the familiar competition. Greenberg's (1932) experimental research on competition provides some supportive evidence for these arguments. In this experiment, children were sitting in pairs, and each pair had one common pile of blocks. The task, however, was for each child to use blocks in the pile to construct something, which judges would evaluate at the end. Therefore, each pair of children were in a competing relationship.

Taking blocks from the pile would be a competitive behavior, while giving blocks to the other was considered friendly and lacked competition. The author reported the observation of two children: EK and H. At a time when EK's construction was clearly better than H's, EK generously gave blocks to H when H asked for them. EK also offered to give more blocks to H. At the end of the session, when the researcher asked the pair, "whose is better?" Both EK and H said EK's. From many similar observations, the author concluded that "sometimes when a child gave another a block, it was not at all an act of disinterested generosity, but a display of friendly competition and superior skill." In sum, when the dissimilarity in referent influence is

considerable (vs. small), social comparison frequency tends to result in lower-level status conflict (see Figure 3) and lower-level power struggle (see Figure 3 and Figure 4)⁴.

Formally, I hypothesize:

Hypothesis 5a (Dyad level): For faultline-based knowledge subgroup members, dissimilarity in expert influence moderates the relationship between social comparison on expert influence and status conflict, such that social comparison is more positively associated with status conflict when the dissimilarity of expert influence is small (vs. large).

Hypothesis 5b (Dyad level): For faultline-based knowledge subgroup members, dissimilarity in expert influence moderates the relationship between social comparison on expert influence and power struggle, such that social comparison is more positively associated with power struggle when the dissimilarity of expert influence is small (vs. large).

⁴ One may argue that competitions over expert influence suggest task conflict and/or process conflict. However, the motivation of task and process conflicts is not about one's social standing or relative holdings of valuable resources (Carton & Tewfik, 2016) but is regarding the disagreements about the content and outcomes of the task being performed (task conflict; Jehn, 1995) and incompatible differences with respect to how roles and responsibilities should be allocated and procedures implemented (process conflict; Behfar, Mannix, Peterson, & Trochim, 2011). I acknowledge that status conflict and power struggle may co-occur with a task or process conflict particularly because of the relative tolerance of the other conflict forms compared to an overt status or power contest (Bendersky & Hays, 2012; Greer et al., 2017; Kapferer, 1969). In other words, disputants of status or power interest may use other types of conflict as a cover. However, because competition on expert influence is fundamentally about one's social status and social power, I argue that the essential conflict forms are status conflict and power struggle.

FIGURE 3: Proposed Interaction for Faultline-Based Knowledge Subgroup Members

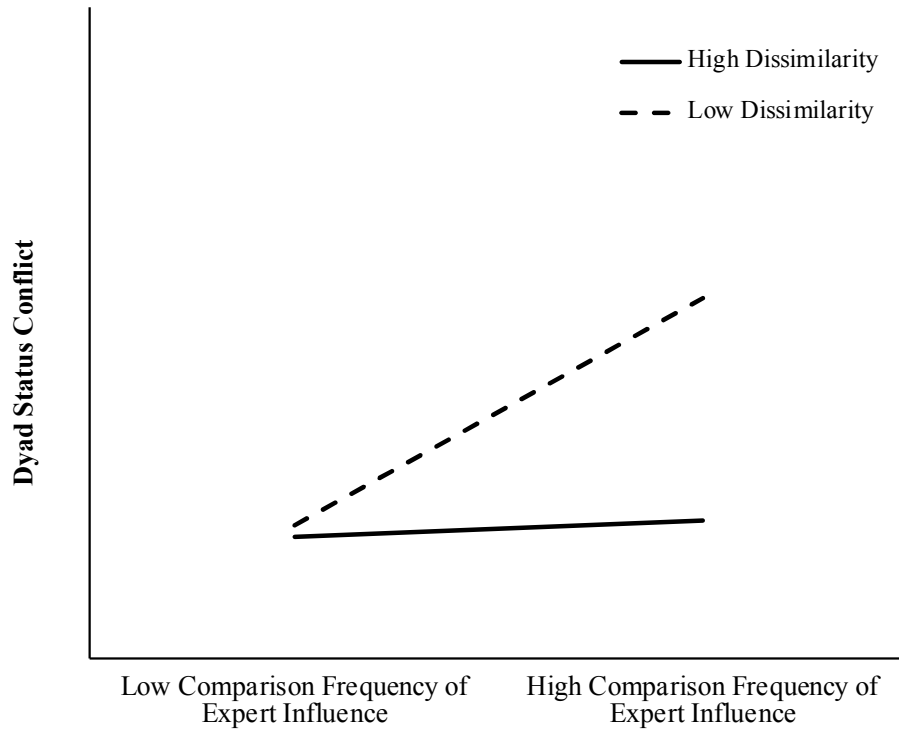
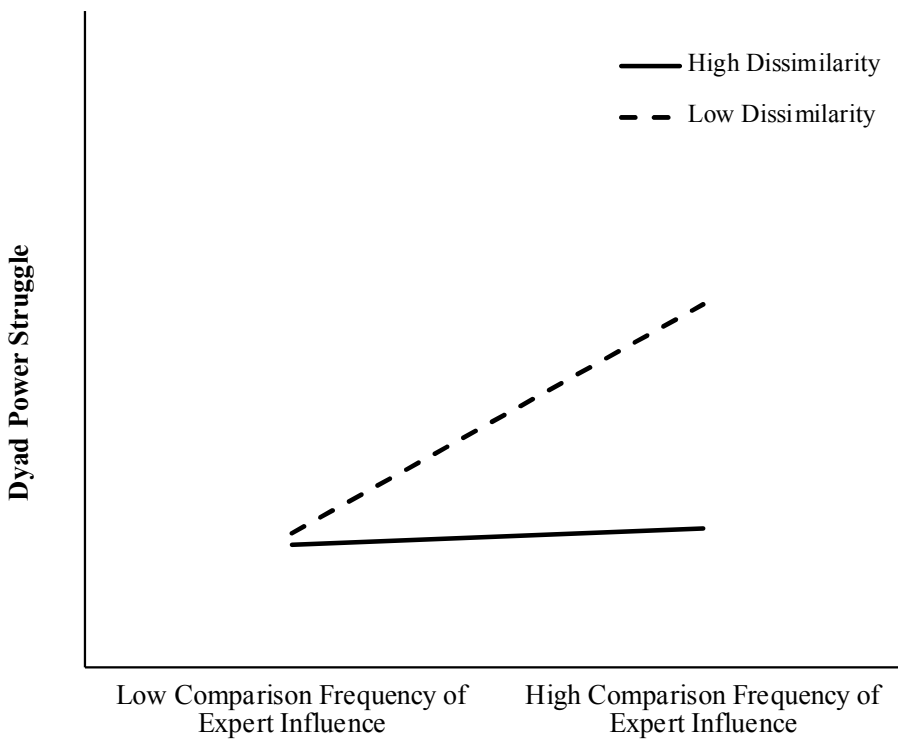


FIGURE 4: Proposed Interaction for Faultline-Based Knowledge Subgroup Members



Finally, because members of faultline-based resource subgroups form for instrumental purposes (Carton & Cummings, 2012), I argue that comparison results of *formal influence* are most likely to change this type of subgroup members' interpersonal relations.

Specifically, formal influence refers to the influence associated with one's position and is formally granted by the organization, including the capacity to mitigate rewards and punishment and demand compliance based on others' felt obligations. A high level of formal influence reflects that the focal individual has a great deal of control to administer tangible resources and demand others' compliance. A low level of formal influence indicates that the focal individual does not have much formal authority to induce others' compliance but instead is likely to be confined to following orders from others in the workplace (French & Raven, 1959). Because of the transactional nature of resource subgroups, members will expect each other's contributions to be equivalent and the resources exchanged to be equal in value and amount. When two parties have a similar level of formal influence, they are likely to believe the benefits gained from this coalition are fair. They thus are likely to sustain the transactional relationship.

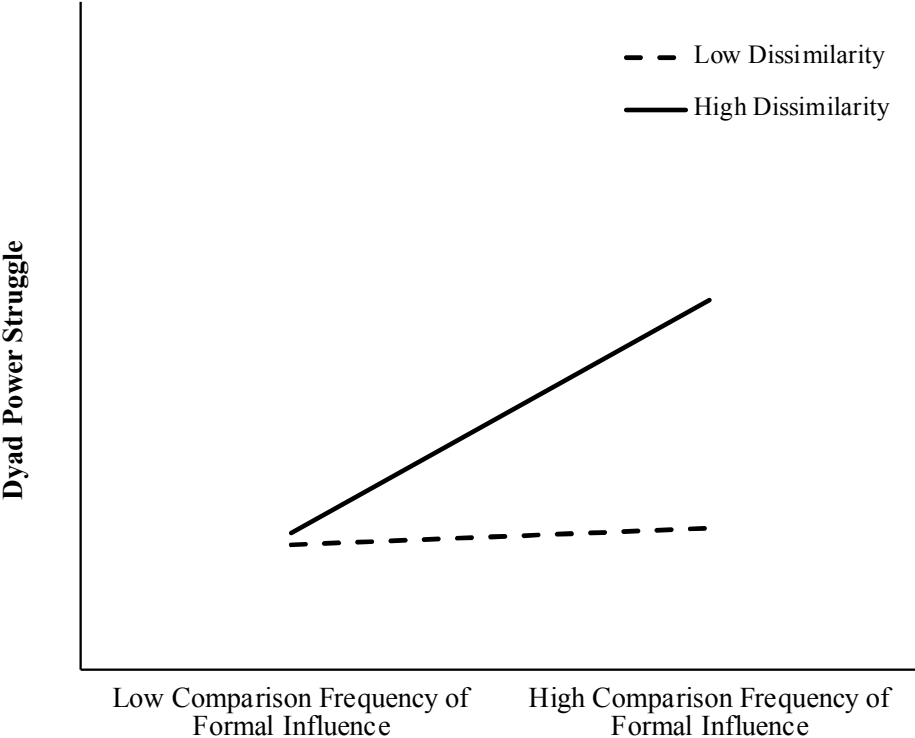
In contrast, a significant dissimilarity in formal influence suggests that one member benefits significantly more from the other than vice versa, violating the transactional, "quid-pro-quo" nature of resource-based subgroups and harming the dyadic relationship. Consistent with this argument, empirical studies show that a power imbalance structure tends to build a competitive climate that motivates members, both high and low ranked, to be primarily concerned with their own gains and interests (Eisenhardt & Bourgeois, 1988; Mannix, 1993; Van Bunderen, Greer, & Van Knippenberg, 2018). For example, the superior would prefer to form alliances with those who occupy a similar level of formal influence. For the inferior, in a situation where a significant dissimilarity in formal influence with someone at the same job level

and having the same educational level, the inferior will engage in behind-the-scenes coalition formation to strive for more control (Eisenhardt & Bourgeois, 1988), explicitly refuse orders or implicitly ignore orders from the superior (De Laat, 1994), and gossip about one another (e.g., Beersma & van Kleef, 2012). These power striving behaviors indicate that the inferior is inclined to balance their formal influence levels to be comparable to the upward target. Importantly, because power, like status, is a fixed asset (one's gaining more power means the other's control being lowered), one party's initiation of power striving behaviors can induce others' defending behaviors to protect their position. To secure their power position, the superior will engage in coalition formation and withhold valuable materials and information. In short, I argue that when the levels of their formal influence are different, two parties in the faultline-based resource dyad will compete for control over scarce organizational resources, such as budget, office space, talented personnel, prestige, or organizational rewards (e.g., Pfeffer & Salancik, 1978; Pondy, 1967; van Knippenberg, 2003), resulting in more power struggle⁵ within the dyad (see Figure 5). Formally, I hypothesize:

Hypothesis 6 (Dyad level): For faultline-based resource subgroup members, dissimilarity in formal influence moderates the relationship between social comparison on formal influence and power struggle, such that social comparison is more positively associated with power struggle when the dissimilarity of formal influence is large (vs. small).

⁵ Similarly, I acknowledge the possibility that power struggle co-occurs with a task, process, and relationship conflict (Greer et al., 2017). However, the fundamental interests of the competition on formal influence concern one's relative control over scarce resources. When it involves dissimilarity in formal influence, the primary concern is to reduce the gap of their formal influence levels, thus leading to greater likelihood of power struggle, rather than those task-oriented or relationship-oriented conflict.

FIGURE 5: Proposed Interaction for Faultline-Based Resource Subgroups



STUDY DESIGN

As discussed, the purpose of this dissertation is to investigate a critical assumption in the faultline literature. Faultline scholars often assume that team members form homophilous relationships on either side of a faultline by associating with others similar to them. While faultline research often assumes faultline-based (i.e., hypothetical) subgroups operate and function similarly to perceived subgroups, this assumption has not been subjected to empirical scrutiny.

Accordingly, prior to testing my hypotheses, I first test the degree to which faultline-based (i.e., hypothetical) subgroups correspond to perceived subgroups. Specifically, I assess the overlap between the *hypothetical* subgroup (calculated by the faultline algorithm in R) and the *perceived* subgroup (self-reported by workgroup members). In addition, in this preliminary analysis, I examine the value of the faultline-based subgroups typology; that is, whether the differentiation of the three types of faultline subgroups is superior in explaining important team outcomes to the traditional, no differentiation model. The no differentiation model typically calculates group faultline strength and uses it as the predictor of team outcome variables (e.g., relationship conflict, task conflict, team performance, team cohesion), but this research has failed to find consistent results. To provide evidence for the utility of faultline types, I measure these outcome variables and test whether the three types of group faultline strength explain additional variance in the outcome variables over and above the variance explained by the group faultline strength calculated by “regarding all characteristics equally.”

Results of the hypothesis testing are presented after this preliminary analysis. Below, I describe the details regarding my sample and data collection procedures. Preliminary analysis and hypothesis testing used the same sample.

METHOD

Sample

To ensure enough sample size, I collected data from full-time employees from three companies, including an automotive company and a software company in the United States, and a construction company in China. In the automotive company, sales and service teams participated in the study; in the software company, sales teams participated; in the construction company, marketing and finance teams participated. The data collection included four surveys in total with the first three surveys being primary in that they captured those variables necessary for hypothesis testing. In total, 142 people from 27 work teams across three organizations participated in all three primary surveys, out of which 140 people completed the fourth survey.

Specifically, I reached out to nine work teams of forty-three full-time professionals working in sales, service, or administration in the automotive company. 32 (74.4%) employees completed all three primary surveys, of which six (18.8%) were females. 27 (84.4%) of them were Caucasian, 4 (12.5%) of them were African American, and 1 (3.1%) self-identified as Caucasian and Asian. On average, they were 42.7 years old ($SD=15.2$) and had worked in the company for 8.4 years ($SD=9.5$). In terms of educational background, 3 (9.4%) were high school graduates, 16 (50.0%) graduated from some college, 12 (37.5%) held a bachelor's degree, and 1 (3.1%) held a master's degree.

I reached out to seven sales work teams of eighty full-time employees in the software company. 39 (48.8%) employees completed all three primary surveys, of which four (10.3%) were females. 36 (92.3%) of them were Caucasian, 1 (2.6%) was Asian, 1 (2.6%) was African American, and 1 (2.6%) was Hispanic. On average, they were 45.0 years old ($SD=10.1$) and had worked in the company for 5.2 years ($SD=5.2$). In terms of educational background, 4 (10.3%)

were high school graduates, 13 (33.3%) graduated from some college, 16 (41.3%) held a bachelor's degree, and 6 (15.4%) held a master's degree.

I reached out to eleven work teams of seventy-two full-time office professionals in the construction company. 71 (98.6%) employees completed all three primary surveys, of which 32 (45.1%) were females. On average, they were 34.5 years old ($SD=8.1$) and had worked in the company for 4.5 years ($SD=3.7$). In terms of educational background, 2 (2.8%) were high school graduates, 24 (33.8%) graduated from some college, and 45 (63.4%) held a bachelor's degree.

Procedure

For the automotive company and the software company, an organizational contact sent out the initial email to their respective employees. For the construction company, I sent out the initial email to the employees. The initial email informed employees of voluntary participation, confidentiality of their responses, and monetary rewards for participating in the study. A few days after the initial contact email, I emailed participants a customized link for their Time 1 survey. The rest three surveys were sent out in sequence. In particular, the four surveys were spaced about two weeks apart for the two U.S. companies (i.e., the automotive company and the software company). The four surveys were spaced a few days apart for the Chinese company.

The Time 1 survey asked participants to report their demographic information and perceived identity-, knowledge-, and resources-based relationships with others in the same team. The Time 2 survey asked participants to complete their comparison frequency on referent influence, expert influence, and formal influence with every team member. After rating their dyadic social comparison frequency, participants rated each team member's referent influence level, expert influence level, and formal influence level. It was important to ask participants to think about and rate their social comparison frequency *prior to* rating others' influence bases. If

the order of these two sets of questions was reversed, rating others' influence bases could prime participants to engage in social comparisons (i.e., thinking about others' influence bases in relation to themselves).

The Time 3 survey captured the downstream effects of social comparison. Participants rated their status conflict and power struggle with every team member. Participants also rated their team relationship conflict and team task conflict via a referent shift model (Chan, 1998). Finally, in the Time 4 survey, participants self-reported their personality and values. They also rated their team outcomes (i.e., team performance, team cohesion) via a referent shift model. The variables measured in the fourth survey are not focal variables but may be helpful for demonstrating the utility of the typology of subgroups. All four surveys were administered through the Qualtrics platform, which is commonly used by organizational and social psychologists when collecting employee data.

Participants in the United States (the automotive company and the software company) were rewarded 5 dollars for completing the Time 1 survey, 10 dollars for completing the Time 2 survey, 5 dollars for Time 3 survey, and 5 dollars for Time 4 survey. Participants who completed all surveys were rewarded another 5 dollars. In total, a participant in the US companies could obtain up to 30 dollars for participating in this study. Participants in China (the construction company) were rewarded with a gift worth 30 Chinese yuan when they completed all four surveys (the organizational contact suggested this was the best way to reward the participants in their company).

Measures for Preliminary Analyses

Identifying Member-to-Subgroup Associations (Time 1 Survey; used in both preliminary analyses and hypothesis testing). As noted above, team compositions determine not

only which type of subgroups are likely to form in the team but also which team member hypothetically belongs to which subgroup (i.e., member-to-subgroup associations). As discussed, most faultline research has focused on the relationships of hypothetical subgroups; thus, a measure of faultline strength is sufficient for their purpose. However, the focus of my dissertation is on the comparison of activities *within* subgroups. Therefore, it is imperative to use the faultline measure that *can* identify the inner subgroup structure in a given team, namely, a faultline measure that *can* identify which team member belongs to which hypothetical subgroup.

Among the 11 available faultline measures (Bezrukova et al., 2009; Carton & Cummings, 2013; Gibson & Vermeulen, 2003; Lawrence & Zyphur, 2011; Li & Hambrick, 2005; Meyer & Glenz, 2013; Shaw, 2004; Thatcher et al., 2003; Trezzini, 2008; D. van Knippenberg, Dawson, West, & Homan, 2010; Zanutto et al., 2011), only three measures can identify member-to-subgroup associations in teams. They are 1) Thatcher et al.'s *Fau* (2003), 2) Carton and Cummings' (2013) subgroup algorithm (SGA), and 3) Meyer and Glenz's (2013) average silhouette width (ASW). However, the first two measures suffer major limitations (Meyer et al., 2013 & Meyer, Glenz, Antino, Rico, & González-Romá, 2014) and are not theoretically or methodologically appropriate for this sample. In particular, SGA is limited to teams with no more than 10 people (Carton & Cummings, 2013). Yet, several teams in my sample have more than 10 individuals. *Fau* (Thatcher et al., 2003) is restricted to detecting only two subgroups. Yet, several of my teams have more than 12 members. Using *Fau* to detect subgroups would result in "large" subgroups of people who may not feel close to each other. Indeed, scholars have argued that subgroups often range from 2 to 6 people because groups of this size "are more interpersonally satisfying (Shaw, 1964), promote a greater sense of distinctiveness (Brewer, 1991), and are large enough to give members the clout to feel that their viewpoints will be heard

by others (Azzi, 1993)” (Carton & Cummings, 2012, p. 442). In other words, *Fau* is not suitable for detecting subgroups of large teams (Meyer et al., 2014).

ASW measure, on the other hand, is a more advanced method and aligns well with Carton and Cummings’ (2012) subgroup theory and its predictions (Meyer et al., 2014) – one of the theories that this dissertation builds on. ASW measure is also suitable for both small groups and large groups (e.g., 16-person teams; Meyer & Glenz, 2013). Emerging faultline research supports the validity of the ASW measure. For example, after using the traditional faultline measure to calculate group faultline strength and examining its effects on group outcomes, Bezrukova et al. (2016) conducted robustness checks by rerunning analysis using the Meyer & Glenz’s (2013) ASW measures. The results demonstrated the consistency of the ASW measure with the old faultline calculations and provided evidence for the validity of this measure. Other faultline researchers have also started to employ ASW to calculate faultline strength (e.g., Meyer et al., 2016; Mitchell & Boyle, 2015; Mo, Ling, & Xie, 2019; Qu & Liu, 2017; Schölmerich, Schermuly, & Deller, 2017; Straube, Meinecke, Schneider, & Kauffeld, 2018). Taken together, I believe ASW is the best option for the hypothesis testing of my dissertation⁶.

Except for the choice of faultline calculation algorithm, the procedures for measuring identity-, knowledge-, and resource-based faultlines followed prior studies (e.g., Bezrukova et al., 2009; Carton & Cummings, 2013).

Dyad Perceptions of Identity-Based Relationships (Time 1 Survey). In the Time 1 survey, I asked participants to rate their identity-based relationships with every team member on a 5-point Likert scale ranging from 1 = *to no extent* to 5 = *to a great extent*. In particular, the

⁶ Although traditional faultline measures are unable to generate member-to-subgroup associations, I calculated the faultline strength using traditional faultline measures. The faultline strength calculated using traditional faultline measures in my sample were comparable to other published work (e.g., Bezrukova et al., 2009; Cooper et al., 2014; Crucke & Knockaert, 2016).

question was, “To what extent do you and _____ share similar values and beliefs both in your professional and personal life?” The complete instructions are listed in Table 8 in the Appendix. Because my theorizing and analyses are based on dyads, I used the average rating of the identity-based relationships reported by the two individuals of each pair as the pair’s dyad identity-based relationship. The median inter-rater agreement (r_{wg}) for dyads was .88, justifying aggregation (James et al., 1984).

Dyad Perceptions of Knowledge-Based Relationships (Time 1 Survey). In the Time 1 survey, I asked participants to rate their knowledge-based relationships with every team member on a 5-point Likert scale ranging from 1 = *to no extent* to 5 = *to a great extent*. In particular, the question was, “To what extent do you and _____ possess the same domain of knowledge and exchange expertise-related information?” The complete instructions are listed in Table 8 in the Appendix. Because my theorizing and analyses are based on dyads, I used the average rating of the knowledge-based relationships reported by the two individuals of each pair as the pair’s dyad knowledge-based relationship. The median inter-rater agreement (r_{wg}) for dyads was .88, justifying the aggregation (James et al., 1984).

Dyad Perceptions of Resource-Based Relationships (Time 1 Survey). In the Time 1 survey, I asked participants to rate their resource-based relationships with every team member on a 5-point Likert scale ranging from 1 = *to no extent* to 5 = *to a great extent*. In particular, the question was, “To what extent do you and _____ have a clear understanding that if you provide him/her with valuable resources (e.g., money, budget, talented personnel), he/she will do the same for you?” The complete instructions are listed in Table 8 in the Appendix. Because my theorizing and analyses are based on dyads, I used the average rating of the resource-based relationships reported by the two individuals of each pair as the pair’s dyad resource-based

relationship. The median inter-rater agreement (r_{wg}) for dyads was .88, justifying the aggregation (James et al., 1984).

Team Relationship Conflict (Time 4 Survey). I employed Jehn's (1995) four-item measure in the Time 3 survey. A sample item was "How much are personality conflicts evident in your workgroup?" Participants rated their response to each item on a 5-point Likert scale to measure team task conflict 1 = *not at all* to 5 = *to a very large extent* ($\alpha = 0.92$). The complete instructions are listed in Table 10 in the Appendix. The median inter-rater agreement (r_{wg}) was .85. This justified the aggregation of individual responses to the team level (James et al., 1984). I also tested inter-rater reliability. ICCs was acceptable (ICC (1) = .02, ICC(2) = .09; James, 1982).

Team Task Conflict (Time 4 Survey). I employed Jehn's (1995) four-item measure in the Time 3 survey to measure team task conflict. A sample item was "How much conflict about the work you do is there in your workgroup?" Participants rated their response to each item on a 5-point Likert scale from 1 = *not at all* to 5 = *to a very large extent* ($\alpha = 0.92$). The complete instructions are listed in Table 10 in the Appendix. The median inter-rater agreement (r_{wg}) was .87. This justified the aggregation of individual responses to the team level (James et al., 1984). However, inter-rater reliability analysis showed that there was more variance within groups than between groups (ICC(1)=-.06; ICC(2)=-.35), which may be due to low between-group variance relative to within-group variance. Thus, although people within groups tended to agree on team task conflict as suggested by r_{wg} , the ICCs, which rely on the relative variance of within groups versus between groups, were low and did not justify aggregation. However, considering that this team task conflict measure was only used in one part of the preliminary analysis but not in any of the main hypotheses testings, I proceeded despite noting this limitation.

Team Task Performance (Time 4 Survey). In the Time 4 survey, team members rated their team task performance on four items from Sparrowe, Liden, Wayne, and Kraimer (2001) on a 7-point Likert scale (1 = *very poor* to 7 = *outstanding*; also see Shaw et al., 2011). These four items include “quality of work,” “getting work done efficiently,” “flexibility in dealing with unexpected changes,” and “overall performance” ($\alpha = 0.95$). The complete instructions are listed in Table 11 in the Appendix. The median inter-rater agreement (r_{wg}) was .79. This justified the aggregation of individual responses to the team level (James et al., 1984). Inter-rater reliability was satisfactory, too (ICC (1) = .19; ICC(2) = .52; James, 1982)

Team Cohesion (Time 4 Survey). In the Time 4 survey, team members rated their cohesiveness with the workgroup on six items from Mathieu, Kukenberger, D’Innocenzo, and Reilly (2015) on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*; $\alpha = 0.94$). A sample item was “There is a feeling of unity and cohesion in my team.” The complete instructions are listed in Table 11 in the Appendix. The median inter-rater agreement (r_{wg}) was .91. This justified the aggregation of individual responses to the team level (James et al., 1984). Inter-rater reliability was satisfactory, too (ICC (1) = .24; ICC(2) = .59; James, 1982).

Controls (Time 4 Survey; used in both preliminary analyses and hypothesis testing). I tested the hypothesized model both with and without individual differences as controls (specifically, extraversion, achievement values, and power values). I chose these individual differences as controls for the following reasons. Individuals high in extraversion likely desire much more social stimulation (Bone & Montgomery, 1970; Farley, 1970) and care more about their referent influence (i.e., other people’s desire to associate with them) or their referent influence in relation to those low on extraversion. Individuals who do not consider self-achievement an important guiding principle in their life likely care less about their expert

influence (Schwartz, 1992) and will think less about their competence in relation to others' competence levels. Finally, individuals low on power values often care less about their formal influence (Schwartz, 1992) and thus likely contemplate less on their formal influence (e.g., organizational power) in relation to others'.

These control variables were measured in the Time 4 survey. I measured extraversion using Saucier's (1994) scale. Participants rated the extent to which each trait described them (e.g., energetic, talkative) from 1 (*strongly disagree*) to 5 (*strongly agree*) ($\alpha = 0.83$). I measured achievement values using Schwartz's (1992, 1994) six items, including "successful," "capable," "ambitious," "influential," "intelligent," and "self-respect." Participants rated the importance of each value as a guiding principle in their life. Following Schwartz's recommendations, participants rated each value on a 9-point Likert scale (-1 = *opposed to my values*, 0 = *not important*, 3 = *important*, 6 = *very important*, 7 = *of supreme importance*; $\alpha = 0.92$). Lastly, I measured power values using Schwartz's (1992, 1994) five items, including "social power," "authority," "wealth," "preserving my public image," and "social recognition." Similarly, participants rated each value on a 9-point Likert scale (-1 = *opposed to my values*, 0 = *not important*, 3 = *important*, 6 = *very important*, 7 = *of supreme importance*; $\alpha = 0.91$). The complete instructions for control variables are listed in Table 11 in the Appendix.

Measures for Hypothesis Testing

Dyad Social Comparison (Time 2 Survey). Wood's (1996) article, "*What is social comparison and how should we study it?*" highlighted several key points for scholars who want to capture social comparison activities accurately. First, Wood (1996) defined social comparison as "the process of thinking about information about one or more other people in relation to the self" (p. 521). She highlighted the importance of conceptualizing comparison according to its

process and not defining it in terms of its effects. That is, as long as individuals are thinking about social information in relation to the self, social comparison has occurred, regardless of its manifesting effects. Second, Wood (1996) cautioned that social comparison tends to be perceived by individuals as socially undesirable. To elicit real amounts of social comparison activity, she advised researchers to inform participants about the prevalence of social comparison and reassure them of the anonymity of their responses.

I followed Wood's (1996) recommendations when designing the questions. Specifically, in the Time 2 survey, I informed participants that the next three questions concerned their own thoughts (regardless of how thorough or fleeting) of another person's attribute in relation to the self. Importantly, I highlighted the pervasiveness of this kind of thought in most people's everyday life. I also reminded participants that their responses were confidential and unknown to anyone in the company. After this, I asked participants' social comparison on referent influence, expert influence, and formal influence with every coworker in the same team. For example, the question for comparison frequency on expert influence was, "How often do you find yourself thinking about the competence or expertise of _____ (a team member) in relation to yourself?" Participants responded on a 7-point Likert scale ranging from 1 = *never* to 7 = *all the time*. The complete instructions and prompts for these three types of comparisons are listed in Table 9 in the Appendix.

All six hypotheses involve social comparison, but the first three hypotheses are at the subgroup level, and the last three hypotheses are at the dyad level. Thus, I calculated social comparison at the dyad level *and* at the subgroup level, respectively. For social comparison at the dyad level, medians of inter-rater agreement (r_{wg}) were .88, .88, and .88 for dyad comparison on referent influence, expert influence, and formal influence, respectively. For social comparison

at the subgroup level, medians of inter-rater agreement (r_{wg}) were .76, .70, and .85 for comparison on referent influence, expert influence, and formal influence, respectively. This justified the aggregation to the dyad level and to the subgroup level, respectively (James et al., 1984).

Dyad Dissimilarity in Social Influence (Time 2 Survey). As noted, influence is in the eyes of the beholder. Thus, it is essential to use peers' ratings to capture one's "capacity to influence" (as opposed to one's self-reports). In the Time 2 survey, I used a round-robin design and asked participants to rate each team member's referent, expert, and formal influence levels. Specifically, after reading a one-paragraph description of the specific influence base (e.g., expert influence; Hinkin & Schriesheim, 1989), participants rated the specific influence level of each team member using a 5-point Likert scale ranging from 1 = *not at all* to 5 = *very much*. The complete instructions and prompts for these three bases of influence are listed in Table 9 in the Appendix.

To calculate each individual's referent influence, expert influence, and formal influence, I aggregated others' ratings. The medians of inter-rater agreement (r_{wg}) were .86, .83, and .92 for individual referent influence, expert influence, and formal influence, respectively. These medians of inter-rater agreement suggest that team members generally hold similar perceptions of a given person, justifying aggregation (James et al., 1984). Finally, to obtain the dissimilarity in pairs' influence levels, I calculated the absolute value of each pair's difference in their influence levels for their referent influence, expert influence, and formal influence, respectively.

Dyad Status Conflict (Time 3 Survey). To measure status conflict in dyads, I once again used a round-robin design and asked participants to rate their status conflict behaviors with every team member. Similarly, I adapted Bendersky and Hays' (2012) status conflict survey items into

a one-paragraph description of this construct. In the Time 3 survey, after reading the one-paragraph description of status conflict, participants rated to what extent this description accurately characterized their relationship with each team member. Participants rated on a 5-point Likert scale ranging from 1 = *not at all* to 5 = *to a very large extent*. The complete instructions are listed in Table 10 in the Appendix. Because my theorizing and analyses are based on dyads, I used the average rating of the status conflict reported by the two individuals in each pair as the pair's dyad status conflict. The median inter-rater agreement (r_{wg}) for dyads was .80, justifying aggregation (James et al., 1984).

Dyad Power Struggle (Time 3 Survey). I used a round-robin design and asked participants to rate their power struggle behaviors with each team member. Similarly, I adapted Van Bunderen's (2018) power struggle survey items into a short paragraph description of this construct. In the Time 3 survey, after reading the one-paragraph description of power struggle, participants were asked to rate to what extent this description accurately characterized their relationship with everyone else in the team. Participants rated on a 5-point Likert scale ranging from 1 = *not at all* to 5 = *to a very large extent*. The complete instructions are listed in Table 10 in the Appendix. Because my theorizing and analyses are based on dyads, I used the average rating of the power struggle reported by the two individuals in each pair as the pair's dyad power struggle. The median inter-rater agreement (r_{wg}) for dyads was .96, justifying aggregation (James et al., 1984).

Analytical Strategy

Because the organization-level variance of the focal variables was small (see Tables 2-1 and 2-2), I combined the data from the three organizations but coded the country where the

company was located and I controlled for it (0 = the US; 1 = China)⁷. Because 1) most (but not all) predictions concern dyadic or subgroup relationships and 2) dyads and subgroups are nested in teams, most (but not all) analyses used multilevel modeling in Mplus 8.

In addition to controlling for the country in which the organization was located, I tested the results with the inclusion and exclusion of individual differences as controls. In line with scholars' caution about the inclusion of control variables (Becker, 2005; Carlson & Wu, 2012; Spector & Brannick, 2011), the coefficients and significance levels reported in the following text are results without controlling for individual differences. I note in the text, however, whether the results remain the same with the inclusion of these additional controls and report results in a footnote if the significance levels change.

Last but not least, it is important to note that when the tests are about subgroups, the analysis requires subgroup-level ratings of focal variables. As alluded before, depending on the similarity in the characteristics (gender, age, job functions, educational content, education level, and job level) of each pair of individuals, the same dyad could be in a hypothetical identity subgroup, a hypothetical knowledge subgroup, a hypothetical resource subgroup, none of these subgroups, two of these hypothetical subgroups, or simultaneously in all three types of hypothetical subgroups. To create subgroup-level ratings for focal variables, I thus needed to

⁷ While the results reported in the text were based on analysis using this country control variable, I also ran the same analyses using organizational control variables. In other words, I had two dummy variables. For one of the dummy variables, its value was 1 when the data was from employees in the automobile company and 0 when the data was not. For the other dummy variable, its value was 1 when the data was from employees in the software company and 0 when the data was not. These two dummy variables captured not only the country differences but also any differences between the organizations/industries.

I ran the same analysis, but I used the company control variables instead of the country control variable. The significance levels of all results remained the same, except for one result in the preliminary analysis. Please see the footnote on page 85 for this different result in the preliminary analysis. Given that a) most significance levels were the same regardless of using the company variables as controls or using the country variable as a control and b) as shown in Tables 2-1 and 2-2, all of the differences between organizations were due to country, I report the results of the analysis using the country control variable.

aggregate dyad-level ratings based on the subgroup type. Therefore, depending on which hypothetical (i.e., faultline-based) subgroups I examine, the subgroup-level ratings of focal variables may be different. Empirically, this means I need to have three different data files that house the subgroup-level ratings of focal variables created based on different types of subgroups. This will be the case whenever I need to test predictions about subgroups. This includes the first part of the preliminary analysis and hypotheses 1 – 3.

RESULTS

Preliminary Results

As noted before, the purpose of this preliminary analysis is to provide an overall evaluation of the degree to which demographic faultline-based subgroups (calculated by the faultline algorithm in R) correspond to perceived subgroups (self-reported by work team members). This analysis is at the subgroup level. Thus, I used multilevel modeling in Mplus due to the nature of the nested data, separating within-team (subgroup-level) variance and between-team variance. As noted in the last section, I need to run this model in each of the three data files that house the subgroup-level ratings of focal variables calculated based on the types of subgroups.

In the data file that houses the subgroup-level ratings of focal variables aggregated based on whether the dyad is in the same faultline-based identity subgroup, being in the same hypothetical identity subgroup was the independent variable (1 = yes; 0 = no). At the within-subgroup level, I modeled the effect of this independent variable on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. I also modeled the effect of the country where the data was collected (0 = the US; 1 = China) on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. As shown in Table 4 – 1, people in the same *hypothetical* (faultline-based; calculated by the ASW measure, the same as below) identity subgroup did not have significantly higher *perceptions* of identity-, knowledge-, or resource-oriented relationships with people in the same subgroup than with people in other subgroups ($B = .16, p = .256$; $B = .15, p = .314$; $B = .14, p = .417$).

Similarly, in the data file that houses the subgroup-level ratings of focal variables aggregated based on whether the dyad is in the same faultline-based knowledge subgroup, being in the same hypothetical knowledge subgroup was the independent variable (1 = yes; 0 = no). I modeled the effect of this independent variable on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. I also modeled the effect of the country where the data was collected (0 = the US; 1 = China) on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. As shown in Table 4 – 2, people in the same *hypothetical* (faultline-based) knowledge subgroup did not have significantly higher *perceptions* of identity-, knowledge-, or resource-oriented relationships with people in the same subgroup than with people in other subgroups ($B = -.03, p = .836$; $B = .05, p = .713$; $B = -.02, p = .892$).

Finally, in the data file that houses the subgroup-level ratings of focal variables aggregated based on whether the dyad is in the same faultline-based resource subgroup, being in the same hypothetical resource subgroup was the independent variable (1 = yes; 0 = no). I modeled the effect of this independent variable on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. I also modeled the effect of the country where the data was collected (0 = the US; 1 = China) on perceived identity-based relationships, perceived knowledge-based relationships, and perceived resource-based relationships. As shown in Table 4 – 3, people in the same *hypothetical* (faultline-based) resource subgroup did not have significantly higher *perceptions* of identity-, knowledge-, or resource-oriented relationships with people in the same subgroup than with people in other subgroups ($B = .15, p = .266$; $B = -.01, p = .934$; $B = .000, p = 1.000$).

Together, these results indicated that membership of a hypothetical (faultline-based) subgroup was not significantly related to the perceived relationships, whether it was identity, knowledge, or resource-based faultline subgroups. Significance levels were the same with the inclusion of the additional controls of individual differences.

In addition, as a preliminary analysis, I tested whether the three types of group faultline strength explained *additional* variance in commonly-tested outcome variables in the faultline literature (e.g., team task conflict, team relationship conflict, team task performance, team cohesion) over and above the variance explained by the group faultline strength calculated by “regarding all characteristics equally.” This is a single-level analysis at the team level that examines whether the incremental R-square was significant. I used hierarchical regression analysis.

Because the analyses for testing these team outcomes are similar, I will illustrate by describing the analysis when team task conflict is the outcome. In particular, as shown in Table 5 – 1, in Model 1, I controlled for team relationship conflict because team task conflict and relationship conflict tend to intertwine and covary. In Model 2, I entered the group faultline strength calculated by considering all characteristics equally. In Model 3, I entered the three faultline strengths based on the alignment of gender and age (identity-based faultlines), the alignment of job function and educational content (knowledge-based faultlines), and the alignment of job level and education level (resource-based faultlines). As such, the first three models represent the full model tests. In Model 4, I included additional controls of individual differences. The other three team outcome variables were tested in the same fashion, except that when predicting team task performance (or team cohesion), I controlled for team cohesion (or

team task performance) because team cohesion and team task performance correlated at .74 in my data.

Results indicated that the incremental R-square was not significant when predicting team task conflict ($\Delta R^2 = .02$, $p = .583$; see Table 5 – 1), team relationship conflict ($\Delta R^2 = .03$, $p = .530$; Table 5 – 2), or team cohesion ($\Delta R^2 = .08$, $p = .096$; Table 5 – 4). The incremental R-square was significant ($\Delta R^2 = .06$, $p = .049$; Table 5 – 3)⁸ only when predicting team task performance. Yet, when predicting task performance while controlling for individual differences, the incremental R-square became non-significant. For other team outcome variables, significance levels remained the same with additional controls of individual differences.

Because these incremental R-squares were not significant or not robust to the inclusion of additional controls, I could not confidently conclude that the three types of group faultline strengths explained additional variance over and above the variance explained by the group faultline strength calculated by “regarding all characteristics equally.” Together with the first set of preliminary analysis, these results indicate the limitations of the traditional faultline research approach that often assumes hypothetical, dormant subgroups (calculated by faultline algorithm) function similarly as do perceived subgroups (self-reported by work team members). With these results in mind, in the next section, I further challenge the traditional faultline research by examining whether individuals in the same hypothetical (i.e., faultline-based) subgroups might have more conflict with each other than with those in different hypothetical subgroups.

⁸ Specifically, the incremental R-square was significant for team cohesion and task performance if using company control variables instead of the country control; in other words, when controlling for company difference, results showed that the differentiation of faultline types explains additional variance in team cohesion and team performance. As noted on page 80, these are the only results where the significance level changes when using company controls.

Hypothesis Testing

Hypotheses 1 – 3 predict that for each type of subgroup, subgroup members compare more frequently on a given influence base than on other bases. Tests of these hypotheses are essentially t-tests (i.e., comparison of means). In hypothesis 1, I predicted that members of identity-based faultline subgroups compare on referent influence more frequently than on expert or formal influence. T-tests showed that as expected, individuals in the same identity-based faultline subgroup compared with each other more frequently on referent influence ($M = 2.42$, $SD = 1.15$) than on formal influence ($M = 1.98$, $SD = 0.89$) (difference = $.44$, $p = .001$). However, surprisingly, individuals in the same identity-based faultline subgroup compared on referent influence less frequently than on *expert* influence ($M = 2.70$, $SD = 0.96$) (difference = $-.28$, $p = .020$). Thus, hypothesis 1 was partially supported.

In hypothesis 2, I predicted that members of knowledge-based faultline subgroups more frequently compared on expert influence than on referent or formal influence. T-tests showed that as expected, individuals in the same knowledge-based faultline subgroups compared on expert influence ($M = 2.71$, $SD = 1.03$) more frequently than on referent influence ($M = 2.25$, $SD = 1.01$; difference = $.46$, $p < .001$) and formal influence ($M = 1.97$, $SD = 0.87$; difference = $.74$, $p < .001$). Thus, hypothesis 2 was supported.

In hypothesis 3, I predicted that members of resource-based faultline subgroups compared on formal influence more frequently than on referent or expert influence. T-tests showed that contrary to my hypothesis, individuals in the same resource-based faultline subgroups compared on formal influence ($M = 1.87$, $SD = .88$) *less* frequently than on referent influence ($M = 2.23$, $SD = .98$; difference = $-.36$, $p = .001$) or expert influence ($M = 2.41$, $SD = .94$; difference = $-.54$, $p < .001$). Thus, hypothesis 3 was not supported.

Hypotheses 4 – 6 concern, within the same type of faultline-based subgroup, whether dyad dissimilarity in influence levels (level 1) moderates the relationship between dyad comparison frequency (level 1) and dyad conflict (level 1). This analysis is at the dyad level. I used multilevel modeling in Mplus due to the nature of the nested data, separating within-team (dyad-level) variance and between-team variance.

In hypothesis 4, I predicted that at the dyad level, for members in the same faultline-based identity subgroup members, differences in referent influence moderate the relationship between social comparison on referent influence and status conflict, such that social comparison is more (vs. less) positively associated with status conflict when the dissimilarity of referent influence is large (vs. small). I modeled the following three effects on dyad status conflict: dyad comparison frequency on referent influence, dyad dissimilarity in referent influence, and the product term of dyad comparison on referent influence and dyad dissimilarity in referent influence. I grand-mean centered dyad comparison frequency and dyad dissimilarity prior to creating the product term. I also controlled for the country code variable.

Table 6 – 1 shows that dyad social comparison on referent influence was not related to dyad status conflict ($.06, p = .284$). Neither was the moderating effect of dissimilarity in referent influence ($-.06, p = .249$). Results were robust with the inclusion of additional controls of individual differences.

In hypothesis 5, I predicted that for members in the faultline-based knowledge subgroups, differences in expert influence moderate the relationship between comparison frequency on expert influence and a) status conflict and b) power struggle, such that social comparison is more (vs. less) positively associated with status conflict and power struggle when the difference in expert influence is small (vs. large). At the within-team level, I modeled the following three

effects on dyad status conflict and dyad power struggle: dyad comparison frequency on expert influence, dyad dissimilarity in expert influence, and the product term of dyad comparison on expert influence and dyad dissimilarity in expert influence. I grand-mean centered dyad comparison frequency and dyad dissimilarity prior to creating the product term. I also controlled for the country code variable.

Table 6 – 2 shows that dyad comparison on expert influence was not related to dyad status conflict ($.15, p = .151$) but was significantly related to dyad power struggle ($.21, p = .021$). Dyad dissimilarity in expert influence did not moderate either of the relationships ($.11, p = .284$ for dyad comparison – status conflict relationship; $.05, p = .584$ for dyad comparison – power struggle relationship). Thus, hypothesis 5 was partially supported. Results were robust with the inclusion of additional controls of individual differences.

In hypothesis 6, I predicted that for members in the faultline-based resource subgroups, differences in formal influence moderate the relationship between social comparison on formal influence and power struggle, such that social comparison is more (vs. less) positively associated with power struggle when the difference in two individuals' formal influence is large (vs. small). At the within-team level, I modeled the following three effects on dyad power struggle: dyad comparison frequency on formal influence, dyad dissimilarity in formal influence, and the product term of dyad comparison on formal influence and dyad dissimilarity in formal influence. I grand-mean centered dyad comparison frequency and dyad dissimilarity prior to creating the product term. I also controlled for the country code variable.

Table 6 – 3 shows that dyad comparison on formal influence was not related to dyad power struggle ($-.05, p = .554$). Neither was the moderating effect of dyad dissimilarity in formal

influence for this relationship ($.08, p = .265$). Results were robust, controlling for individual differences.

Supplemental Analysis

I conducted several supplemental analyses. First, to better understand the notion of alignment, I tested two-way interactions and three-way interactions involving membership (i.e., identity-, knowledge-, and resource-based subgroups) in predicting status conflict and power struggle. Results indicated that three-way interactions did not significantly predict status conflict ($-.25, p = .458$) or power struggle ($.18, p = .565$). For two-way interactions, only the interaction between resource subgroup membership and identity subgroup membership predicting power struggle was significant ($-.34, p = .011$). In particular, in the same resource subgroups, individuals in different (vs. same) identity subgroups had a higher level of power struggle ($p = .002$). In different resource subgroups, differences in identity subgroup membership did not make a difference in power struggle ($p = .880$). Results indicated that the lowest level of power struggle was obtained when people shared both the same resource and the same identity subgroup membership. The highest level of power struggle was obtained when individuals had the same resource subgroup membership but different identity subgroup membership. In other words, results suggest that people were most likely to fight and compete for power with those in the same resource subgroups but in different identity subgroups and were least likely to compete for power with those in both the same resource and the same identity subgroups.

Second, my hypotheses 4 – 6 were tested within the same type of faultline-based subgroup, whether a) dyadic comparison frequency positively related to dyadic conflict and whether b) dyadic dissimilarity in influence levels moderated the dyadic comparison-conflict relationship. My hypotheses 4 – 6 were at the dyadic level. They did not consider the

directionality of the comparison, such as whether the comparison was upward (i.e., compared with someone who had more influence) or downward comparison (i.e., compared with someone who had less influence). This was because I believed that no matter who started the comparison and conflict, even if it were a one-way comparison and conflict at the start, it would eventually become a two-way comparison and conflict. After all, the fixed-asset nature of power and status would motivate the other party to engage in reciprocal comparison and conflict. In the supplemental analysis, however, considering that directionality (upward/downward) is an important aspect of social comparison theory, I tested directionality in referent, expert, and formal influence. Results indicated that the ego's social comparison frequency on referent influence with alter was not related to the ego's likelihood to engage in status conflict with the same alter ($.05, p = .259$). Neither was the moderating effect of the difference in their referent influence levels ($-.03, p = .404$). Similarly, the ego's social comparison frequency on formal influence with alter was not related to the ego's likelihood to engage in power struggle with the same alter ($.04, p = .478$). Neither was the moderating effect of the difference in their formal influence levels ($.004, p = .863$). Further, the ego's social comparison frequency on expert influence with alter was related to the ego's likelihood to engage in status conflict ($.21, p = .006$) and power struggle ($.20, p = .005$) with the same alter. But the moderating effects of the difference in their expert influence levels were not significant (for status conflict, $.08, p = .180$; for power struggle, $.09, p = .113$). These results were largely consistent with the results of my hypothesis testing, which did not account for the directionality of comparison, lending support for my contention that no matter who started the comparison and conflict, even if it were a one-way comparison and conflict at the start, it would eventually become a two-way comparison and conflict.

Finally, as noted, the purpose of this dissertation was to examine an essential assumption in the faultline literature. As such, it was important to use the same methods and operationalization consistent with the traditional faultline research approach, namely, using an algorithm (i.e., ASW) to calculate the faultline-based (i.e., hypothetical) subgroups and testing results within these hypothetical subgroups. However, as noted above, one emerging faultline research stream studies perceived subgroups. This research often measures “perceived faultlines” by asking participants to what extent they agree that their team split into subgroups (Jehn & Bezrukova, 2010) and/or on what basis team members form subgroups in their team (Antino et al., 2019). My preliminary analyses showed that membership in hypothetical (faultline-based) subgroups was not significantly related to corresponding perceived subgroups. Thus, it would be interesting to examine whether within-subgroup comparison and conflict are also greater than between subgroups *when faultlines are perceived or activated* (vs. dormant). Given that I collected measures of perceived identity-, knowledge, and resource-based relationships, I have data that can shed light on this issue.

Specifically, I used multilevel modeling due to the nested data. At the within-team level (dyad level), I modeled the effect of perceived identity-based relationships on referent influence comparison, the effect of perceived knowledge-based relationships on expert influence comparison, and the effect of perceived resource-based relationships on formal influence comparison. In addition, I modeled the effects of referent influence comparison, dissimilarity in referent influence, and the product term of these two on status conflict. I modeled the effects of expert influence comparison, dissimilarity in expert influence, and the product term of these two on status conflict and power struggle. I also modeled the effects of formal influence comparison, dissimilarity in formal influence, and the product term of these two on power struggle. Finally,

similar to my hypothesis testing, I controlled for the country variable representing the country where the data was collected.

As shown in Table 7, perceived identity-based relationships were significantly related to comparison frequency on referent influence ($B = .41, p < .01$), but comparison frequency on referent influence was not related to status conflict ($B = .04, ns$), and neither was the moderation effect of dissimilarity in referent influence ($B = -.07, ns$). Further, the indirect effect of perceived identity-based relationships on status conflict via referent influence comparison was not significant (indirect effect = .014, 95% CI = -.013, .042).

Perceived knowledge-based relationships were significantly related to comparison frequency on expert influence ($B = .45, p < .01$), and comparison frequency on expert influence was significantly related to status conflict ($B = .09, p < .05$) and power struggle ($B = .09, p < .01$). The moderation effects of dissimilarity in referent influence on status conflict ($B = .05, ns$) and power struggle ($B = -.02, ns$) were not significant. Further, the indirect effect of perceived knowledge-based relationships on status conflict via comparison frequency of expert influence was significant (indirect effect = .041, 95% CI = .008, .075). In addition, the indirect effect of perceived knowledge-based relationships on power struggle via comparison frequency of expert influence was significant (indirect effect = .041, 95% CI = .013, .072).

Perceived resource-based relationships were significantly related to comparison frequency on formal influence ($B = .27, p < .01$), and comparison frequency on formal influence was significantly related to power struggle ($B = .07, p < .05$). The moderation effect of dissimilarity in formal influence on power struggle was not significant ($B = -.01, ns$). Further, the indirect effect of perceived resource-based relationships on power struggle via comparison frequency of formal influence was not significant (indirect effect = .025, 95% CI = .002, .040).

Together, this supplemental analysis suggests that for perceived knowledge-based relationships and perceived resource-based relationships, individuals compared with those whom they perceived as being in the same subgroups more frequently than with those whom they did not perceive as being in the same subgroups. Subsequently, these comparisons resulted in more status conflict and power struggle among people who perceived each other in the same knowledge subgroups than among those who did not perceive in the same knowledge subgroups. These results suggest that the concept of group faultlines may need to be re-examined and reconceptualized.

DISCUSSION

As noted, “faultline research has been based on one important, but relatively untested, assumption: that team members tend to form homophilous ties on either side of a faultline by associating with others in the team who have similar demographic attributes” (Ren et al., 2015, p. 390). Because of this, prior faultline research has almost exclusively focused on the relationships and interactions between different faultline-based subgroups. My dissertation, however, draws from social comparison theory to challenge this critical assumption in the faultline literature. In a nutshell, my dissertation proposed the possibility that within-subgroup conflict might be greater than between-subgroup conflict. In particular, to be consistent with emerging research that has documented that different attributes give rise to different faultline-based subgroups, I theorized and tested comparisons and conflict patterns for each type of subgroup.

In the preliminary analysis, I aimed to evaluate the degree to which hypothetical subgroups (i.e., demographic faultline-based subgroups; calculated by faultline algorithm in R) corresponded to perceived subgroups (i.e., self-reported by work team members). Results indicated that membership in a hypothetical (faultline-based) subgroup was not significantly related to corresponding, perceived relationships with the same set of people, regardless of subgroup types. In addition, results indicated that for those commonly-tested outcome variables in the faultline literature (i.e., team task conflict, team relationship conflict, team performance, team cohesion), I could not confidently conclude that the three types of group faultline strengths explained additional variance over and above the variance explained by the group faultline strength calculated by “regarding all characteristics equally.” Together, results from the preliminary analysis suggest the limitations of the traditional approach, which assumes that

hypothetical, dormant subgroups (calculated by faultline algorithm) operate similarly as perceived subgroups (self-reported by work team members) do.

In my main analyses, I tested my hypotheses. Results supported most of the hypotheses concerning knowledge-based subgroups. For example, as predicted, results indicated that members of the same faultline-based knowledge subgroups compared expert influence more frequently than other types of influence. This finding was consistent with the social comparison theory's "related similarity hypothesis" (Goethals & Darley, 1977). In addition, for faultline-based knowledge subgroups, members' comparison frequency on expert influence was significantly related to their power struggle. However, the hypothesized moderating effect of dissimilarity in members' social influence was not significant, indicating that the effect of within-subgroup comparisons on within-subgroup conflict was not contingent upon subgroup members' relative influence levels.

While results supported most hypotheses concerning knowledge-based subgroups, results did not support most hypotheses regarding identity-based subgroups or resource-based subgroups. The only supported prediction was that members of the same identity-based faultline subgroup indeed compared with each other on referent influence more frequently than they did on formal influence (which was once again consistent with social comparison theory's "related similarity hypothesis"). However, surprisingly, these individuals compared with each other on expert influence more frequently than they did on referent influence. Also, unexpectedly, members of the same resource-based faultline subgroup compared with each other on expert influence more frequently than they did on formal influence. These results together revealed that individuals compared on expert influence the most, regardless of what types of subgroups they were in. This could be due to individuals' unwillingness to admit that they engaged in social

comparisons with coworkers (Wood, 1996). After all, among comparisons on referent influence (popularity), formal influence (organizational power), and expert influence (competence), comparisons on expert influence (competence) seem the most acceptable for people in the workplace.

The downstream effects of comparisons were not present for individuals in a faultline-based identity subgroup or a faultline-based resource subgroup. For these two types of faultline-based subgroups, comparison frequency was not related to power struggle or status conflict. The effect of within-subgroup comparison on within-subgroup conflict was not significantly contingent upon subgroup members' relative influence levels, either. Together, my proposition that within-subgroup conflict could be greater than between-subgroup conflict via greater within-subgroup comparison seems most likely to occur for knowledge-based subgroups but not for other types of subgroups.

Finally, given that I had collected data on dyadic perceived relationships, in my supplemental analysis, I provided some evidence regarding whether in perceived subgroups comparison and conflict were greater within subgroups than between subgroups. Results indicated that this might be the case for the knowledge-based and resource-based subgroups but not for the identity-based subgroups. Specifically, results showed that perceived *knowledge*-based relationships were significantly related to conflict over status and power via comparison on expert influence, and perceived *resource*-based relationships were significantly related to conflict over power via comparison on formal influence. On the other hand, although perceived *identity*-based relationships positively related to comparison on referent influence, this comparison did not relate to their conflict over status. This supplemental analysis results were consistent with the general proposal of this dissertation and suggested that even for perceived

subgroups (i.e., knowledge-based relationships, resource-based relationships), within-subgroup comparison and conflict may be greater than between-subgroup comparisons and conflict.

Together, my dissertation provides initial evidence that when it comes to faultlines, it is imperative to examine not only between-subgroup interactions but also within-subgroup activities and relationships. This might be true not only for hypothetical subgroups calculated by faultline algorithm but also for self-report, perceived subgroups.

Theoretical Implications

This dissertation makes several contributions to the group faultlines and conflict literatures. First, prior faultline research has exclusively focused on between-subgroup interactions on the basis of an important yet relatively untested assumption that relationships within subgroups are free from conflict. My dissertation, however, examined this assumption and challenged the within-subgroup harmony. The results about the knowledge type of subgroups showed evidence contrary to this assumption. My dissertation suggests that theorizing and conclusions may be mistaken if we take within-subgroup harmony for granted or speculate only about between-subgroup relationships. Future faultline research should at least consider the potential existence of within-subgroup conflict. Reconceptualizing group faultlines and understanding when there is greater or less within-subgroup conflict is also imperative.

Second and relatedly, the definition of group faultline (i.e., hypothetical dividing lines that split the team based on the alignment of team members' attributes) clearly indicates the simultaneous existence of within-subgroup similarity and between-subgroup differences. It has long been debated in the history of social psychology and organizational behavior literature whether “similarity” leads to “attraction” or “conflict.” This historical debate, however, has not been given proper attention or received careful scrutiny in the group faultline literature in the

sense that faultline scholars often take it for granted that within-subgroup “similarity” unanimously leads to within-subgroup “attraction.” In this sense, social comparison theory provides a theoretical angle and framework to complement the existing faultline research. Thus, my dissertation opens the door for future research by integrating social comparison theory into the group faultline literature. As initial evidence, my dissertation suggests that within-subgroup comparison and conflict are more likely to occur in knowledge-based subgroups but not so much in identity- or resource-based subgroups. By drawing from social comparison theory, future research should continue studying when and why there would be greater within-subgroup conflict than between-subgroup conflict, and vice versa.

Third, while the primary focus of my dissertation was on traditionally-studied types of faultlines – dormant faultlines, my supplemental analysis shed some light on the emerging faultline research – perceived faultlines. My results suggest that the aforementioned problem with the faultline construct does not automatically go away just because one studies perceived subgroups. As the initial evidence, my supplemental analysis results indicated that individuals engaged in greater comparisons and conflict with those they perceived in the same knowledge subgroup or in the same resource subgroup. As of today, very little research has utilized the network approach to study the nuance in relationships. More research is needed in the perceived faultline-based subgroup areas to examine the nature of the relationships between individuals and others they perceive in the same subgroup.

Fourth, prior faultline research has mainly focused on knowledge-based and/or relationship-based subgroups. However, the most recent typology of subgroups recognizes that in addition to relationship- and knowledge-based subgroups, there is a third type of subgroup, namely, resource-based subgroups (Carton & Cummings, 2012). In my dissertation, I also

considered the unique nature of this subgroup and theorized what was likely to happen within this type of subgroup. Without recognizing resource-based subgroups, arguments and predictions based on what has been considered about the relationship- or knowledge-based faultline subgroups may be mistaken.

Fifth, while faultline research often focuses on relationship conflict and task conflict, my dissertation expanded the nomological network of faultline research to include conflict over informal hierarchy (i.e., power and status). Indeed, emerging faultline research suggests that when it comes to the tension between one subset of people against another subset of people, the ultimate motive of this tension is around competition over relative power or status as opposed to relationship or task conflict (e.g., Antino et al., 2019). Furthermore, as noted previously, status conflict and power struggle are often more difficult to resolve compared to task and relationship conflict and can have a longer-lasting impact on teams. As such, understanding the implications of group faultline strength on conflict over power and status is essential.

Practical Implications

The most salient practical implication of these findings is that team conflict may arise in a place that managers have not expected. People are often sensitive to others' readily identifiable attributes (e.g., gender, job functional area, job level) and often assume that individuals who share the same attributes are also automatically psychologically close to each other. The implication for managers in the workplace is that they may also suffer from this cognitive bias and may assume that team members under the same category (e.g., the same job functional area) are close to each other and that if there is any conflict in teams, it occurs between team members of different functional areas.

However, my dissertation showed that there could be greater status and power conflict between team members of the same functional area and educational area. Thus, on the basis of my findings, I recommend that managers not presume that within-subgroup conflict does not exist. Instead, managers should track the conflict to its source when conflict arises in the team. Because conflict over status and power requires active allies and passive bystanders to legitimize its hierarchical implications (Blau, 1964; Kapferer, 1969; Ridgeway & Correll, 2006), if left unchecked or confused with between-subgroup ones, within-subgroup status conflict and power struggle will inevitably involve other team members who are not initially involved in the dispute, delay the team task progress, and cause the team to fracture.

In addition, I recommend that managers take actions to reduce team members' comparisons tendency (i.e., the precursor of conflict). Social comparison theory provided clues for how to do so. As noted previously in the literature review, social comparison theory holds that individuals use social comparison as social information to assess where they stand in the social environment. Individuals are more likely to engage in social comparisons when objective information and feedback are unavailable (Festinger, 1954). In other words, if objective information and feedback are present, individuals' comparison frequency is reduced. In most modern organizations, however, there is only one annual evaluation at the end of the financial year where managers sit down with employees to go over and discuss their job performance. This is unfortunate not only because feedback once per year is inefficient in improving employee and team performance but also because it leaves employees in the dark most of the time. For the rest of the year, employees are left to feel uncertain and unknown about their performance and acceptance in the team. As a result, employees are left to rely on social comparison and social information to assess their performance and social standing.

Thus, I recommend managers to have more regular conversations and check-ins with team members. For example, managers can provide informal feedback or have some check-ins every month or every quarter. It is important to note that managers should treat these conversations as an opportunity to discuss with employees the issues facing them and inform how well or poorly the employees are working towards their set goals instead of micromanaging or pressuring employees to reach more aggressive goals. When employees know whether they are on or off the track and have actionable steps suggested by the management, they are less likely to rely on social comparison information to evaluate their performance or social worth in the team, thereby minimizing status conflict or power struggle in the group.

Limitations and Future Directions

This dissertation has many strengths, including a) being the first study to examine an essential assumption in the faultline literature, b) being the first study to propose the importance of unpacking activities within (instead of between) hypothetical subgroups, c) the examination of different faultline-based subgroups, d) the round-robin research design to suit the aim of unpacking activities within hypothetical subgroups, e) the separation of measures across time, and f) the collection of data from intact work teams from multiple companies.

Still, this dissertation has limitations that should be noted. First, in my dissertation, I chose certain attributes to construct certain types of faultlines. These attributes were chosen because a bulk body of faultline research has used these attributes when operationalizing faultlines. My dissertation was intended to examine and challenge the assumption in the traditional faultline literature, so the operationalization of group faultlines should be consistent with prior faultline research. Nevertheless, these demographic attributes are not the only attributes that could result in group faultlines. As noted by previous researchers (Thatcher &

Patel, 2012), “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” (p. 993). From this perspective, the research on perceived faultlines is more promising than algorithms-calculated dormant faultlines.

Second, and speaking to research on perceived subgroups, the results of my supplemental analysis suggested the assumption of within-subgroup harmony did not hold even in perceived subgroups. These findings, however, are limited in that they were based on dyadic perceived relationships with one another rather than how perceived faultline research typically measures perceived faultlines/subgroups. I did not include the latter set of questions because the intention of this dissertation was to examine the assumption in the hypothetical subgroups where the majority of faultline research resides. Future research should employ the same operationalization as the perceived faultline research uses and test whether and when the assumption of within-subgroup harmony holds in the perceived subgroups.

Third, while social comparison theory suggests the existence of boundary conditions for the downstream effects of comparisons, the hypothesized moderators in my dissertation (i.e., the differences in subgroup members’ social influence) were not supported. One reason for this could be due to the limitations with difference scores, which included low reliability of the difference score, the variance of difference score not reflecting variances of the individual component measures in equal proportion, and difficulty in understanding the effects of individual component measures (Edwards, 1993). A polynomial regression equation might be more

advantageous in this situation and can avoid these problems (Edwards, 1993, 2001). However, the limitation with polynomial regression is that it inevitably introduces many predictors (i.e., respective component measures and joints of component measures). With small samples, it can increase the likelihood of Type I error. Future research studies with large samples should use polynomial regression and re-test these hypotheses.

Future research can also explore other moderators. For example, individual differences may matter, such as a zero-sum mindset. A zero-sum mindset, where a person believes that one's gain would mean another's loss, may increase comparison frequency as well as the chance of the negative effects of social comparisons. Additionally, team contexts can be critical. For instance, task interdependence, defined as "the extent to which an individual team member needs information, materials, and support from other team members to be able to carry out his or her job" (Van Der Vegt, Van De Vliert, & Oosterhof, 2003, p. 717), could alter team members' comparison frequency.

Fourth, despite the multi-wave, round-robin data from multiple field samples, the data collection was inevitably a cross-sectional study in nature. Demographic variables are inarguably the independent variable to predict comparison frequency with one another. But for the second stage, I acknowledge that I could not examine the potential reverse causality such that conflict arises first and leads to individuals' social comparisons next. Examining this would require all measures of all variables to be taken at least three times in repeated time periods. Still, my theorizing that comparisons preceded conflict was directly drawn from social comparison theory, and empirically I had collected comparison frequency prior to collecting conflict. I hope that my initial efforts stimulate future research where the research team can use designs and methods that might allow an examination of reciprocal causality between social comparisons and conflict.

Fifth and relatedly, future research should take a longitudinal approach to study the evolution and development of group faultlines. My dissertation revealed that within-subgroup comparison and conflict could be greater than between subgroups, questioning whether faultline-based subgroups should be considered “subgroups.” Future research should take a longitudinal approach to study the evolution and development of group faultlines. We know from the broader organizational demographic literature that as team members start to interact and get to know each other, the effect of surface-level diversity (diversity in attributes that are readily available and easily identifiable) tends to fade away, and the effect of deep-level diversity (diversity in attributes that require time and interactions to discover) increases. Thus, will faultlines based on surface-level attributes weaken as team members interact with each other? What attributes are more likely to bond individuals and motivate them to form subgroups in the early versus later team development stage? I encourage future research to examine the dynamic of group faultlines and its implications.

CONCLUSION

This dissertation examines an important assumption (i.e., within-subgroup harmony) in the faultline literature. Results from round-robin data collected from intact work teams in multiple organizations suggest that this assumption may not hold. Moreover, within-subgroup conflict can be even more significant than between subgroups depending on subgroup types. With that in mind, future faultline research should at least consider the potential existence of within-subgroup conflict. Another important contribution of my dissertation is that it bridges social comparisons theory with the faultline literature. By doing so, my dissertation opens the door for future faultline research to integrate arguments from social comparison theory and continue examining phenomena related to faultlines.

TABLE 1: A Hypothetical Example of Consolidated Data

<i>Dyad var1</i>	<i>Subgroup var2</i>	<i>Subgroup var3</i>	<i>Dyad var4</i>	<i>Dyad var5</i>	<i>Dyad var6</i>	<i>Dyad var7</i>	<i>Dyad var8</i>	<i>Dyad var9</i>	<i>Dyad var10</i>	<i>Dyad var11</i>
<i>Dyad ID</i>	<i>Subgroup ID</i>	<i>Dyad/ Subgroup Type</i>	<i>Dyad Comparison on Referent Influence</i>	<i>Dyad Comparison on Expert Influence</i>	<i>Dyad Comparison on Formal Influence</i>	<i>Dissimilarity in Dyad Referent Influence</i>	<i>Dissimilarity in Dyad Expert Influence</i>	<i>Dissimilarity in Dyad Formal Influence</i>	<i>Dyad Status Conflict</i>	<i>Dyad Power Struggle</i>
DY00001	SG0001	I	5	1	1	4	4		5	1
DY00002	SG0001	I	4	1	3	1	3		1	1
DY00003	SG0002	I	4	2	1	5	5		4	2
DY00004	SG0002	I	5	3	1	2	2		3	2
DY00005	SG0003	K	1	4	1	0	1		4	5
DY00006	SG0003	K	1	4	1	0	3		1	2
DY00007	SG0004	K	2	5	1	0	0		5	4
DY00008	SG0005	K	1	5	1	0	4		1	1
DY00009	SG0006	R	2	1	5	0		4	2	5
DY00010	SG0006	R	2	1	4	0		5	2	5

Note. The first row indicates whether the variable is a dyad-level or subgroup-level variable. “Var” in the second row represents "variable." Var1 indicates dyad IDs, Var4, Var5, and Var6 indicate dyad comparison frequency on referent influence, expert influence, and formal influence, respectively; Var7, Var8, and Var9 indicate dissimilarity in dyad referent influence, expert influence, and formal influence, respectively; Var10 and Var11 indicate dyad status conflict and dyad power struggle, respectively. On the other hand, Var2 indicates subgroup IDs, and Var3 indicates subgroup types. Finally, cells highlighted in yellow, blue, and orange respectively represent hypothetical values for faultline-based identity subgroups, faultline-based knowledge subgroups, and faultline-based resource subgroups.

TABLE 2-1: Variance Components (Three Organizations)

	Perceived identity ties	Perceived knowledge ties	Perceived resources ties	Referent influence comparison	Expert influence comparison	Formal influence comparison	Status conflict	Power struggle
Dyad-level var	0.97 (88.2%)	1.26(84.0%)	1.41(84.9%)	1.05 (70.9%)	1.25 (81.7%)	0.97 (83.6%)	0.38 (55.9%)	0.36(57.1%)
Team-level var	0.11 (10.0%)	0.17(11.3%)	0.25(15.1%)	0.37 (25.0%)	0.18 (11.8%)	0.13 (11.2%)	0.12 (17.6%)	0.16(25.4%)
Org-level var	0.02 (1.8%)	0.07(4.7%)	2.23E-18(0%)	0.06 (4.1%)	0.10 (6.5%)	0.06 (5.2%)	0.18 (26.5%)	0.11(17.5%)

TABLE 2-2: Variance Components (the Two U.S. Organizations)

	Perceived identity ties	Perceived knowledge ties	Perceived resources ties	Referent influence comparison	Expert influence comparison	Formal influence comparison	Status conflict	Power struggle
Dyad-level var	1.22(92.4%)	1.65 (87.3%)	1.74 (81.3%)	0.94 (62.3%)	1.28 (83.1%)	0.96(88.1%)	0.23(63.9%)	0.19(61.3%)
Team-level var	0.06(4.5%)	0.24 (12.7%)	0.40 (18.7%)	0.57 (37.7%)	0.26 (10.1%)	0.11(10.1%)	0.13(36.1%)	0.12(38.7%)
Org-level var	0.04(3.0%)	0.001(0.05%)	5.16E-22(0%)	1.34E-21(0%)	3.85E-11(0%)	0.02(1.8%)	2.84E-18 (0%)	9.33E-18 (0%)

TABLE 3-1: Descriptive Statistics and Correlations ^a

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
<i>Dyad - Level</i>														
1. Being in the Same Hypo IB Subgrp	0.41	0.49	--											
2. Being in the Same Hypo KB Subgrp	0.22	0.41	-.03	--										
3. Being in the Same Hypo RB Subgrp	0.26	0.44	.01	.08	--									
4. Dyad Dissimilarity in Ref Infl	0.64	0.65	.09	.01	-.09	--								
5. Dyad Dissimilarity in Exp Infl	0.55	0.56	.05	.01	-.09	.63	--							
6. Dyad Dissimilarity in For Infl	0.90	1.13	.09	.01	-.19	.31	.20	--						
7. Dyad Comp Frequency on Ref Infl	2.15	1.22	-.03	.02	.06	-.15	-.09	.06	--					
8. Dyad Comp Frequency on Exp Infl	2.38	1.25	-.07	.07	.08	-.08	-.06	.08	.71	--				
9. Dyad Comp Frequency on For Infl	1.89	1.10	-.05	.02	.02	-.003	-.05	.25	.63	.62	--			
10. Dyad Status Conflict	1.68	.87	-.07	.04	.01	-.15	-.08	-.03	.35	.39	.26	--		
11. Dyad Power Struggle	1.57	.79	-.13	-.01	.09	-.08	-.06	-.02	.28	.37	.27	.68	--	
12. Country (US=0;China=1)	0.29	.45	-.14	-.004	.19	-.38	-.27	-.17	.43	.38	.31	.59	.54	--
<i>Team - Level</i>														
1. Team Task Performance	3.75	.59	--	--	--	.10	.09	.31	-.30	-.50**	-.10	-.50**	-.61**	
2. Team Cohesion	4.00	.50	--	--	--	-.38	-.16	-.15	.12	-.45*	.15	-.34	-.50**	.70**

^a Hypo = Hypothetical; Subgrp = Subgroup; IB = Identity-Based; KB = Knowledge-Based; RB = Resource-Based; Ref Infl = Referent Influence; Exp Infl = Expert Influence; For Infl = Formal Influence; Comp = Comparison; Level 1 *N* = 841 (pair-wise); Level 2 *N* = 27. *SE* = standard error. *CI* = confidence interval. For dyad-level correlations, correlation coefficients larger than .07 are significant.

TABLE 3-2: Descriptive Statistics and Correlations (Hypothetical Identity Subgroup) ^a

	M	SD	1	2	3	4	5	6	7	8
1. Being in the Same Hypothetical Identity-Based Subgroup	0.43	0.49	--							
2. Within-Subgroup Variance in Referent Influence	13.71	13.92	.03	--						
3. Subgroup Referent Influence Comparison Frequency	2.35	1.08	.05	-.16	--					
4. Subgroup Expert Influence Comparison Frequency	2.69	0.98	.01	.03	.72	--				
5. Subgroup Formal Influence Comparison Frequency	2.06	0.93	-.08	-.11	.66	.55	--			
6. Subgroup Status Conflict	1.76	0.69	-.01	-.29	.36	.48	.23	--		
7. Subgroup Power Struggle	1.70	0.68	-.03	-.21	.36	.51	.14	.83	--	
8. Country (US=0;China=1)	0.47	0.50	-.05	-.47	.42	.42	.32	.61	.53	--

^a Level 1 $N = 118$; Level 2 $N = 27$. SE = standard error. CI = confidence interval. Correlation coefficients larger than .18 are significant.

TABLE 3-3: Descriptive Statistics and Correlations (Hypothetical Knowledge Subgroup)^a

	M	SD	1	2	3	4	5	6	7	8
1. Being in the Same Hypothetical Knowledge-Based Subgroup	0.43	0.49	--							
2. Within-Subgroup Variance in Expert Influence	10.79	13.18	.003	--						
3. Subgroup Referent Influence Comparison Frequency	2.21	1.01	.02	-.06	--					
4. Subgroup Expert Influence Comparison Frequency	2.59	1.05	.09	-.06	.72	--				
5. Subgroup Formal Influence Comparison Frequency	1.99	0.88	-.04	-.05	.62	.59	--			
6. Subgroup Status Conflict	1.71	0.79	.07	-.21	.32	.48	.22	--		
7. Subgroup Power Struggle	1.64	0.68	.03	-.09	.33	.56	.21	.77	--	
8. Country (US=0;China=1)	0.43	0.49	-.02	-.34	.44	.40	.35	.57	.50	--

^a Level 1 $N = 141$; Level 2 $N = 27$. SE = standard error. CI = confidence interval. Correlation coefficients larger than .16 are significant.

TABLE 3-4: Descriptive Statistics and Correlations (Hypothetical Resource Subgroup) ^a

	M	SD	1	2	3	4	5	6	7	8
1. Being in the Same Hypothetical Resource-Based Subgroup	0.41	0.49	--							
2. Within-Subgroup Variance in Formal Influence	21.15	24.25	.02	--						
3. Subgroup Referent Influence Comparison Frequency	2.19	1.11	-.02	-.45	--					
4. Subgroup Expert Influence Comparison Frequency	2.50	1.03	-.10	-.36	.70	--				
5. Subgroup Formal Influence Comparison Frequency	1.91	0.93	-.07	-.27	.68	.62	--			
6. Subgroup Status Conflict	1.73	0.83	-.08	.20	.25	.40	.24	--		
7. Subgroup Power Struggle	1.61	0.70	-.07	.03	.22	.41	.33	.80	--	
8. Country (US=0;China=1)	0.35	0.48	-.01	-.24	.40	.40	.34	.53	.55	--

^a Level 1 $N = 135$; Level 2 $N = 27$. SE = standard error. CI = confidence interval. Correlation coefficients larger than .16 are significant.

TABLE 4-1: Multilevel Model Results (Hypothetical Identity-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Being in the Same Hypothetical IB Subgroup → Perceived IB Relationship	.16	.14	[-.12, .44]
B_2 : Being in the Same Hypothetical IB Subgroup → Perceived KB Relationship	.15	.15	[-.14, .45]
B_3 : Being in the Same Hypothetical IB Subgroup → Perceived RB Relationship	.14	.17	[-.19, .46]
B_4 : Country (0=the US; 1=China) → Perceived IB Relationship	.22	.14	[-.06, .50]
B_5 : Country (0=the US; 1=China) → Perceived KB Relationship	.53**	.15	[.24, .82]
B_6 : Country (0=the US; 1=China) → Perceived RB Relationship	.19	.17	[-.14, .51]
B_7 : Perceived IB Relationship <i>with</i> Perceived KB Relationship	.44**	.07	[.30, .57]
B_8 : Perceived IB Relationship <i>with</i> Perceived RB Relationship	.45**	.08	[.30, .59]
B_9 : Perceived KB Relationship <i>with</i> Perceived RB Relationship	.56**	.08	[.39, .72]
Intercept			
B_{10} : Perceived IB Relationship	3.24	.11	[3.02, 3.46]
B_{11} : Perceived KB Relationship	3.10	.12	[2.86, 3.34]
B_{12} : Perceived RB Relationship	2.82	.14	[2.56, 3.09]

^a IB = Identity-based; KB = Knowledge-based; RB = Resource-based; Level 1 $N = 133$; Level 2 $N = 27$. *SE* = standard error. *CI* = confidence interval.

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

TABLE 4-2: Multilevel Model Results (Hypothetical Knowledge-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Being in the Same Hypothetical KB Subgroup → Perceived IB Relationship	-.03	.13	[-.28, .23]
B_2 : Being in the Same Hypothetical KB Subgroup → Perceived KB Relationship	.05	.15	[-.23, .34]
B_3 : Being in the Same Hypothetical KB Subgroup → Perceived RB Relationship	-.02	.16	[-.34, .30]
B_4 : Country (0=the US; 1=China) → Perceived IB Relationship	.16	.13	[-.09, .41]
B_5 : Country (0=the US; 1=China) → Perceived KB Relationship	.61**	.15	[.33, .90]
B_6 : Country (0=the US; 1=China) → Perceived RB Relationship	.23	.16	[-.09, .54]
B_6 : Perceived IB Relationship <i>with</i> Perceived KB Relationship	.42**	.07	[.29, .54]
B_6 : Perceived IB Relationship <i>with</i> Perceived RB Relationship	.44**	.07	[.30, .58]
B_6 : Perceived KB Relationship <i>with</i> Perceived RB Relationship	.62**	.09	[.45, .79]
Intercept			
B_7 : Perceived IB Relationship	3.33	.10	[3.13, 3.52]
B_8 : Perceived KB Relationship	3.08	.12	[2.85, 3.30]
B_9 : Perceived RB Relationship	2.76	.13	[2.51, 3.01]

^a KB = Knowledge-based; IB = Identity-based; RB = Resource-based; Level 1 $N = 158$; Level 2 $N = 27$. *SE* = standard error. *CI* = confidence interval.

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

TABLE 4-3: Multilevel Model Results (Hypothetical Resource-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Being in the Same Hypothetical RB Subgroup → Perceived IB Relationship	.15	.14	[-.12, .42]
B_2 : Being in the Same Hypothetical RB Subgroup → Perceived KB Relationship	-.01	.16	[-.32, .29]
B_3 : Being in the Same Hypothetical RB Subgroup → Perceived RB Relationship	.000	.17	[-.34, .34]
B_4 : Country (0=the US; 1=China) → Perceived IB Relationship	.22	.14	[-.06, .62]
B_5 : Country (0=the US; 1=China) → Perceived KB Relationship	.55**	.16	[.24, .67]
B_6 : Country (0=the US; 1=China) → Perceived RB Relationship	.26	.18	[-.09, .88]
B_6 : Perceived IB Relationship <i>with</i> Perceived KB Relationship	.48**	.07	[.34, .57]
B_6 : Perceived IB Relationship <i>with</i> Perceived RB Relationship	.51**	.08	[.36, .59]
B_6 : Perceived KB Relationship <i>with</i> Perceived RB Relationship	.70**	.10	[.51, .72]
Intercept			
B_7 : Perceived IB Relationship	3.25	.10	[3.02, 3.45]
B_8 : Perceived KB Relationship	3.14	.12	[2.86, 3.36]
B_9 : Perceived RB Relationship	2.85	.13	[2.56, 3.10]

^a RB = Resource-based; KB = Knowledge-based; IB = Identity-based; Level 1 $N = 155$; Level 2 $N = 27$. *SE* = standard error. *CI* = confidence interval.

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

TABLE 5-1: Hierarchical Regression Results for Predicting Team Task Conflict

	Model 1	Model 2	Model 3	Model 4
Faultline Strength (by all characteristics)		.17 (.34)	.50 (.50)	.66(.63)
Faultline Strength (Identity-based Faultlines)			-.19 (.34)	-.32(.44)
Faultline Strength (Knowledge-based Faultlines)			.21 (.16)	.23(.18)
Faultline Strength (Resource-based Faultlines)			-.21 (.21)	-.26(.25)
<i>Controls</i>				
Country (0=the US; 1=China)	.04 (.08)	.05 (.08)	.10 (.11)	.30 (.58)
Team Relationship Conflict	.68**(.08)	.69**(.08)	.70**(.09)	.76**(.13)
Team Mean of Extraversion				.03 (.16)
Team Mean of Achievement Values				.07 (.08)
Team Mean of Power Values				-.02 (.09)
ΔR^2		.003	.024	.016
R^2	.770**	.773**	.797**	.813**

N=24

TABLE 5-2: Hierarchical Regression Results for Predicting Team Relationship Conflict

	Model 1	Model 2	Model 3	Model 4
Faultline Strength (by all characteristics)		-0.26 (.43)	-0.72 (.63)	-1.25 (.64)
Faultline Strength (Identity-based Faultlines)			.32 (.43)	.70(.46)
Faultline Strength (Knowledge-based Faultlines)			-.28 (.20)	-.28 (.20)
Faultline Strength (Resource-based Faultlines)			.24 (.27)	.30 (.27)
<i>Controls</i>				
Country (0=the US; 1=China)	-0.05 (.10)	-0.05 (.10)	-0.11 (.14)	-.98 (.59)
Team Task Conflict	1.13**(.13)	1.13**(.14)	1.13**(.14)	.93**(.16)
Team Mean of Extraversion				-.23 (.17)
Team Mean of Achievement Values				-.09 (.09)
Team Mean of Power Values				.02 (.10)
ΔR^2		.004	.027	.061
R^2	.769**	.773**	.800**	.861**

N=24

TABLE 5-3: Hierarchical Regression Results for Predicting Team Task Performance

	Model 1	Model 2	Model 3	Model 4
Faultline Strength (by all characteristics)		.58 (.42)	-.55 (.52)	-.24 (.55)
Faultline Strength (Identity-based Faultlines)			.93 (.36)	.59 (.40)
Faultline Strength (Knowledge-based Faultlines)			-.13 (.46)	-.20 (.17)
Faultline Strength (Resource-based Faultlines)			.42 (.22)	.51 (.24)
<i>Controls</i>				
Country (0=the US; 1=China)	-.53**(.10)	-.52**(.10)	-.68**(.11)	.19 (.48)
Team Cohesion	.80**(.11)	.82**(.11)	.82**(.09)	.78**(.10)
Team Mean of Extraversion				.24 (.14)
Team Mean of Achievement Values				.06 (.08)
Team Mean of Power Values				-.10 (.09)
ΔR^2		.016	.060*	.023
R^2	.814**	.830**	.890**	.914**

N=24

TABLE 5-4: Hierarchical Regression Results for Predicting Team Cohesion

	Model 1	Model 2	Model 3	Model 4
Faultline Strength (by all characteristics)		-.60 (.44)	.51 (.58)	.35 (.63)
Faultline Strength (Identity-based Faultlines)			-.98* (.40)	-.72 (.46)
Faultline Strength (Knowledge-based Faultlines)			.10 (.18)	.19 (.20)
Faultline Strength (Resource-based Faultlines)			-.38 (.25)	-.53 (.29)
<i>Controls</i>				
Country (0=the US; 1=China)	.45**(.13)	.45**(.13)	.64**(.16)	-.07 (.56)
Team Task Performance	.90**(.12)	.91**(.12)	1.00**(.11)	1.05**(.13)
Team Mean of Extraversion				-.20 (.17)
Team Mean of Achievement Values				-.07 (.09)
Team Mean of Power Values				.12 (.11)
ΔR^2		.023	.075	.022
R^2	.725**	.748**	.823**	.846**

N=24

TABLE 6-1: Multilevel Model Results (Hypothetical Identity-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Dyad Referent Influence Comparison Frequency → Dyad Status Conflict	.06	.06	[-.05, .18]
B_2 : Dyad Dissimilarity in Referent Influence Levels → Dyad Status Conflict	.05	.12	[-.19, .28]
B_3 : Product Term of Dyad Comparison and Dyad Dissimilarity → Dyad Status Conflict	-.06	.05	[-.16, .04]
B_4 : Dyad Expert Influence Comparison Frequency → Dyad Status Conflict	-.03	.05	[-.13, .08]
B_5 : Dyad Formal Influence Comparison Frequency → Dyad Status Conflict	-.03	.05	[-.13, .07]
B_5 : Country (0=the US; 1=China) → Dyad Status Conflict	.86**	.20	[.47, 1.25]
B_6 : Dyad Status Conflict with Dyad Power Struggle	.12**	.02	[.08, .17]
Intercept			
B_5 : Dyad Status Conflict	1.44	.14	[1.16, 1.72]

^a Level 1 $N = 225$ (dyads); Level 2 $N = 26$ (teams). *SE* = standard error. *CI* = confidence interval.

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

TABLE 6-2: Multilevel Model Results (Hypothetical Knowledge-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
<i>B</i> ₁ : Dyad Expert Influence Comparison Frequency → Dyad Status Conflict	.15	.10	[-.06, .35]
<i>B</i> ₂ : Dyad Dissimilarity in Expert Influence Levels → Dyad Status Conflict	.002	.26	[-.52, .52]
<i>B</i> ₃ : Product Term of Dyad Comparison and Dyad Dissimilarity → Dyad Status Conflict	.11	.10	[-.09, .31]
<i>B</i> ₄ : Dyad Referent Influence Comparison Frequency → Dyad Status Conflict	-.11	.10	[-.29, .08]
<i>B</i> ₅ : Dyad Formal Influence Comparison Frequency → Dyad Status Conflict	-.04	.09	[-.21, .14]
<i>B</i> ₅ : Country (0=the US; 1=China) → Dyad Status Conflict	1.19**	.19	[.82, 1.57]
<i>B</i> ₁ : Dyad Expert Influence Comparison Frequency → Dyad Power Struggle	.21*	.09	[.03, .39]
<i>B</i> ₂ : Dyad Dissimilarity in Expert Influence Levels → Dyad Power Struggle	.16	.24	[-.31, .63]
<i>B</i> ₃ : Product Term of Dyad Comparison and Dyad Dissimilarity → Dyad Power Struggle	.05	.09	[-.13, .23]
<i>B</i> ₄ : Dyad Referent Influence Comparison Frequency → Dyad Power Struggle	-.05	.08	[-.21, .11]
<i>B</i> ₅ : Dyad Formal Influence Comparison Frequency → Dyad Power Struggle	-.03	.07	[-.17, .11]
<i>B</i> ₅ : Country (0=the US; 1=China) → Dyad Power Struggle	.78**	.14	[.50, 1.06]
<i>B</i> ₆ : Dyad Status Conflict with Dyad Power Struggle	.26**	.05	[.17, .35]
Intercept			
<i>B</i> ₅ : Dyad Status Conflict	1.17	.17	[.83, 1.50]
<i>B</i> ₅ : Dyad Power Struggle	1.23	.16	[.93, 1.54]

^a Level 1 *N* = 123 (dyads); Level 2 *N* = 26 (teams). *SE* = standard error. *CI* = confidence interval.

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

TABLE 6-3: Multilevel Model Results (Hypothetical Resource-based Subgroup) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Dyad Formal Influence Comparison Frequency → Dyad Power Struggle	-.05	.08	[-.21, .09]
B_2 : Dyad Dissimilarity in Formal Influence Levels → Dyad Power Struggle	-.17	.18	[-.52, .13]
B_3 : Product Term of Dyad Comparison and Dyad Dissimilarity → Dyad Power Struggle	.08	.07	[-.06, .20]
B_4 : Dyad Referent Influence Comparison Frequency → Dyad Power Struggle	-.16*	.07	[-.30, -.04]
B_5 : Dyad Expert Influence Comparison Frequency → Dyad Power Struggle	.21**	.07	[.08, .32]
B_5 : Country (0=the US; 1=China) → Dyad Power Struggle	.52**	.18	[.17, .82]
B_6 : Dyad Status Conflict with Dyad Power Struggle	.28**	.05	[.17, .36]
Intercept			
B_5 : Dyad Power Struggle	1.36	.15	[1.07, 1.60]

^a Level 1 $N = 160$ (dyads); Level 2 $N = 25$ (teams). *SE* = standard error. *CI* = confidence interval.

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

TABLE 7: Multilevel Moderated Mediation Model Results (Supplemental Analysis) ^a

Effect Type	Coefficient	SE	95% CI
Fixed Slopes			
B_1 : Perceived Identity-based Relationship → Ref Infl Comparison Frequency	.41**	.04	[.32, .49]
B_4 : Ref Infl Comparison Frequency → Status Conflict	.04	.03	[-.03, .10]
B_5 : Dissimilarity in Ref Infl → Status Conflict	.09	.08	[-.07, .25]
B_6 : Product Term of Ref Inf Comparison and Dissimilarity in Ref Infl → Status Conflict	-.07	.04	[-.14, .01]
B_2 : Perceived Knowledge-based Relationship → Exp Infl Comparison Frequency	.45**	.03	[.39, .52]
B_7 : Exp Infl Comparison Frequency → Status Conflict	.09*	.04	[.02, .16]
B_8 : Dissimilarity in Exp Infl Levels → Status Conflict	-.02	.11	[-.23, .19]
B_9 : Product Term of Exp Infl Comparison and Dissimilarity in Exp Infl → Status Conflict	.05	.04	[-.03, .13]
B_{10} : Exp Infl Comparison Frequency → Power Struggle	.09**	.03	[.03, .15]
B_{11} : Dissimilarity in Exp Infl Levels → Power Struggle	.12	.09	[-.05, .30]
B_{12} : Product Term of Exp Infl Comparison and Dissimilarity in Exp Infl → Power Struggle	-.02	.04	[-.09, .05]
B_3 : Perceived Resource-based Relationship → Formal Infl Comparison Frequency	.27**	.03	[.21, .33]
B_{13} : Formal Infl Comparison Frequency → Power Struggle	.07*	.03	[.01, .14]
B_{14} : Dissimilarity in Formal Infl Levels → Power Struggle	.01	.04	[-.07, .09]
B_{15} : Product Term of Formal Infl Comparison and Dissimilarity in Formal Infl → Power Struggle	-.01	.02	[-.05, .02]
B_{16} : Country (0=the US; 1=China) → Status Conflict	.89**	.14	[.62, 1.16]
B_{17} : Country (0=the US; 1=China) → Power Struggle	.69**	.16	[.38, 1.00]
B_{18} : Status Conflict with Power Struggle	.20**	.02	[.17, .23]

^a Ref Infl = Referent Influence; Exp Infl = Expert Influence; Formal Infl = Formal Influence; Level 1 $N = 676$ (dyads); Level 2 $N = 27$ (teams). *SE* = standard error. *CI* = confidence interval.

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

APPENDIX

APPENDIX

TABLE 8: Initial Survey

<p>Round-Robin Design – Identity-Based Tie</p> <p>INSTRUCTIONS – To what extent do you and _____ share similar values and beliefs both in your professional and personal life?</p> <p><i>List of employees in the team</i></p>	<p>1 = To No Extent</p> <p>5 = To A Great Extent</p>
<p>Round-Robin Design – Knowledge-Based Tie</p> <p>INSTRUCTIONS – To what extent do you and _____ possess the same domains of knowledge and exchange expertise-related information?</p> <p><i>List of employees in the team</i></p>	<p>1 = To No Extent</p> <p>5 = To A Great Extent</p>
<p>Round-Robin Design – Resource-Based Tie</p> <p>INSTRUCTIONS – To what extent do you and _____ have a clear understanding that if you provide him/her with valuable resources (e.g., money, budget, talented personnel), he/she will do the same for you?</p> <p><i>List of employees in the team</i></p>	<p>1 = To No Extent</p> <p>5 = To A Great Extent</p>
<p>Demographics:</p> <p>Gender Age Ethnicity Educational Content Functional Background Job Level Education level Work Hours</p>	

TABLE 9: Time 2 Survey

<p>Research shows that <i>thinking about (regardless of how thorough or fleeting)</i> another person’s popularity, performance, and formal power <i>in relation to oneself</i> is pervasive and part of everyday life.</p> <p>The following three questions are about the frequency with which you engage in this type of behavior. Please be honest when answering them. Remember that you are helping scientific research and only your honest answer would be valuable. Also, please remember that the privacy of your information is protected, and all your responses are concealed from <i>anyone else</i> in the company.</p>	
<p>Round-Robin Design – Comparison on Expert Influence</p> <p>INSTRUCTIONS – People in the workplace may or may not be equivalently competent. The following is a list of people in your work team. Consider each person on the list, and then indicate the extent to which you <i>think about</i> their competence level in the workplace in relation to yourself (you and the other may have the same level, or you may have lower or higher than the other). For example, you may have observed the similarities or differences between the other’s competence and your own.</p> <p>How often do you find yourself thinking about the competence/expertise of _____ in relation to yourself?</p> <p><i>List of employees in the team</i></p>	<p>1 = Never</p> <p>2 = Seldom</p> <p>3 = Occasionally</p> <p>4 = Sometimes</p> <p>5 = Frequently</p> <p>6 = Quite a lot</p> <p>7 = All the time</p>
<p>Round-Robin Design – Comparison on Formal Influence</p> <p>INSTRUCTIONS – Some people in the workplace may have more formal power than others. By formal power, I mean that they may have formal rights to give rewards and punishment, and others may feel a responsibility or obligation to fulfill their requests. The following is a list of people in your team. Consider each person on the list, and then indicate the extent to which you think about their formal power in the workplace in relation to yourself. For example, you may have observed the similarities or differences (regardless of that person having more or less than you) between the other’s formal power and your own.</p> <p>How often do you find yourself thinking about the formal power of _____ in relation to yourself?</p> <p><i>List of employees in the team</i></p>	<p>1 = Never</p> <p>2 = Seldom</p> <p>3 = Occasionally</p> <p>4 = Sometimes</p> <p>5 = Frequently</p> <p>6 = Quite a lot</p> <p>7 = All the time</p>

TABLE 9 (cont'd)

<p>Round-Robin Design – Comparison on Referent Influence</p> <p>INSTRUCTIONS – Some people in the workplace may be more popular than others. Consider each person on the list, and then indicate the extent to which you <i>think about</i> their level of popularity in relation to yourself. For example, you may have observed the similarities or differences (being more, less, or equal in popularity to you) between the other’s popularity and your own popularity level.</p> <p>How often do you find yourself thinking about the popularity of _____ in relation to yourself?</p> <p><i>List of employees in the team</i></p>	<p>1 = Never</p> <p>2 = Seldom</p> <p>3 = Occasionally</p> <p>4 = Sometimes</p> <p>5 = Frequently</p> <p>6 = Quite a lot</p> <p>7 = All the time</p>
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The following three questions are about your observations of other employees’ popularity, competence level, and formal power in your work team.

Please be honest when answering these questions. Please remember that the privacy of your information is protected, and all your responses are concealed from *everyone else* in the company. Also, remember that you are helping scientific research and only your honest answer would be valuable.

<p>Round-Robin Design – Referent Influence</p> <p>INSTRUCTIONS – Some people may be popular and some may be not. By popular, I mean that many people desire to associate themselves with him/her, hold a strong liking towards him/her, and may mimic the person’s behavior, remarks, or emotions to get the person’s attention, acceptance and approval. (<i>This question is about their popularity in the team in general, irrespective of your liking or disliking towards that person.</i>)</p> <p>The following is a list of people in your work team. Consider each one on the list, and then indicate the extent to which the person is popular in your work team.</p> <p>To what extent is _____ popular?</p> <p><i>List of employees in the team</i></p>	<p>Adapted from Hinkin & Schriesheim (1989)</p> <p>1 = Not at all</p> <p>2 = Hardly</p> <p>3 = Somewhat</p> <p>4 = Moderately</p> <p>5 = Very much</p>
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TABLE 9 (cont'd)

<p>Round-Robin Design – Expert Influence</p> <p>INSTRUCTIONS – Some people may be considered competent and others may be not. By competent, I mean that many people believe that person is capable of giving good technical suggestions and job-related advice, providing needed technical knowledge, and has considerable experience and/or training. <i>(This question is about how your fellow team members consider his/her competence generally, irrespective of your own belief in whether s/he is competent or not.)</i></p> <p>The following is a list of people in your work team. Consider each one on the list, and then indicate the extent to which the person is believed to be competent in your work team.</p> <p>To what extent is _____ competent?</p> <p><i>List of employees in the team</i></p>	<p>Adapted from Hinkin & Schriesheim (1989)</p> <p>1 = Not at all 2 = Hardly 3 = Somewhat 4 = Moderately 5 = Very much</p>
<p>Round-Robin Design – Formal Influence</p> <p>INSTRUCTIONS – In your work team, some people may have more formal influence than others. By formal influence, I mean that they may have organizational, formal rights to give or mediate rewards and punishment, and other employees in the team may feel a responsibility or obligation to fulfill their requests. <i>(This question is about their formal influence in your team in general, not necessarily whether you are influenced by their formal influence or not.)</i></p> <p>The following is a list of people in your work team. Consider each one on the list, and then indicate the extent to which the person has formal influence in your work team.</p> <p>To what extent does _____ have the rights to give or mediate rewards and punishment and give formal orders on which employees in your team are obligated to comply with?</p> <p><i>List of employees in the team</i></p>	<p>Adapted from Hinkin & Schriesheim (1989)</p> <p>1 = Not at all 2 = Hardly 3 = Somewhat 4 = Moderately 5 = Very much</p>

TABLE 10: Time 3 Survey

<p>Team Relationship Conflict</p> <p>Please rate the extent to which you agree with each statement. When responding to the statements, consider how you tend to feel in the context of your work team.</p> <ul style="list-style-type: none"> a) How much friction is there among members in your work team? b) How much are personality conflicts evident in your work team? c) How much tension is there among members in your work team? d) How much emotional conflict is there among members in your work team? 	<p>Adapted from Jehn (1995)</p> <p>1 = Not At All</p> <p>2 = To a Small Extent</p> <p>3 = Somewhat</p> <p>4 = To a Large Extent</p> <p>5 = To a Very Large Extent</p>
<p>Team Task Conflict</p> <p>Please rate the extent to which you agree with each statement. When responding to the statements, consider how you tend to feel in the context of your work team.</p> <ul style="list-style-type: none"> a) How often do people in your work team disagree about opinions regarding the work being done? b) How frequently are there conflicts about ideas in your work team? c) How much conflict about the work you do is there in your work team? d) To what extent are there differences of opinion in your work team? 	<p>Adapted from Jehn (1995)</p> <p>1 = Not At All</p> <p>2 = To a Small Extent</p> <p>3 = Somewhat</p> <p>4 = To a Large Extent</p> <p>5 = To a Very Large Extent</p>

TABLE 10 (cont'd)

<p>Round-Robin Design – Status Conflict</p> <p>INSTRUCTIONS – The following is a list of people in your team. Consider your relationship with each one of them, and then indicate the extent to which the following statements accurately describe your relationship.</p> <ul style="list-style-type: none"> a) When the two of us are in a conflict, I, this coworker, or both seek allies and support to back up our arguments against each other b) I, or this coworker, or both try to assert dominance when the two of us are in a conflict c) This coworker and I compete for influence d) This coworker and I disagree about the relative value of his/her contributions and mine. <p>My relationship with _____ is accurately characterized by the above statements.</p> <p><i>List of employees in the team</i></p>	<p>Adapted from Bendersky & Hays (2012)</p> <p>1 = Not At All</p> <p>2 = To a Small Extent</p> <p>3 = Somewhat</p> <p>4 = To a Large Extent</p> <p>5 = To a Very Large Extent</p>
<p>Round-Robin Design – Power Struggle</p> <p>INSTRUCTIONS – The following is a list of people in your team. Consider your relationship with each one of them, and then indicate the extent to which the following statements accurately describe your relationship.</p> <ul style="list-style-type: none"> a) In my team, there is tension between this coworker and me about who has the most influence on important team decisions b) This coworker and I disagree about who has the most control within the team c) There is a disagreement between this coworker and me about who can take team decisions d) This coworker and I have disagreements about how valuable resources (e.g., budget, information, materials) need to be distributed internally. e) This coworker and I experience tensions about the power distribution within the team. <p>My relationship with _____ is accurately characterized by the above statements.</p> <p><i>List of employees in the team</i></p>	<p>Adapted from van Bunderen (2018)</p> <p>1 = Not At All</p> <p>2 = To a Small Extent</p> <p>3 = Somewhat</p> <p>4 = To a Large Extent</p> <p>5 = To a Very Large Extent</p>

TABLE 11: Time 4 Survey

<p>Team Task Performance</p> <p>INSTRUCTIONS – Please indicate the extent to which each statement is characteristic of your work team.</p> <ul style="list-style-type: none"> a) Quality of work b) Getting work done efficiently c) Flexibility in dealing with unexpected changes d) Overall performance 	<p>Adapted from Sparrowe et al. (2001) (also see Shaw et al., 2011)</p> <p>1 = Very poor</p> <p>7 = Outstanding</p>
<p>Team Cohesion</p> <p>INSTRUCTIONS – Please indicate the extent to which you agree or disagree with the statements below as they relate to your current work team.</p> <ul style="list-style-type: none"> a) There is a feeling of unity and cohesion in my team b) There is a strong feeling of belongingness among my team members c) Members of my team feel close to each other d) Members of my team share a focus on our work e) My team concentrates on getting things done f) My team members pull together to accomplish work 	<p>Adapted from Mathieu et al. (2015)</p> <p>1 = Strongly Disagree</p> <p>7 = Strongly Agree</p>
<p>Extraversion</p> <p>INSTRUCTIONS – Please indicate your agreement to how well this list of common traits describes yourself in general, not as you wish to be in the future.</p> <ul style="list-style-type: none"> - Energetic - Talkative - Bold - Extraverted - Bashful - Quiet - Shy - Withdrawn 	<p>Saucier (1994)</p> <p>1 = Strongly disagree</p> <p>2 = Disagree</p> <p>3 = Neither agree nor disagree</p> <p>4 = Agree</p> <p>5 = Strongly agree</p>

TABLE 11 (cont'd)

<p>Achievement Values</p> <p>INSTRUCTIONS – Below is a list of values people may or may not have. For each value, please indicate how important that value is as a guiding principle in your life.</p> <ul style="list-style-type: none"> - Successful - Capable - Ambitious - Influential - Intelligent - Self-respect 	<p>Schwartz (1992, 1994)</p> <p>-1 = <i>Opposed to My Values</i></p> <p>0 = <i>Not Important</i></p> <p>3 = <i>Important</i></p> <p>6 = <i>Very Important</i></p> <p>7 = <i>Of Supreme Importance</i></p>
<p>Power Values</p> <p>INSTRUCTIONS – Below is a list of values people may or may not have. For each value, please indicate how important that value is as a guiding principle in your life.</p> <ul style="list-style-type: none"> - Social Power - Authority - Wealth - Preserving My Public Image - Social Recognition 	<p>Schwartz (1992, 1994)</p> <p>-1 = <i>Opposed to My Values</i></p> <p>0 = <i>Not Important</i></p> <p>3 = <i>Important</i></p> <p>6 = <i>Very Important</i></p> <p>7 = <i>Of Supreme Importance</i></p>

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