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Energy's Role in the Extraversion (Dis)advantage: How Energy Ties and Task Conflict Help Clarify the Relationship Between Extraversion and Proactive Performance

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Abstract
While academic and practitioner literatures have proposed that extraverts are at an advantage in team-based work, it remains unclear exactly what that advantage might be, how extraverts attain such an advantage, and under which conditions. Theory highlighting the importance of energy in the coordination of team efforts helps to answer these questions. We propose that extraverted individuals are able to develop more energizing relationships with their teammates and as a result are seen as proactively contributing to their team. However, problems in coordination (i.e., team task conflict) can reverse this extraversion advantage. We studied 27 project-based teams at their formation, peak performance, and after disbandment. Results suggest that when team task conflict is low, extraverts energize their teammates and are viewed by others as proactively contributing to the team. However, when team task conflict is high, extraverts develop energizing relationships with fewer of their teammates and are not viewed as proactively contributing to the team. Our findings regarding energizing relationships and team task conflict clarify why extraversion is related to proactive performance and in what way, how, and when extraverts may be at a (dis)advantage in team-based work.

Keywords
extraversion, proactive performance, energizing relationships, task conflict

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Summary

While academic and practitioner literatures have proposed that extraverts are at an advantage in team-based work, it remains unclear exactly what that advantage might be, how extraverts attain such an advantage, and under which conditions. Theory highlighting the importance of energy in the coordination of team efforts helps to answer these questions. We propose that extraverted individuals are able to develop more energizing relationships with their teammates and as a result are seen as proactively contributing to their team. However, problems in coordination (i.e., team task conflict) can reverse this extraversion advantage. We studied 27 project-based teams at their formation, peak performance, and after disbandment. Results suggest that when team task conflict is low, extraverts energize their teammates and are viewed by others as proactively contributing to the team. However, when team task conflict is high, extraverts develop energizing relationships with fewer of their teammates and are not viewed as proactively contributing to the team. Our findings regarding energizing relationships and team task conflict clarify why extraversion is related to proactive performance and in what way, how, and when extraverts may be at a (dis)advantage in team-based work.

Keywords: extraversion; proactive performance; energizing relationships; task conflict

To improve their adaptability and innovativeness, organizations commonly rely on more flexible forms of organizing, including work teams. In team-based work, employees often need less direct supervision (Crant, 2000), and instead rely on the self-directed, proactive contributions of team members to initiate change and coordinate their activities (Griffin, Neal, & Parker, 2007; Neal, Yeo, Koy, & Xiao, 2012). Although important in the modern workplace, this surge toward teamwork and proactivity may not suit everyone. The more outgoing, social nature of extraverts may predispose them to succeed in the context of intense team interactions, while more quiet introverts may be disadvantaged in these forms of working (Cain, 2012).

Some previous research, where proactive performance is defined in terms of voice, taking charge, and demonstrating upward influence, finds that more extraverted individuals make greater proactive contributions than their more introverted counterparts (Grant, Parker, & Collins, 2009; Parker & Collins, 2010). This is explained by the notion that extraverts are more likely to express their ideas and concerns. Indeed, research indicates that extraverts place greater value on having the opportunity to share their ideas with others than introverts (Avery, 2003), and they engage in higher levels of employee voice (e.g., Crant, Kim, & Wang, 2011; LePine & Van Dyne, 2001; Liu, Liao,

& Liao, 2014) and constructive change-orientated communication when working with others on a decision-making simulation (LePine & Van Dyne, 2001). Although these studies suggest that extraverts engage in proactive actions such as voicing ideas and concerns, there is also some research that contradicts these findings. For instance, in a study of administrative government employees, Neal et al. (2012) proposed that individuals' level of extraversion would be positively associated with others' ratings of the extent to which they suggested ways to make their team more effective and improve methods for working together (i.e., their proactive team-directed behavior) but failed to support this

hypothesis. They cited the importance of unexamined mediators (e.g., energy and social cohesion) and moderators (e.g., the nature of the work environment) as potential explanations for this unexpected null finding. As such, a primary goal of this research is to better understand when and why extraverts might be at an advantage in making proactive contributions to their team and to consider the possibility that there may be situations where they may be at a disadvantage.

We utilized the coordination-as-energy-in conversation model (Quinn & Dutton, 2005) as a guiding theoretical framework to examine not only if, but why and when, more extroverted individuals are viewed as making proactive contributions to their teams. In team-based work, coordination is essential for a team to achieve its goals; individuals proactively contribute to this process by offering ideas and suggestions that improve how the team works and its performance. This coordination process occurs through conversations that transfer not only information but also energy between individuals (Quinn & Dutton, 2005). Extraverts seem well-suited for this process of information and energy transfer. Originally defined as being social (Barrick & Mount, 1991), contemporary views suggest extraversion is more about bringing energy to and deriving energy from social interactions (John & Srivastava, 1999; Selfhout, Burk, Branje, Denissen, Van Aken, & Meeus, 2010). While extraverts' outgoing nature can energize others under the right circumstances, thereby contributing to the achievement of team goals, they can also be seen as overly assertive (Roberts, 2006; Barrick & Mount, 1991) or dominant (Grant, Gino, & Hofmann, 2011; Grant, 2013), particularly during situations that require delicate coordination among those involved. This duality can have complex consequences for extraverts' role as team members. They can infuse their teams with productive, positive energy, particularly toward an agreed upon path; however, their outgoing nature can also be overpowering during conditions of task conflict when team members disagree on how to best proceed (Amason & Sapienza, 1997; De Dreu & Weingart, 2003). In such situations, the ability of extraverts to energize their teammates may be diminished

because the energy they bring to conversations may be perceived as being in support of their own ideas and desired directions, further disrupting the coordination process. As a result, they are less likely to be seen as proactive contributors to their team.

In sum, we examine if, and perhaps more importantly, why and when extraverts are at an (dis)advantage in team-related efforts, thereby contributing to the existing debate in recent academic (Feiler & Kleinbaum, 2016; Grant et al., 2011; Grant, 2013) and practitioner (Cain, 2012) literatures about the presumed universal performance-enhancing effects of extraversion. We provide greater theoretical and empirical support for the relationships hinted at by Neal et al. (2012) by grounding our proposed relationships in the coordination as energy-in-conversation model (Quinn & Dutton, 2005) and by examining mediating and moderating effects. Our results offer a nuanced picture of the role of extraverts in teams, help to clarify previous inconsistent findings, and could influence how team members are selected, teams are structured, and training and development is used to enhance individuals' proactive contributions to teams.

Theory and Hypotheses

Coordination as energy-in-conversation

Coordination is a critical process within teams. Teams are assumed to benefit organizations by increasing flexibility, decentralizing decision-making, and more fully utilizing employees' creativity and intellect (Wageman, 1997). However, in today's dynamic, uncertain, and often unpredictable environment, teams (and therefore the organizations in which they are embedded) would fail if they relied solely on top–down direction. Teams need to be able to adapt to changing conditions by having their members take initiative, voice new ideas, and coordinate their efforts (Grant et al., 2011; Griffin et

al., 2007; Wageman, 1997; Wood, Bandura, & Bailey, 1990). The coordination of team member activities is not always easy; yet, it is crucial for success.

In their coordination as energy-in-conversation model, Quinn and Dutton (2005) argue that coordination within teams can be best understood as a process of energy transfer that occurs through conversations. Coordination requires that individuals communicate with each other to organize activities in order to obtain desired goals or future states. These conversations are emotional experiences because individuals transfer not only knowledge but also energy (i.e., energetic activation, Quinn, Spreitzer, & Lam, 2012). Energy is defined as "a type of positive affective arousal, which people can experience as emotion—short responses to specific events—or mood—longer-lasting affective states that need not be a response to a specific event" (Quinn & Dutton, 2005, p. 36). Quinn and Dutton suggest that energy is a pivotal part of the coordination process (Collins, 1981) because it is generated or depleted as people engage in conversations regarding how they will accomplish shared goals. Specifically, it is a critical factor in determining individuals' reactions concerning the attractiveness of the different ideas that are being discussed and the effort they are willing to commit to pursuing those ideas (Cross & Parker, 2004). When positive energy is created in the midst of the coordinating activities of a team, it propels the team forward as it affects the direction team members choose as well as the effort they are willing to invest. Individuals who are able to energize others will attract others' efforts to their ideas, suggestions, and goals, and be seen as proactively contributing to their team.

Despite the importance of energy in teams' coordination efforts, little is understood about the individual characteristics of team members that facilitate energy transferal, and under what conditions. Extraversion may be a quality that helps individuals to develop energizing relationships with their teammates and to be recognized for the proactive ideas they offer for new and better ways of working together. However, there are also reasons to doubt that extraverts will always energize others during

the coordination process. According to the coordination as energy-in-conversation model, energy is created when team members engage in conversations in which they are able to align and coordinate their efforts in the service of collective goals. To the extent that the energy extraverts bring to their interactions helps the team facilitate coordination, they will be more likely than their introverted counterparts to develop energizing relationships with their teammates. However, when there is disagreement among team members about the direction the team should take (i.e., high task conflict), the team needs to openly consider alternative solutions (Mitchell, Nicholas, & Boyle, 2009). Extraverts may be less likely to develop positive, energizing relationships with their team members in this type of situation because the energy they bring may be viewed as pushing their own agendas, being overly assertive or dominant, or forcefully expressing their ideas and failing to allow sufficient airtime for others' ideas to be considered. In sum, our proposed model highlights the central role that extraversion, energy, and task conflict can play in better understanding why some individuals are seen as proactively contributing to their team.

Extraversion and energizing relationships

Extraverts are assumed to be good at talking to and socializing with others (McCrae & Costa, 1990; Shipilov, Labianca, Kalnysh, & Kalnysh, 2014; Wanberg & Kammeyer-Mueller, 2000) and to derive pleasure, enthusiasm, and energy from group-based interactions (Selfhout et al., 2010). Not only do they derive energy from these interactions, they themselves also contribute vital energy to their social interactions. Energy is contagious and can be transferred between people. Quinn and Dutton (2005) explain that the level of energy people experience is affected by their interactions with others. More specifically, energy is created in conversations that explore possibilities and result in progress toward a shared objective (Cross, Baker, & Parker, 2003). The energy that extraverts bring to an exchange can be transferred to others through conversations that help teammates to share information and coordinate

their efforts. When individuals have an energizing experience with another person, they tend to seek out, attempt to extend, or replicate the energizing interaction (Lawler & Yoon 1993; 1996), in other words, to maintain the energy-producing relationship (Collins, 1993; Dutton, 2003). Thus, the energy that extraverts offer to others is likely to translate into a greater number of energizing relationships with teammates for more extraverted as compared with more introverted individuals. Formally, we propose the following:

> *Hypothesis 1:* Individuals' level of extraversion is positively related to the number of energizing relationships they form with their teammates.

Energizing relationships and proactive performance

Team coordination involves sharing ideas, making decisions regarding how the team will move forward, and subsequent coordinated action. In this process, employees contribute by taking anticipatory actions and proposing ideas for change that they believe will make the team more effective (Crant, 2000; Grant & Ashford, 2008; Griffin et al., 2007). Such proactive performance behaviors consist of voicing and initiating one's own vision or ideas as opposed to reacting to the vision and ideas of others (Crant, 2000; Grant & Ashford, 2008; Parker, Williams, & Turner, 2006). When directed toward the team's goals, proactive behaviors help teams to perform better (e.g., suggesting ways to improve effectiveness or developing better ways of working; Griffin et al., 2007). An important aspect of proactively contributing to a team is not only offering one's ideas but also having those ideas heard and embraced by others. The energy generated during conversations influences the attractiveness of the ideas being discussed (Quinn & Dutton, 2005; Collins, 1981). Teammates who are energized by a conversation are more likely to feel motivated to exert effort toward the implementation of the proposed ideas and actions (Marks, 1977; Welbourne, Andrews, & Andrews, 2005). Previous research suggests that people even tend to weight positive, energizing interactions above competence when selecting their work partners (Casciaro &

Lobo, 2008). Thus, individuals who generate energy in their exchanges with others are more likely to gain support for their ideas (Cross & Parker, 2004; Schippers & Hogenes, 2011). The more energized others feel, the more willing they are to invest their own effort (Dutton, 2003). As such, individuals who generate energy in their relationships will be seen by their teammates asmaking more proactive contributions to the team.

> *Hypothesis 2:* The number of energizing relationships individuals form is positively related to their teammates' rating of their proactive performance.

Energizing relationships mediate the extraversion–proactive performance relationship

An assumed strength of extraverts is that they are more vocal when expressing their ideas (John& Srivastava, 1999) and buildmany social relationships (Shipilov et al., 2014; Wanberg&Kammeyer-Mueller, 2000). They are viewed as social and gregarious (Barrick & Mount, 1991), especially in the context of team-based work (Tett & Burnett, 2003) where individuals interact with others to coordinate their efforts and complete the team's work. Extraverts are likely to have more conversations with others (McCrae & Costa, 1990) and in that way contribute to the coordination process. With that said, we propose that extraverts contribute in ways that go beyond having a mere preference for social activity. As explained by Quinn and Dutton (2005) in their coordination as energy-in-conversation model, the energy that is exchanged in a team's coordinating conversations informs team members' reactions to the information that is also exchanged in those conversations. This energy helps team members to determine which of the many proposed ideas the team should pursue to help it progress toward achieving its goals. Building on the arguments presented for Hypotheses 1 and 2, we propose that extraverts contribute to this coordination process through their ability to develop energizing relationships with their teammates. As a result of these energizing relationships, their proactive contributions to their team are recognized by others.

In other words, we propose that the development of energizing relationships with their teammates is a mechanism that may explain why extraverts are more likely than introverts to be viewed as proactively contributing to their team. As discussed previously, the talkative nature of extraverts increases the likelihood that their suggestions are voiced and heard by others (e.g., Fang et al., 2016; LePine & Van Dyne, 2001; Van Scotter & Motowidlo, 1996). But extraverts' ideas are not simply more likely to be heard because of their more social nature. When extraverts generate energy in their conversations, they encourage others to invest their own time and effort to support the ideas being discussed (Dutton, 2003). As a result, others are more likely to recognize the proactive contributions that extraverts make to the team. In sum, extraverts' ability to generate energy in their relationships helps build momentum within the team for the ideas they discuss, and as a result, other team members will recognize the proactive contributions of more extraverted individuals not only because they vocalize their ideas but because of the energy they create.

> *Hypothesis 3:* The number of energizing relationships individuals form with teammates mediates the relationship between their level of extraversion and ratings of their proactive performance.

Task conflict reverses the energizing effect of extraverts on teammates

We propose that task conflict, which refers to the extent to which there is disagreement in the group on work-related goals (Amason & Sapienza, 1997; De Dreu & Weingart, 2003), represents an important boundary condition for the extraversion advantage. As we have argued, this advantage depends on extraverts' ability to energize their teammates by facilitating conversations that are perceived as helping the team progress toward shared objectives. When a team is stifled in terms of its progress, the way extraverts interact with their teammates may make it more difficult to resolve or even exacerbate task conflict within a team and prevent extraverts from building energizing relationships.

Extraversion is a dimension of personality that is thought to be composed of interrelated but conceptually distinct traits. Depending on the situations in which individuals find themselves, others may interpret extraverts' talkative, assertive nature differently. Roberts (2006) proposed that extraverts are likely to be perceived as gregarious or sociable in benign situations but are perceived as assertive or dominant in situations characterized by power dynamics. In the current study, low task conflict situations reflect a benign situation wherein extraverts are likely to be viewed as contributing energizing sociability that is contagious in a positive way through conversations, while extraverts in high task conflict situations may be more likely to viewed as assertive, domineering, or over-advocating for their own ideas and solutions.

Indeed, recent research suggests that extraverts may be less receptive to the ideas and actions asserted by others (Grant et al., 2011), as would likely be the case under conditions of high task conflict. When high levels of task conflict exist in a team, extraverts may be perceived as stubbornly holding to their ideas and attempting to dominate the perspectives of others. Instead of helping to move the team forward, the way extraverts express their ideas and opinions may be viewed as advocating or acting in an overly dominant, assertive, and even aggressive manner (Ashton, Lee, & Paunonen, 2002). Teammates may see extraverts as counter-productive in their attempts to drive the team in the direction they desire, thus limiting the number of energizing relationships that extraverts build with teammates in high task conflict situations.

In comparison, when task conflict is low (i.e., team members are in agreement about their goals; Amason & Sapienza, 1997; De Dreu & Weingart, 2003), extraverted team members are likely to contribute energy to conversations, as the ideas they express are seen as helping to propel team members forward. When there is shared agreement, team members are likely to become energized by their conversations with extraverts. Further, as team members respond positively to extraverts and

encourage further input, extraverts will likely continue to offer ideas and generate energy (i.e., the voicing of shared ideas is mutually validating; Wittenbaum, Hubbell, & Zuckerman, 1999). As such, the energy extraverts bring to conversations will be felt by others, and extraverts will be seen as a source of energy for their teammates. Thus, team task conflict may represent an important boundary condition for the energizing effects of extraversion in teams as it reflects a key factor determining when more extraverted individuals are or are not able to energize their teammates.

> *Hypothesis 4:* Task conflict moderates the relationship between extraversion and the number of energizing relationships individuals form with teammates. When team task conflict is low, more extraverted individuals develop energizing relationships with more of their teammates. When team task conflict is high, more extraverted individuals develop energizing relationships with fewer of their teammates.

Conflict mitigates extraverts' proactive performance advantage

The social nature of extraverts puts them in the middle of the social dynamics that occur within their teams. When there is agreement on the task and goals of the team, extraverts are able to build many energizing relationships, thereby enhancing the likelihood that they are viewed by others as proactively contributing to the team. As explained previously, the energy generated in these exchanges is used by others to determine if they will support and exert effort to advance the ideas proposed. To the extent that extraverts are able to develop energizing relationships with their teammates, their proactive contributions to the team will be recognized, as others are more likely to support their ideas (Cross & Parker, 2004; Dutton, 2003; Schippers & Hogenes, 2011). However, this advantage may be limited to situations where a team is functioning well (i.e., when there is low task conflict). When there is conflict within a team, extraversion may actually be a disadvantage. If extraverts fail to energize their teammates in high task conflict situations, they will not be viewed as proactively contributing to the

team as they would be in low task conflict situations. In sum, we expect to find that extraverts are more likely to be perceived as proactively contributing to the team only when there is a low level of task conflict in the team. In high task conflict situations, the outgoing nature of extraverts may not be as energizing to others. Their dominating tendencies can be disruptive to the coordination process and as a result, they will be seen as making fewer proactive contributions to the team. We hypothesize the following:

> *Hypothesis 5:* Task conflict moderates the first-stage of the indirect effect of extraversion on proactive performance through the number of energizing relationships an individual forms with teammates. The relationship will be positive when there is a low level of team task conflict and negative when there is a high level of team task conflict.

Integrated model

In sum, we propose the model depicted in Fig. 1. Examining the combination of these variables allows us to better understand the extraversion advantage through the lens of energy in conversations (i.e., energizing relationships) as well as problems in coordination (i.e., task conflict).

Method

Participants and procedure

We collected data in 27 teams composed of six Belgian business students each (total n = 162) engaged in a consulting project. Students were enrolled in a Master's degree in business at a large Belgian University. Students completed these surveys for course credit and the response rate was 100 percent. The sample was 52 percent men and ranged in age from 23–27 years. For their project, student teams were asked to consult with a company on the HR-challenges of a novel working method the company

had introduced. Specifically, these teams focused on HR-challenges related to outsourcing, strategic alliance, multinational organizing, virtual workplaces, telework, mergers and acquisitions, restructuring,

INSERT FIGURE 1 HERE

delayering, and corporate social responsibility. The students had 3 months and 2 weeks to analyze the situation in the company and come up with a formal presentation in which they made their recommendations to a board of company executives. Students were free to organize their activities as they saw fit in terms of the frequency with which they met with each other or with the client. Although these student teams were mostly self-managed, they were held accountable by the professor (and the norms and values of the institute this professor represents) for completing their task on time.

This self-managed approach (with final internal accountability) was chosen as a realistic preview of the consulting industry, and thus increases the likelihood that findings are generalizable to non-student populations (Block, 2011; Carson, Tesluk, & Marrone, 2007). However, compared with actual consulting teams, these student project teams have the additional benefit of being highly comparable with one another (in terms of task and life cycle), and thus, we are better able to rule out mitigating, external factors. Furthermore, because students were randomly assigned to teams, pre-existing working relationships are less likely to confound our results, thus providing stronger support for our theoretical model, which aims to examine the influence of extraversion on the formation of energizing relationships within teams.

In the time-span of the project, we carefully chose measurement points that are consistent with our theoretical model (Mitchell & James, 2001). We surveyed students at the start of the project, 3 months later, and again 1 month later. These measurement points were loosely aligned with the steps of group formation: forming, norming, storming, performing, and dissolving (Tuckman, 1965). More

specifically, at the beginning of the project (T1, the forming stage), we surveyed the students on stable personality traits (extraversion and conscientiousness). Three months later, 2weeks before the project deadline (T2), we measured task conflict, relationship conflict, frequency of communication between teammates, and the number of energizing relationships each participant formed. For most of these teams, 3 months into the project and 2 weeks before the actual deadline, collaboration was at its peak, and thus, it was a good time to measure results of the storming and norming phase (e.g., team task conflict) as well as indicators of their interactions (e.g., energizing relationships) at the performance stage. Finally, 1 month after the final presentation (T3), the teams had reached the stage of disbandment, and we asked the students to reflect back on how each team member had proactively contributed to the team. We consciously chose to include a sufficient time gap between the project deadline and the collection of these ratings to help ensure that the ratings were based on how people contributed to the overall team effort and not just how each team member performed in the final presentation. We also felt that this time, gap would lessen the potential impact that the sociability of extraverts may have on proactive performance ratings. Further, students' proactive performance ratings were not used for course credit. Instead, students were given a joint grade for their proposed solutions to the company. The proactive performance ratings were collected after grades were submitted to lessen social desirability concerns and pressure to rate teammates leniently.

Measures

Extraversion

We measured extraversion with five items from the International Personality Item Pool (IPIP) (Goldberg, 1999) using a 5-point Likert scale (Strongly Disagree to Strongly Agree). An example item is "I know how to captivate people."

Energizing Relationships (Ties)

The term "tie" refers to a relationship in studies using network analysis. Social networks are "sets of actors and the ties among them" (Wasserman & Faust, 1994, p. 9). Network analysis can be used to examine the overall structure of the ties involving multiple actors as well as the number of ties an actor has with others, which determines that actor's position in the network. In the current study, we examine the number of energizing relationships an individual has with his/her teammates. To capture the energizing relationships that existed within a team, we adopted a measure from Cross and Parker (2004): "People can affect the energy and enthusiasm we have at work in various ways. Interactions with some people leave you feeling drained while others leave you feeling enthused about possibilities and/or can help to re-energize you in your work when you have had a bad day. When you interact with each person below how does it typically affect your energy level?" Respondents answered on a 5-point Likert scale ranging from Strongly De-energizing to Strongly Energizing. Strongly energizing and energizing network ties (those rated either a 4 or 5) were coded as 1; all other ties coded as 0. We calculated incoming Freeman degree centrality (Freeman, 1979) using UCINET 6.433 (Borgatti, Everett, & Freeman, 2002), which is a count of the total number of team members who indicated that they have an energizing relationship with the target individual (ranging from 1–5).

Team task conflict

We examined team task conflict using three items (Jehn, 1994; Ensley, Pearson, & Amason, 2002) rated on a 5-point Likert scale. An example item is as follows: "How many differences of opinion were there within the group?" Supporting the aggregation of this measure to the team level (Bliese, 2000), we found an average rwg of .97 (Mdn= .98), an ICC(1) of .16 and an ICC(2) of .52.

Proactive performance

We used a three-item measure of proactive performance contributions to a team (Griffin et al., 2007). An example item is as follows: "Suggested ways to make your team more effective." In the case of these student teams, such suggestions might include using various online tools to improve the efficiency of their collaborative efforts. Team members rated each other on a 5-point Likert scale (Strongly Disagree to Strongly Agree). In support of aggregating team members ratings of a focal individual, we obtained an average rwg of .80 (Mdn = .77), the ICC(1) value was .47 and the ICC(2) value was .84.

Control variables

We expected that conscientiousness, defined as the tendency to be predictable and strive for achievement (Barrick & Mount, 1991), would likely result in expending effort to meet the needs and advance the goals of the team. Indeed, Neal et al. (2012) found that conscientiousness, but none of the other dimensions of the five-factor model of personality, predicted proactive performance within a team. Thus, we controlled for conscientiousness at the individual level in our analyses. We used five items from the IPIP (Goldberg, 1999) rated on a 5-point Likert scale (Strongly Disagree to Strongly Agree). An example item is "I make plans and stick to them".

We also controlled for one's dissimilarity to other team members in terms of extraversion (e.g., being an introvert in an extraverted team) using the relational demography measure developed by Tsui, Egan, and O'Reilly (1992): the square root of the summed squared differences between the score of an individual and the rest of the group. On the one hand, there is a natural tendency for individuals to be drawn to and feel comfortable around others who are similar, and thus feel more energized by them (Tajfel, 1982; Byrne, 1971); on the other hand, diverse personalities could potentially be complementary, thus creating energy among individuals who are dissimilar (e.g., Barry & Stewart, 1997; Grant et al., 2011). Thus, we felt it important to account for dissimilarity in the analyses.

While task conflict refers to difficulties in the coordination of activities, relationship conflict refers to disagreements between team members, often of a personal nature and involving negative emotions. Thus, the construct of task conflict is conceptually aligned with our theoretical model, which focuses on the coordination of team activities and positive energy as opposed to personal disagreements or conflict. However, we included relationship conflict as a control variable in our model to ensure that the proposed relationships could not be explained by the amount of interpersonal conflict an individual experienced within the team. Relationship conflict was measured using three items (Jehn, 1994; Ensley et al., 2002) rated on a 5-point Likert scale. An example item is as follows: "How much personal friction was there in the group during decisions?"

Finally, given the social and gregarious nature of extraverts, we wanted to control for the possibility that extraverts just talk more than other team members (McCrae & Costa, 1990; Sutton, 2010; Tannen, 1995), and therefore, their ideas are more likely to be heard, and they may even be credited with ideas that are not theirs. Indeed, recent meta-analytic research found that extraversion was positively related to the number of outgoing instrumental network connections (Fang et al., 2016). To account for this alternative explanation, we controlled for how much individuals communicated with

others to demonstrate that extraverts' proactive performance is not simply a function of talking more but also the energy they bring to their relationships. We asked team members how frequently they communicated with each of their team members ranging from (i) seldom, less than once a month, (ii) less than once a week, (iii) once a week, (iv) a few times a week, and (v) one or more times each day. Frequent communication ties (those rated 3, 4, or 5) were coded as 1; all other ties coded as 0. We calculated the number of outgoing communication ties as a count of the total number of team members who the person indicated communicating with frequently. The possible range was 0 to 5 communication ties.

Analysis

We analyzed the data using the Mplus statistical package (Muthén &Muthén, 2012). As a first step, we conducted a confirmatory factor analysis on our measurement model, differentiating extraversion, proactive performance, and team task conflict. It showed a good fit to the data (Hu & Bentler, 1998, 1999): $\chi 2$ (41) = 53.67 ($p = .08$), SRMR=0.06, RMSEA=0.05 and CFI=0.97. In each case, constraining the pairwise factor correlation to unity significantly decreased the model fit ($p<.05$). In a second step, described in the results section, we test our hypothesized model. We specified a multilevel path model to test the hypothesized structural relationships. Because this path-model included a cross-level interaction, information on model fit is not available. When excluding information on fit indices, the results of a multilevel path model are similar to those obtained through hierarchical linear modeling (Grizzle, Zablah, Brown, Mowen, & Lee, 2009; Leroy, Anseel, Gardner, & Sels, 2016). To assess our hypothesized cross-level model, we followed the procedures described by Hofmann (1997) and Hofmann, Griffin, and Gavin (2000). Specifically, we examined the cross-level interaction effect by testing whether team task conflict moderates the relationship between extraversion and energizing relationships. This consists of an intercept and slope as outcome model. To further assess our

moderated mediation hypothesis (Muller, Descartes, Judd, & Yzerbyt, 2005), we followed the procedures recommended by Bauer, Preacher, and Gil (2006) to assess the indirect effect of extraversion at different levels of our moderator (i.e., team task conflict).

Results

Table 1 provides an overview of the means, standard deviations, correlation coefficients, and reliability coefficients at the individual level of analysis. To test Hypotheses 1–3, we estimated a model where extraversion predicted energizing relationships and where energizing relationships predicted proactive performance. In support of Hypothesis 1, we found a significant effect of extraversion on the number of energizing relationships (γ= .20, p = .01), and in support of Hypothesis 2, we found a significant effect of the number of energizing relationships on proactive performance (γ= .32, p = .01). To test the mediating effect of energizing relationships, we found a significant indirect effect (γ = .18, p = .01). As an additional test of this mediation hypothesis (James, Mulaik, & Brett, 2006), we specified a direct effect from extraversion to proactive performance and found that this effect was not significant (γ = -.01, p = .87).

To test Hypothesis 4–5, we also specified a cross-level interaction effect such that team task conflict moderated the relationship between extraversion and the number of energizing relationships. For this analysis, we applied group mean centering, to provide good estimates of the slope-effect (Hofman & Gavin, 1998). In confirmation of Hypothesis 4, team task conflict moderated the slope of the relationship between extraversion and energizing relationships (γ= -.60, p = .07). Because of power difficulties involved in testing cross-level interaction effects (Mathieu, Aguinis, Culpepper, & Chen, 2012), we chose a more liberal significance level of .10. A power-analysis revealed that for our study, we had a statistical power of .60. Assuming the heuristic that Type I errors are four times more serious than

Type II errors (Cohen, 1988) for a beta level of .40, we chose a significance levels of .10. In Figure 2, we illustrate this relationship, differentiating between high and low levels of team task conflict. We found that the relationship between extraversion and the number of energizing relationships is negative for high levels of team task conflict (γ = -.48, p = .01) and positive (γ = .60, p = .01) for low levels of team task conflict. In support of Hypothesis 5, we found that the conditional indirect effect of extraversion on proactive performance through energizing relationships was four times higher at one standard deviation below the mean level of conflict (γ = .05, p = .04) than at one standard deviation above the mean level of

INSERT TABLE 1 HERE

INSERT FIGURE 2 HERE

conflict (γ =.14, p = .38). In sum, as expected, the indirect effect was positive and significant for low levels of task conflict, and the indirect effect was negative (yet non-significant) for high levels of task conflict.

In the analyses earlier, following the recommendations of Becker (2005), we excluded control variables from our structural equation model as they did not meaningfully impact our results. An overview of our results including control variables, however, can be found in Table 2.

Discussion

In this study, we set out to better understand the relationship between extraversion and proactive performance within a team. We advance previous research by demonstrating that this relationship can be explained (at least in part) by extraverts' ability to form energizing relationships with their

teammates. Our results suggest that it is not only "being social" that distinguishes extraverts, but the positive energy extraverts can transfer to others. However, our results also suggest that contextual factors reverse this positive effect of extraversion. Specifically, extraverts appear to be at a disadvantage when there is high task conflict in a team. In these situations, more extraverted individuals are less energizing to others. These findings suggest that extraverts are not only oriented toward social relationships, providing positive energy therein, but can also be perceived as overly assertive and dominant, acting in a way that negatively impacts their relationships.

INSERT TABLE 2 HERE

Extraverts may be perceived as "shouting the loudest," perhaps overcrowding others and even prolonging task conflict within teams. Thus, our results indicate that extraverts are seen as proactive contributors to the team when task conflict is low because of the energizing relationships they develop but not when task conflict is high because in these situations, more extraverted individuals develop energizing relationships with fewer of their teammates.

These results contribute to the ongoing debate in applied and academic circles (e.g., Cain, 2012; Feiler & Kleinbaum, 2016; Grant et al., 2011) that challenges the presumed universal extraversion advantage. Our findings offer a nuanced picture of the role of extraverts in team-related efforts by identifying a mechanism (energizing relationships) that explains why extraverts are perceived to proactively contribute to their team and how high team conflict mitigates this extraversion advantage. These results further contribute to the literature on the various constructs embedded in our model.

First, this study contributes to research examining extraversion in a team setting. Previous studies typically assume an advantage for extraverts in teamwork because of their social nature (Barrick

& Mount, 1991; Shipilov et al., 2014; Wanberg & Kammeyer-Mueller, 2000). Our findings enhance the understanding of the benefits of extraversion in teamwork by highlighting the role of energy in the coordination of team efforts (Selfhout et al., 2010). This energy and coordination lens (Quinn & Dutton, 2005) offers a different perspective on the effects of extraverts that goes beyond their social nature to highlight the energy they derive from and give to social interactions. As we describe later, future studies looking at the role of extraversion in team efforts may also benefit from adopting this energy lens. These studies may use a more fine-grained measure of extraversion to see if sub-facets of extraversion (e.g., gregariousness versus assertiveness) help further explain the differential effects of extraverts on energy under differing levels of conflict (Judge, Rodell, Klinger, Simon, & Crawford, 2013).

Second, this paper contributes to existing work on energy in the workplace. While there is a surprising amount of theory on the role of energy in the workplace (e.g., Cross & Parker, 2004; Schippers & Hogenes, 2011; Quinn & Dutton, 2005), there is less empirical work available on energy (exceptions include Atwater & Carmeli, 2009; Fritz, Lam & Spreitzer, 2011; Gerbasi, Porath, Parker, Spreitzer & Cross, 2015). The majority of research on energy focuses on how energy influences performance, creativity, and thriving (Atwater & Carmeli, 2009; Carmeli & Spreitzer, 2009; Fritz et al., 2011). In contrast, there has been very little research on the relational aspect of energy (for exceptions, see Gerbasi et al., 2015; Owens, Baker, Sumpter, & Cameron, 2016). This paper thus contributes to the burgeoning empirical literature on relational energy in the workplace, specifically by examining an individual difference (i.e., extraversion) that may predispose individuals to form energizing relationships as well as contextual factors (i.e., task conflict) that are likely to inhibit or enhance the formation of energizing relationships.

Third, this study contributes to existing research on what drives proactive behavior in organizations (Griffin et al., 2007; Grant & Ashford, 2008). While initial research suggests that personality traits such as extraversion play an important role in proactive performance (e.g., Crant et al.,

2011; LePine & Van Dyne, 2001; Liu et al., 2014), less is known about why this relationship exists. Is it simply because extraverts are more social and voice their ideas more? Our findings show that the energizing relationships individuals develop explain the connection between extraversion and proactive performance even after controlling for how often individuals communicate with their teammates. These findings represent an important advancement in understanding how extraverts contribute to team efforts. Specifically, in highlighting the role of energy and coordination, this paper helps to address the call for a better understanding of social and cognitive drivers of proactive behavior (Schippers & Hogenes, 2011).

Fourth and finally, our model contributes to the study of task conflict in the workplace (Amason & Sapienza, 1997; De Dreu & Weingart, 2003). Whereas many studies have looked at task conflict as an independent or dependent variable (de Wit, Greer & Jehn, 2012), fewer studies have examined task conflict as a contextual variable in a cross-level design. While past studies have identified how task conflict is a driver of team-level outcomes, the findings of this study suggest that it is an important situational variable that can influence how the behaviors of extraverts are interpreted by others. This is important because task conflict occurs frequently in team efforts as a natural part of the coordination process in which team members attempt to reach agreement on the best approach for moving forward. As such, extraverts may benefit from understanding how their nature in these situations may result in exchanges that are not energizing to others, and managers need to proceed with more care when confronted with extraverts in a high task conflict team environment.

Limitations and future research

There are several limitations that should be taken into account when interpreting the findings of this study. First, although we used a rather controlled setting of unacquainted teams and carefully selected measurement points, separating the collection of variables over time, we cannot completely rule out a

reversed causality. For instance, for teams that would exist for a longer period of time than the short-term project teams we studied, it might be possible that the proactive contributions that aid the team functioning further enhance the perceived energy not only of this person but the experienced energy in the team as a whole. Future research should study the effects of extraversion in teams that have a longer life span to look at the potential reciprocal relationship between positive energy and proactive performance. Further, future studies should use experimental designs to confirm the causal linkages.

Second, although we controlled for communication frequency in our analysis and the timing of the performance measurement was chosen to limit the extent to which scores might be influenced by the immediate social presence of extraverts, social pressure to provide lenient ratings of teammates, and over-emphasis on the final presentation, it is possible that collecting proactive performance data after a substantial delay may actually favor extraverts. Over time, the specificity of contributions made by team members may disappear, and raters may only be left with a generalized notion of contributing that may be more reflective of extraverts' social presence.

Third, despite a limited sample size at the team level of analysis, our findings supported the hypothesized model. Fourth, studying business students allows us to draw more precise conclusions as relationships were formed over the course of the project. However, this sample may be limited in its generalizability. Taken together, these potential limitations suggest that future research should replicate these findings in an organizational setting, with larger samples, while controlling for the length, structure, and depth of employees' existing relationships as well as collecting performance measures at different points in time.

While our study looked at some of the basic premises of the coordination as energy-in-conversation model (Quinn & Dutton, 2005), future research should build on our findings to further test this theoretical model. In particular, to truly understand how energy is created and destroyed through

interactions, a longitudinal study with multiple network measures of energizing relationships is needed. Further, to better understand the specific ways in which extraverts and introverts influence the energy of their teammates in high and low task conflict situations, researchers may consider conducting observational studies of extraverts and introverts and using non-verbal behavior (gestures, intonation, etc. Burgoon, 1994), self-report data, or even biometrics to assess the level of energy created in exchanges between individuals. Researchers may also follow these exchanges over a longer period of time (e.g., working with intact long standing teams) to determine if the benefits of extraversion are diminished or enhanced in the long run.

Future research on proactive performance may build on our thinking and findings by considering how energy drives proactive performance in the workplace. In particular, future research may consider the energizing relationships extraverts form in combination with other characteristics that may explain why they tend to be rated higher on proactive performance (e.g., the confidence with which they carry themselves, their social skills, including self-monitoring, Snyder, 1974). Research may also consider other explanations for why extraverts may not excel in high task conflict situations. For example, task conflict situations may make it difficult for extraverts to understand their role on the team and how they need to adjust their style in order to help propel the team forward.

On a more basic level, future research should also look at whether extraverts are merely seen as more proactive or whether they actually do come up with more creative and innovative ideas (Cain, 2012). Research on creativity suggests that energy is an important driver of creative outcomes (Baas, De Dreu, & Nijstad, 2008). Does the energy of extraverts help them come up with better ideas or are they better at selling their ideas to their teammates? Our data cannot answer this question. To do so, future research should look at more objective measures of the novelty and usefulness of the ideas offered. Initial research suggests that although extraverts voice more ideas, their contributions are not viewed as

more useful (Crant et al., 2011). Further, we assessed performance as perceived by others, as is typical in organizations, but future research should also examine whether the extraversion advantage remains when other more objective measures of performance are examined.

Relatedly, some scholars have proposed that introverts may contribute to their team and their organization in different ways such as being more creative (Cain, 2012). To ensure that all members' ideas are heard and given consideration, future research should examine under what circumstances introverts will be perceived as proactively contributing to the team. We examined the effects of extraversion in a well-defined environment of students who are stepping into a project-based team. Future studies should also examine whether introversion is more beneficial when tasks are additive or sequential in their interdependence rather than reciprocal and intensive (Arthur, Edwards, Bell, Villado, & Bennett, 2005) as was the nature of interdependence in these project teams.

Future research should also move beyond the individual level of analysis. For example, to better understand if extraverts are energizing to others regardless of their own personality, researchers could examine the dyadic nature of energizing relationships in more detail. These analyses could reveal whether extraverts are just as likely to form energizing relationships with introverts as they are with other extraverts. Previous research has shown that a team leader's extraversion impacts team performance based on the extent to which team members engage in proactive behaviors (Grant et al., 2011). Building on this work, future research could investigate how differences in energy investment influence coordination among team members. For instance, might differences in energy-investment explain whether introverts and extroverts complement each other in terms of dominance complementarity (Barrick & Mount, 1991; Grant et al., 2011)? More specifically, do introverts have a preference to work with high-energy extraverts as they themselves do not invest that same energy to the relationship, but benefit from working with an extraverted counterpart? Thus, an important area for

future research is examining how similarity in extraversion between individuals influences the extent to which energy is created and proactive ideas are shared.

Similarly, some authors have argued that introverts complement extraverts in ways that foster better performance, but prior research has been unable to meta-analytically confirm this (Bell, 2007). Further, the idea that diversity in extraversion positively influences team performance competes with previous findings that high team extraversion benefits performance (Mohammed & Angell, 2004). Future research may consider the composition of teams in terms of personality to understand the right mix of individuals to promote high levels of energy and proactive performance within a team. Researchers may also begin to explore team performance through the lens of the networks of energizing relationships that exist within a team. The weak but positive relationship between team extraversion and team performance (Bell, 2007) may be better understood by examining social cohesion within the team as some research suggests that diversity can decrease social cohesion (Barrick, Stewart, Neubert, & Mount, 1998; Harrison, Price, & Bell, 1998; Smith, Smith, Olian, Sims, O'Bannon, & Scully, 1994; Williams & O'Reilly, 1998). Examining how densely connected the energy network is within a team may provide a new lens on team social cohesion and greater insight into the relationships between team extraversion (or extraversion diversity), social cohesion (i.e., energy networks), and performance. Further, although our research was focused on individual performance, there is also research that shows that shared perceptions of workgroup energy are positively associated with organizational performance (Cole, Bruch, & Vogel, 2012). Future research should examine the mean level as well as the mixture of personality traits that facilitates the most energy within a team, and therefore ultimately, better performance.

The current study proposes that when there is task conflict, extraverts are less energizing to their teammates and will not be recognized as proactive contributors. We chose to focus on task conflict

because of its strong fit with the energy and coordination framework that provided the theoretical basis of this study. In contrast to task conflict, which reflects difficulties in the coordination of activities, relationship conflict reflects disagreement between team members on a more personal level and often involves negative emotions. As such, we expect that when teams experience greater task conflict, extraverts may experience more personal disagreement with others on their team. Alternatively, relationship conflict may be an interesting moderating variable to consider in future research, especially with a focus on understanding the formation of negative ties within a work team (Ellwardt, Labianca & Wittek, 2012, Gerbasi et al., 2015; Labianca & Brass, 2006; Labianca, Brass & Gray, 1998). Recently, negative ties have become of increased interest to researchers. Several studies have found that negative ties often work not just in opposition to positive ties but often spread through the network by different processes (e.g., Ellwardt et al., 2012, Gerbasi et al., 2015) and can also affect outcomes such as performance, turnover, and job satisfaction in different ways. Whereas our study examined whether extraverts developed fewer energizing relationships under conditions of high task conflict, this is distinct from extraverts fostering negative energy. Indeed, extraverts may not only contribute to a lack of coordination, but they may also contribute to tensions in the team. In this context, future research could look at how extraversion is related to both negative energy and to the potentially resultant relationship conflict.

Another avenue for future research is developing a better understanding of how situational variables (e.g., task conflict) may influence how a general trait (e.g., extraversion) is expressed and perceived. In this study, we proposed that others on a team are likely to perceive extraverts' energetic, assertive behavior as domineering under situations of high task conflict and as gregarious under situations of low task conflict. This is, however, an explanation that needs to be tested in future research to determine whether extraverts truly act differently or if their actions are perceived differently

depending on the situation. Future research could also examine other combinations of personality traits and situational variables. For instance, under conditions of environmental uncertainty, the conscientiousness of a colleague or leader may be perceived as responsibility and competence because the predictability of the leader compensates for the environmental predictability. In contrast, when there is less environmental uncertainty and turbulence, leader or colleague conscientiousness may be interpreted as too controlling, narrow in focus, and even micro-management.

A final avenue for future research lies in answering what introverts and extraverts can do to mitigate the potential negative effects of their predispositions. Awareness and management of one's own emotions as well as those of others (Mayer, Roberts & Barsade, 2008) seems to be especially relevant here. These possibilities are discussed further in the practical implications section. However, it is important to note that additional research would be needed to understand how a focus on energy-in-conversation could help in the design of interventions (e.g., assertiveness training and communication skills). Research evaluating these approaches would also be required.

Practical implications

The current results as well as the findings of Feiler and Kleinbaum (2016) and Grant et al. (2011) provide preliminary guidance to organizations on when extraversion is an advantage and when it is a liability. Extraverts are able to develop energizing relationships with their teammates; this is a valuable quality that organizations may want to consider when staffing teams. However, this advantage appears to be lost and to even become a disadvantage when task conflict exists within a team. These findings suggest an opportunity for training to help extraverts understand how their interactions may fail to energize or possibly de-energize their teammates in these situations. Active listening and learning to use one's talkative, outgoing nature to facilitate as opposed to dominate a group discussion may help extraverts avoid relinquishing their advantage in conflict situations. Organizations may also offer training to help

introverts develop more energy in their interactions. Extraverts have a natural tendency to build energizing relationships, but the skills needed to spark energy can be learned. For example, energy is created in interpersonal interactions when the focus of the conversation is on possibilities and making progress and also when both people contribute meaningfully to and fully engage in the conversation (Cross et al., 2003). Although it may not come as naturally to introverts, they too can learn to proactively contribute to their team by developing more energizing relationships. Many of these skills can be learned even before new employees enter the workforce, and thus, the findings of this study could be leveraged as business schools and many professional disciplines continue to incorporate team-based projects into their curriculum (Carson et al., 2007).

Conclusion

The current work environment is structured in a way that requires many employees to engage in teamwork. This study questioned whether some individuals, particularly those who are more outgoing or social (i.e., extraverts) are predisposed to do well in teams, leaving introverts at a systematic disadvantage. The findings of the current study confirm an extraversion advantage but also highlight the need for a more nuanced understanding of extraversion in the workplace. Extraverts are viewed as contributing proactively to their team at least in part because of the energizing relationships they form with their teammates. Energy, and its role in the coordination of team efforts, is thus an important lens through which we can better understand the role of extraverts in teams. The role of energy in coordination also highlights that under certain conditions (i.e., high task conflict), the extraversion advantage is reversed as more extraverted individuals develop fewer energizing relationships and are not perceived to make proactive contributions to their team. In sum, this paper highlights how the

coordination-as-energy-in-conversation model helps us better understand the role of extraverts in teamwork.

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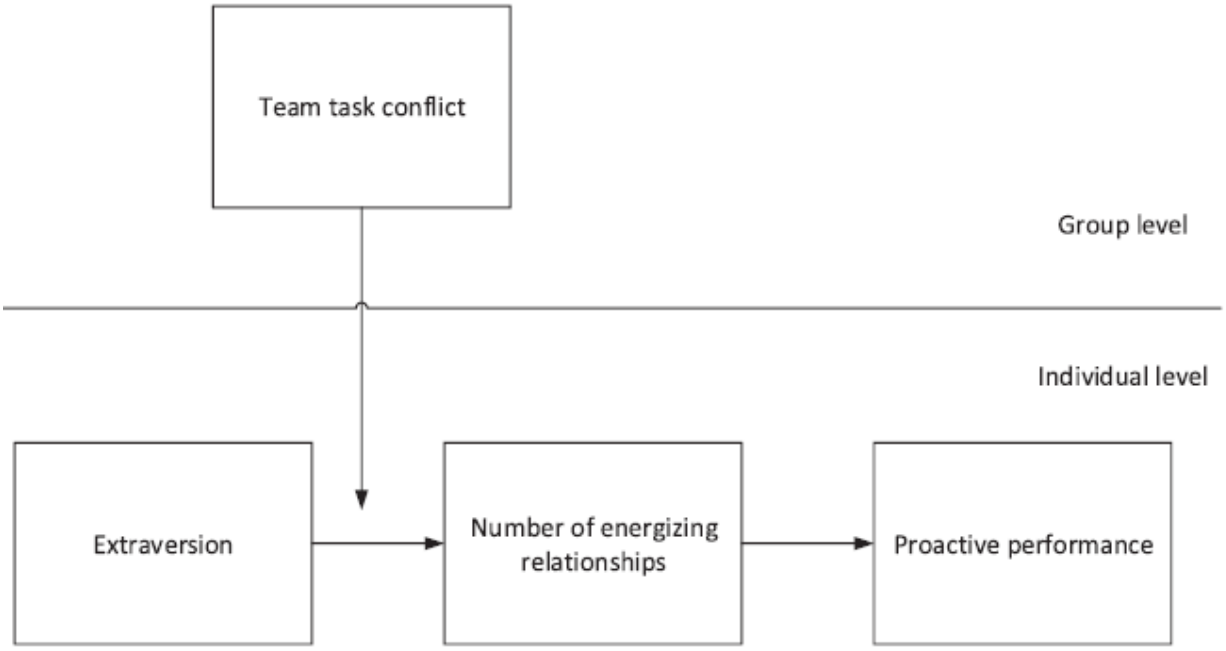

Figure 1. The hypothesized model

Table 1. Means, standard deviations and correlations among study variables

		M	*SD*	1	2	3	4	5	6	7	8
Control variables											
1	Conscientiousness	3.31	0.50	.79							
2	Communication frequency	3.30	1.78	.04							
3	Dissimilarity in extraversion	0.68	0.41	.07	.01						
4	Relationship conflict	2.02	0.69	−.06	−.09	−.17*					
Independent variables											
5	Extraversion	3.38	0.63	.22**	.16^{+}	.01	−.06	.88			
6	Team task conflict	2.35	0.35	−.09	−.17*	−.08	.53**	−.17*	.76		
Dependent variables											
7	Number of energizing relationships	3.72	0.57	−.01	.27**	.02	−.28**	.24**	−.07		
8	Proactive performance	3.08	0.55	.24**	.30**	−.13	−.08	.17*	−.10	.26**	.77

Note Reliability estimates for scales are presented on the diagonal. The reliability of these scale (α) are presented in italics on the diagonal. ** $p < .01$, * $p < .05$, $^{+}$ significant at .10.

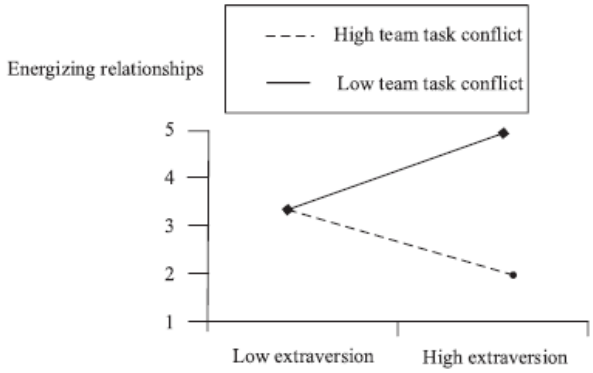

Figure 2. Interaction effect between extraversion and team task conflict on the number of energizing relationships

Table 2. Overview of coefficients in prediction of energizing relationships and proactive performance including control variables

Variables	Energizing relationships	Proactive performance
Control variables		
Conscientiousness	–.07	–.04
Communication frequency	.18*	.03
Dissimilarity in extraversion	.03	–.17**
Relationship conflict	–.16**	–.09
Independent variables		
Extraversion	.34**	.01
Team task conflict	.08	.06
Interaction effect		
Extraversion x team task conflict	–.60+	.08
Mediator Variable		
Number of energizing relationships		.21**

Note ** Significant at .01, * significant at .05, + significant at .10.