

# Getting Ahead, Getting Along, and Getting Prosocial: Examining Extraversion Facets, Peer Reactions, and Leadership Emergence

Jia Hu  
The Ohio State University

Zhen Zhang  
Arizona State University

Kaifeng Jiang  
The Ohio State University

Wansi Chen  
East China University of Science and Technology

Drawing upon socioanalytic theory of personality, we hypothesize and test inverted U-shaped relationships between team members' assertiveness and warmth (labeled as the "getting ahead" and "getting along" facets of extraversion) and peers' reactions (i.e., advice seeking by peers and peer liking, respectively) that, in turn, predict members' emergence as informal leaders in self-managed teams. Integrating research on prosocial motivation, we also examine whether prosocially motivated members have more enhanced positive curvilinear influences of assertiveness and warmth on peer reactions. Based on 223 members in 69 student project teams (Study 1) and 337 employees in 79 self-managed work teams (Study 2), we found support for the inverted U-shaped relationships between assertiveness and advice seeking by peers, and between warmth and peer liking. Further, prosocial motivation enhances the inverted U-shaped effect of assertiveness in Study 2 and those effects of warmth in both studies. Advice seeking by peers and peer liking, in turn, were positively related to leadership emergence in both studies. Our findings have important theoretical and practical implications for dispositional and motivational factors that shape peer reactions and facilitate leadership emergence in teams.

*Keywords:* extraversion, assertiveness, warmth, leadership emergence, peers

Self-managed teams are widely used as an organizational response to increasing job demands and competition (e.g., Lanaj & Hollenbeck, 2015; Roberson & Williamson, 2012). For more than 50 years, scholars and practitioners have sought to develop theo-

retical explanations and practical implications regarding leadership development and team effectiveness in the absence of formal leadership (Lanaj & Hollenbeck, 2015; McClean, Martin, Emich, & Woodruff, 2018; Taggar, Hackew, & Saha, 1999; Zhang, Waldman, & Wang, 2012) by analyzing individual characteristics and behaviors that allow informal leaders to emerge (Barry & Stewart, 1997; Bass, 1949, 1954; Bass & Coates, 1952). *Extraversion*, a broad trait encompassing dominance, assertiveness, warmth, and outspokenness, has been identified as the strongest and most consistent antecedent of leadership emergence (e.g., Ensari, Riggio, Christian, & Carlsaw, 2011; Judge, Bono, Ilies, & Gerhardt, 2002).

However, extant research on leadership emergence has largely overlooked the multifaceted nature of extraversion, such that the various facets convey different meanings and can have varying effects on individual behaviors (DeYoung & Gray, 2009; DeYoung, Quilty, & Peterson, 2007). Indeed, a recent meta-analysis contended that "faceted approaches to the Big Five traits will produce higher criterion-related validity than broad-trait-only approaches" (Judge, Rodell, Klinger, Simon, & Crawford, 2013, p. 880). In self-managed teams, members are closely and interdependently connected in the pursuit of common goals, so that emerging leaders need to have dispositions that relate to both task and social processes (Chen & Kanfer, 2006). The socioanalytic theory of personality (Hogan, 1996) suggests that individuals will gain status and influence when peers on their team observe and evaluate two fundamental behaviors: efforts to *get ahead* and *get along* (Hogan

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Jia Hu, Department of Management and Human Resources, Fisher College of Business, The Ohio State University; Zhen Zhang, Department of Management and Entrepreneurship, W. P. Carey School of Business, Arizona State University; Kaifeng Jiang, Department of Management and Human Resources, Fisher College of Business, The Ohio State University; Wansi Chen, Department of Business Administration, School of Business, East China University of Science and Technology.

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Correspondence concerning this article should be addressed to Wansi Chen, Department of Business Administration, School of Business, East China University of Science and Technology, 130 Meilong Road, Shanghai, China, or to Jia Hu, Department of Management and Human Resources, Fisher College of Business, The Ohio State University, 754 Fisher Hall, 2100 Neil Avenue, Columbus, OH 43210. E-mail: [chenwansi@126.com](mailto:chenwansi@126.com) or [hu.757@osu.edu](mailto:hu.757@osu.edu)

& Holland, 2003). Moreover, dispositional tendencies drive individuals' efforts to get ahead (e.g., achieve personal advancement) and get along (e.g., gain popularity) in teams. As such, we expect that peers will evaluate whether a team member's extraversion facets reflect his or her getting ahead and getting along effort and determine how they respond to such effort and accept this member's leadership influence. Consequently, we ask, do extraversion facets distinctively influence leadership emergence?

We argue that two facets of extraversion—*assertiveness* and *warmth*—are most relevant for determining whether individuals will strive to advance and to gain popularity. That is, assertive team members tend to be dominant and decisive, to speak without hesitation in group task discussions, and are more likely to focus on getting ahead. In contrast, warm team members tend to be friendly, outgoing, and are more likely to focus on getting along. Using a faceted lens to examine leadership emergence, we look at the effects of these two extraversion facets on peer reactions in task and social situations. Specifically, we expect that advice seeking by peers is a mediating mechanism for “getting ahead” because having control and influence over task information helps assertive members to emerge as informal leaders. At the same time, peer liking serves as a mediator for “getting along” because achieving popularity and acceptance in social relations helps translating members' warmth into leadership emergence. We expect these two mediating mechanisms to be curvilinear (inverted U-shaped) rather than monotonically positive because the two facets also have downsides that can limit how much the focal member contributes to team processes (Grant, Gino, & Hofmann, 2011; Judge, Piccolo, & Kosalka, 2009) and desirable outcomes (Grant, 2013). Extant research has shown that extremely high levels of assertiveness and extraversion can be counterproductive (Ames & Flynn, 2007; Grant, 2013).

Extraversion indicates desires to be the center of social attention (Ashton, Lee, & Paunonen, 2002). Given this, assertive individuals could be interested in only promoting their own ideas when they dominate group discussions, and warm individuals may primarily seek attention to themselves through social interactions (Ames & Flynn, 2007). Consequently, peers may perceive that highly assertive and warm individuals focused on drawing attention to themselves lack leadership credentials. However, if they are motivated by desires to benefit others (Grant, 2007), their prosocial motivation may prolong and enhance the positive curvilinear effects of assertiveness and warmth. We integrate research on prosocial

motivation and the socioanalytic theory of personality to argue that prosocially motivated assertive or warm members, because of their other-focus, can have enhanced benefits of being assertive or warm in terms of receiving favorable peer reactions and emerging as informal leaders. Figure 1 depicts our theoretical model.

Our research makes several contributions to the literatures of personality, leadership emergence, and work teams. First, responding to calls for exploring how extraversion facets operate in teams (e.g., Grant et al., 2011; Judge et al., 2013), we show nuanced curvilinear relationships between assertiveness/warmth, peer reactions, and leadership emergence. Second, extant literature of leadership emergence has been largely silent on *how* extraversion facets influence leadership emergence. We shed spotlight on peer reactions (i.e., advice seeking by peers and peer liking) and argue that peers are key evaluators of individual members' getting-ahead and getting-along efforts. Third, we show that assertiveness and warmth can have prolonged or shortened benefits for positive peer reactions and leadership emergence, depending on the extent to which these individuals are prosocially motivated. Therefore, we advance leadership emergence research by taking a motivational account to examine extraversion facets' effects in the processes of leadership emergence in self-managed teams.

## Theoretical Background and Hypotheses Development

### Dispositional Assertiveness and Warmth

We consider assertiveness and warmth to be the most relevant extraversion facets to our investigation on the task and social processes of leadership emergence in teams. As explained above, assertive individuals tend to be dominant, forceful, and to take charge; warm individuals tend to be affectionate and friendly in social interactions (Costa & McCrae, 1992). Assertiveness is relevant to leadership emergence because assertive individuals often appear to be leaderlike and demonstrate control over group discussions (Costa & McCrae, 1992). In work teams, the effect of extraversion on task performance “lie primarily in the subdimension of assertiveness” (Pearsall & Ellis, 2006, p. 576), and assertiveness has strongest influences on task completion and job performance (Judge et al., 2013; Pearsall & Ellis, 2006). In contrast, enthusiasm, which includes the warmth facet, affects contextual performance and interpersonal relationships (DeYoung et al., 2007; Judge et al., 2013). Warmth reflects how one would behave

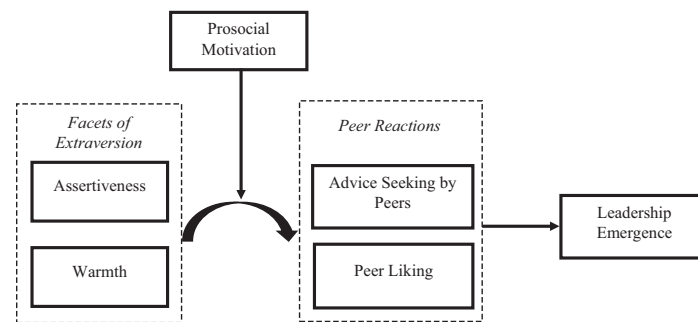


Figure 1. Theoretical model. indicates curvilinear relationship; indicates linear relationship.

and interact with others in social situations and is more relevant to the social process of leadership emergence compared with other enthusiasm facets such as gregariousness, positive emotions, and excitement seeking (Judge et al., 2013). Warmth is also distinct from the sociability dimension assessed by the Hogan Personality Inventory (HPI) because sociability reflects the extent to which people enjoy large crowd, party every night, and prefer variety in life (Hogan & Hogan, 1992). Prior research shows that warmth tends to have the highest factor loading of all facets of extraversion (Costa & McCrae, 1995; McCrae, Costa, Del Pilar, Rolland, & Parker, 1998) and is strongly connected with social interactions in general and interpersonal friendliness in particular (Rubenzer, Faschingbauer, & Ones, 2000; Schimmack, Oishi, Furr, & Funder, 2004; Traupman, Smith, Florsheim, Berg, & Uchino, 2011; Unruh & McCord, 2010).

The socioanalytic theory of personality (Hogan, 1996) provides the theoretical basis for understanding assertiveness and warmth as antecedents of informal leadership status in teams. The theory explains that people achieve higher group status by getting ahead and getting along (Hogan, 1983). To get ahead, a person “works with energy, exhibits effort, values productivity, and shows concern for quality”; to get along, the person “demonstrates interpersonal skill, works with others, shows positive attitudes, shares credit” (Hogan & Holland, 2003, p. 105). Although the theory has been tested using HPI scales only (Hogan & Holland, 2003), the theoretical framework applies to personality and behaviors in work teams (e.g., Marinova, Moon, & Kamdar, 2013). Furthermore, although HPI extraversion is typically considered as a getting ahead trait (Hogan & Holland, 2003), we believe that the warmth facet from NEO has a definition and item content that are more aligned with the getting along criteria. Warmth is seen as “the facet of Extraversion most relevant to issues of interpersonal intimacy” (McCrae & Costa, 2010, p. 22). We contend that the socioanalytic theory of personality forms the basis for our predictions that assertiveness aligns with efforts to get ahead, that warmth aligns with efforts to get along, and that both assertiveness and warmth influence peer reactions and the emergence of informal leadership.

The socioanalytic theory of personality has an important corollary: if individuals are to gain high repute and status, they need their peers’ favorable evaluation of their efforts to get ahead and get along (Hogan & Holland, 2003). Thus, we expect that informal leaders will emerge only if their peers respond positively to the assertive and warm tendencies. Aligned with socioanalytic theory, we focus on *advice seeking*, the extent to which peers seek advice from the focal member in task and information-related interactions (Ashford, Blatt, & VandeWalle, 2003; Sparrowe, Liden, Wayne, & Kraimer, 2001), and *peer liking*, the degree to which peers like a focal member in interpersonal situations (Zajonc, 1980). Our argument also aligns with suggestions that emergent leaders must acquire recognition and endorsement from peers before becoming informal leaders (DeRue & Ashford, 2010). In the next sections, we delineate how assertiveness influences peer reactions in task interactions and how warmth influences peer reactions in social interactions, to ultimately influence leadership emergence.

### Assertiveness and Advice Seeking by Peers

Assertive people voice their opinions without hesitation and take a dominant role in group interactions (McCrae & Costa,

2010). Whereas low assertiveness may mean submissiveness and lack of confidence (Pearsall & Ellis, 2006), high assertiveness potentially promotes members’ perceived influence in the task interactions and encourages peers to seek more task-related advice from them. As assertiveness increases, members have increased desire to take charge in team discussions and to freely express their viewpoints. They are likely to be seen as more competent and knowledgeable about their work (Kennedy, Anderson, & Moore, 2013; McClean et al., 2018), so that peers are more likely to seek their advice and information about work-related issues.

Assertiveness can show the “more is better” effect in positively affecting peer reactions, but only to a certain point (Ames & Flynn, 2007; Grant, 2013; Judge et al., 2009). We expect that overly bold and aggressive people will lose advantages if they force their viewpoints while neglecting others’ perspectives and interests (Grant, 2013). Peers may value confidence in knowledge but object to forcefulness and, thus, avoid seeking advice. Furthermore, excessive assertiveness can evoke aggressive, confrontational interactions (Eysenck, 1990) so that peers are too intimidated to seek help and advice. Indeed, research has shown that highly assertive formal leaders receive negative employee ratings (Ames & Flynn, 2007), suggesting that assertive members who lack formal designated power are even more likely to draw negative peer reactions. Thus, we argue that a moderate level of assertiveness is optimal. That is, peers will seek advice from individuals who seem confident about task-related issues without being confrontational or pushy. We expect that assertiveness follows the pattern of the “too-much-of-a-good-thing” effect (Pierce & Aguinis, 2013): low to moderate levels of assertiveness will increase advice seeking, but high levels will discourage advice seeking, which leads to the hypothesis:

*Hypothesis 1:* Assertiveness has an inverted U-shaped relationship with advice seeking by peers such that a moderate level of assertiveness results in the highest level of advice seeking by peers.

### Warmth and Peer Liking

Warm individuals genuinely like others and desire to form attachments; they tend to be affectionate and friendly, to make more friends, and to powerfully and directly influence affective, social situations (Cuddy, Glick, & Beninger, 2011; DeRue, Nahrgang, & Ashford, 2015; Fiske, Cuddy, & Glick, 2007; McCrae & Costa, 2010). Colder people are not necessarily lacking in compassion, but tend to be more reserved, formal, distant, and unpopular in the interpersonal situations (McCrae & Costa, 2010). In teams, peers are more likely to like and want to be friends with team members who appear to be warm.

Although warmth conveys good intentions and generates relationships (Cuddy et al., 2011), excessive warmth can cause others to feel pressured to respond with similar enthusiasm (Erez, Schilpzand, Leavitt, Woolum, & Judge, 2015). Furthermore, highly warm individuals may be judged as socially and emotionally immature. Indeed, highly cheerful and happy people are often judged as naïve (Barasch, Levine, & Schweitzer, 2016), perhaps because of the “too-much-of-a-good-thing” effect (Pierce & Aguinis, 2013): after a certain inflection point, the positive influence turns negative. Thus, we expect that a lack of warmth causes social distance and inhibits development of friendships, but intense

warmth may evoke negative reactions and dislike because too much is overwhelming. Moderate levels of warmth are optimal in conveying sufficient friendliness without invading comfort zones or indicating immaturity. Thus, we hypothesize that warmth increases peer liking, but only until it reaches higher levels:

*Hypothesis 2:* Warmth has an inverted U-shaped relationship with peer liking such that a moderate level of warmth results in the highest level of peer liking.

### Prosocial Motivation as a Moderator

**Assertiveness and advice seeking by peers.** We assume that peers are most likely to see advice about task-related issues from moderately assertive team members. However, such an assumption may fail to hold in some teams. Recall that assertive individuals tend to actively pursue and voice their *own* ideas and to dominate task discussions (Ames & Flynn, 2007), so assertive behaviors focused on self-interests might fail to generate status and influence. Instead, peers will positively evaluate those with intentions to promote and improve others' well-being (Fişek, Berger, & Norman, 1991; McClean et al., 2018).

The motivated information processing perspective (De Dreu, 2006) suggests that individuals attend to and perceive information according to the underlying motivations. They selectively notice, encode, and retain information that is congruent with their own desires and motivations (De Dreu, Weingart, & Kwon, 2000). As such, individuals who are prosocially motivated will react positively to information that may enhance the interests of others (De Dreu, 2006). When assertive members have high prosocial motivation, they may promote ideas that benefit other teammates. We expect to observe that combined with high prosocial motivation, assertiveness has a prolonged positive, curvilinear effect on advice seeking by peers.

First, prosocially motivated, other-oriented individuals actively seek input for helping others (Grant & Berry, 2011) and will promote ideas for the collective good through a more persuasive rather than aggressive and confrontational way (Smith-Jentsch, Salas, & Baker, 1996). This is, for those with high prosocial motivation, a higher inflection point of the inverted U-shape occurs at which assertiveness's benefits turn into costs. Second, as peers observe prosocially motivated individuals pursuing other-oriented actions, peers will trust and seek their advice despite their high assertiveness. Thus, prosocial desires and other-focused intention can ease reluctance and concerns about seeking advice, moving the inflection point to a higher level.

In contrast, peers are more likely to view assertive members with low prosocial motivation as harsh, obnoxious, self-centered, primarily concerned about self-promotion, strongly adherent to their own opinions, and disdainful of the opinions of others (Grant & Berry, 2011; Grant et al., 2011). Thus, peers will perceive that individuals with low prosocial motivation are unwilling to help, and unlikely to provide useful information. When prosocial motivation is low, assertiveness generates a narrower range of benefits for peers' advice seeking.

*Hypothesis 3:* Prosocial motivation moderates the curvilinear relationship between assertiveness and advice seeking by peers such that a higher inflection point occurs on the

inverted-U shape for individuals high (vs. low) in prosocial motivation.

**Warmth and peer liking.** We have argued that warmth initially increases peer liking but later decreases peer liking. Similar to assertiveness, prosocial motivation may alter the curvilinear relationship. Although warmth indicates that individuals intend to initiate interpersonal interactions (Fiske et al., 2007), it does not explicitly indicate that individuals are motivated to benefit teammates or establish sustained friendships. That is, being warm and prosocially motivated differ: warmth does not equate to a desire to promote others' well-being, and prosocial motives are not necessarily carried out in warm and outgoing ways. Prior research has shown that coworker relationship and friendship are often driven by perceived benevolence and positive feelings regarding coworkers' underlying intentions (Colquitt, Baer, Long, & Halvorsen-Ganepola, 2014; Colquitt, Scott, & LePine, 2007). Therefore, we expect that prosocial motivation serves as a moderator for translating warmth into peer liking in social interactions.

Individuals with high prosocial motivation desire to promote the welfare of others, both within and outside work teams (Grant, 2012). Because teammates are likely to be the direct beneficiaries, prosocially motivated, warm individuals are likely to find ways to help teammates produce better collective outcomes (Hu & Liden, 2015). As explained, overly warm members may be socially burdensome (Erez et al., 2015), appear inauthentic (Grandey, Fisk, Mattila, Jansen, & Sideman, 2005), or naïve (Barasch et al., 2016), but if they have strong other-oriented desires, peers may be more accepting and welcoming toward overly affectionate behaviors. Consequently, warm individuals with high prosocial motivation are more likely to get along with peers and to be liked. Thus, high prosocial motivation can prolong the positive curvilinear effects of warmth on peer liking, and delay the onsite of social costs from extremely high levels of warmth. In other words, prosocial motivation increases the range of warmth that enhances peer liking and moves the inflection point to a higher level where warmth benefits become costs.

In contrast, members who have low prosocial motivation focus on information that serves their self-interests (De Dreu, 2006) rather than the interests of others. Without high prosocial motivation, warm individuals' affectionate, unreserved social manners are only self-promotional, evoking dislike and discomfort among peers. As a result, the benefits of warmth may quickly turn to social costs in interpersonal situations. That is, low levels of prosocial motivation can narrow the beneficial range of warmth and move the inflection point to the left.

*Hypothesis 4:* Prosocial motivation moderates the curvilinear relationship between warmth and peer liking such that the inflection point on the inverted-U shape is higher for individuals high (vs. low) in prosocial motivation.

### Peer Reactions and Leadership Emergence

In self-managed teams lacking formally assigned leaders, peer endorsement is critical (DeRue & Ashford, 2010). Thus, individuals who draw positive peer evaluations in task and social contexts are likely to emerge as informal leaders. The socioanalytic theory of personality explains that individuals gain influence and leadership status when they have established good reputations among

peers (Hogan, 1996; Hogan & Holland, 2003). Members who are frequently targeted for task-related advice accumulate task-related knowledge so they gain confidence in their ability to solve problems (Baldwin, Bedell, & Johnson, 1997) and comparatively high influence, central positions (Brass & Krackhardt, 1999; Foti & Hauenstein, 2007), higher status, and power (Venkataramani, Green, & Schleicher, 2010). As valued resources for teammates (Sparrowe et al., 2001; Wolff, Pescosolido, & Druskat, 2002), they ultimately emerge as informal team leaders. Similarly, individuals who are liked by peers are more likely to “get along” with them: to establish connections and relationships, to be more socially persuasive and influential (Ibarra & Andrews, 1993; Liden, Wayne, & Stilwell, 1993), and to be considered informal team leaders. In addition, peers may feel psychologically close to people they like and form high levels of social identification, which has been positively associated with leadership endorsement (Platow & van Knippenberg, 2001). Overall, we expect that members who become targets for advice and who are liked by peers will be regarded as informal team leaders.

*Hypothesis 5:* Advice seeking by peers (H5a) and peer liking (H5b) are positively related to leadership emergence.

## An Integrative Model

Based on Hypotheses 1 to 5, the overall model shows a pattern of moderated mediation relationships (Edwards & Lambert, 2007). Regarding the mediation relationships, assertiveness (warmth) instantaneously and indirectly affect leadership emergence through advice seeking by peers (peer liking). Instantaneous indirect effects occur when a nonlinear path occurs in the mediation relationship (Hayes & Preacher, 2010). Specifically, our overall model indicates that assertiveness (warmth) has an initially positive indirect effect on leadership emergence through advice seeking by peers (peer liking), but after assertiveness (warmth) exceeds the inflection point, the indirect effect becomes negative as assertiveness (warmth) further increases. Moreover, we hypothesize that prosocial motivation moderates the first-stage, curvilinear paths, and we expect it to further moderate the instantaneous indirect effects. Specifically, individuals higher in prosocial motivation can have more positive instantaneous indirect effects initially and less negative instantaneous indirect effects later along the inverted-U shape.

## Method

We test our hypothesized model in student project teams (Study 1) and intact work teams (Study 2). The student teams help us track the process of leadership emergence from the beginning of these self-managed teams (e.g., DeRue et al., 2015; Taggar et al., 1999). However, student teams have a relatively short life span and may lack the past, future, and contextual information of work teams (McGrath, 1991). Therefore, we provide a constructive replication in Study 2 using self-managed work teams and an expanded set of control variables.

### Study 1

**Sample and procedures.** A total of 260 business undergraduate students in six sections of a management course were randomly assigned to 78 self-managed teams in a university in the

Midwestern United States.<sup>1</sup> Students worked in their teams on a variety of team exercises and required projects throughout a full semester. Example team tasks included team-based simulation where each member played a role, team-based case analysis that required members to interact with each other and write up the analysis results together, team-based presentation, and report which asked members to all present a case and finish the written report together. The team task variety and interdependence necessitate the frequency and intensity of interactions among members and make the self-managed teams qualified as “real teams” (Hollenbeck, Beersma, & Schouten, 2012). Similar student teams have been used before to explore leadership emergence (e.g., DeRue et al., 2015; Taggar et al., 1999). All teams had three or four members. We invited these students to voluntarily participate in our study by filling out surveys at three time points during the semester. Participation in the study was independent from their course grades.

At the beginning of team formation (Time 1), we measured each student’s assertiveness, warmth, prosocial motivation, demographic information, and other control variables. At Time 2, 6 weeks after Time 1, we used a round-robin approach and asked each student to rate their advice seeking from, and interpersonal liking of, each of his or her teammates. At Time 3, approximately 12 weeks after Time 1 and toward the end of the semester, we used the round-robin approach again to measure each student’s leadership emergence based on peers’ ratings. We obtained complete responses across the three surveys from 223 students in 69 teams, yielding an individual level response rate of 86% and a team level response rate of 88%. The within-team response rates were all above 60% (Timmerman, 2005). Of the 223 students, 59% were men and their average age was 20 years old.

**Measures.** Unless otherwise indicated, all items used a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). At Time 1, we measured team members’ assertiveness and warmth each with an 8-item scale from the NEO Personality Inventory-3 (e.g., “I am dominant, forceful, and assertive,”  $\alpha = .75$  for assertiveness; “I find it easy to smile and be outgoing with strangers,”  $\alpha = .75$  for warmth; McCrae & Costa, 2010).<sup>2</sup> Prosocial motivation was measured at Time 1 with Grant’s (2008) 4-item scale (e.g., “I care about benefiting others through my work,”  $\alpha = .88$ ).

At Time 2, we measured peers’ advice seeking from and liking of a focal team member by asking every team member to first list all their teammates’ names and then the extent to which they agree that “I have asked this teammate for advice in solving my task-related problems” (peer advice seeking) and “This teammate is the kind of people one would like to have as a friend” (peer liking;

<sup>1</sup> The data collection was approved by the institutional review board (IRB; Protocol ID: 13-02-854) at the University of Notre Dame, with which the first author was affiliated during the data collection period.

<sup>2</sup> Although HPI Extraversion and its facets are considered “getting ahead” traits (Hogan & Holland, 2003), we believe the definition and item content in the NEO’s Warmth facet suggest it is a “getting along” trait. To provide empirical evidence for this statement, we collect additional data from 300 full-time employees in a diverse range of industries recruited via Amazon’s MTurk. We found that the correlation between warmth and Hogan’s getting along criteria was significant and positive ( $r = .73$ ,  $p < .001$ ) and in an exploratory factor analysis, all warmth items were loaded on the same factor as getting along. The assertiveness and warmth items were purchased through PAR. The data collection was approved by IRB (Protocol ID: #2019B0019) at the Ohio State University.

Seers, 1989). We used average ratings from one’s peers to reflect the focal individual member’s average advice seeking by peers (median  $r_{wg} = .67$ ; James, Demaree, & Wolf, 1993) and average peer liking (median  $r_{wg} = .92$ ).

At Time 3, we used the same round-robin method to assess a member’s leadership emergence as perceived by peers. Following previous research (Taggar et al., 1999; Zhang et al., 2012), leadership emergence is operationalized as a continuous variable. We asked team members to rate their teammates’ leadership emergence using four items ( $\alpha = .96$ ) from Nahrgang (2009) who adapted from Lord, Foti, and De Vader (1984) and Taggar et al. (1999). The items asked team members to rate each of their teammates on the extent to which this teammate exhibits leadership in the team, is a desirable leader of the team (items taken from Lord et al., 1984), exemplifies strong leadership in the team, and assumes leadership in the team (items taken from Taggar et al., 1999). The response scale for these items ranged from 1 to 7, where 1 = *almost never* and 7 = *almost always*. Based on satisfactory interrater agreement (median  $r_{wg(j)} = .84$ ), we aggregated peers’ ratings to the focal person to represent that person’s leadership emergence.

We controlled for gender given research findings that women were slightly more likely to emerge as leaders than men (Kent & Moss, 1994; Lanaj & Hollenbeck, 2015). Prior team experience (i.e., whether worked with any other team members before, and number of prior team projects completed) was controlled because it may increase work-related competence perceptions and subsequently leadership emergence (DeRue et al., 2015; Judge et al., 2002). Additionally, we controlled for the linear and curvilinear influences of team members’ other four personality traits in the Big Five framework (emotional stability, openness to experience, agreeableness, and conscientiousness) measured with five positive items from the International Personality Item Pool (IPIP; Goldberg, 1999).

**Analysis.** To account for potential influences from the team level and provide a more integrative analysis, we utilized multi-level path analyses via Mplus 8.0 to test the hypothesized rela-

tionships simultaneously. We group-mean centered all continuous predictors, control variables, moderator, and mediators given that our primary relationships were hypothesized at the individual level. Group-mean centering can partial out group-level variances when testing individual-level relationships (Enders & Tofighi, 2007; Preacher, Zyphur, & Zhang, 2010). For a curvilinear relationship  $Y = b_0 + b_1 \times X + b_2 \times X^2 + e$ , the inflection point is calculated as:  $-b_1/(2 \times b_2)$ . In our theoretical development pertaining to the moderating role of prosocial motivation, we do not expect prosocial motivation to change the concave versus convex nature of the curvilinear relationship. Because we are concerned with whether high levels of prosocial motivation will prolong the benefits of assertiveness and warmth on peer reactions (i.e., shifts in the inverted U-shape’s inflection points), we followed the recommendations of Pierce and Aguinis (2013, p. 326, Equation 4) and tested the moderated curvilinear relationship using the following equation:

$$Y = b_0 + b_1 \times X + b_2 \times M + b_3 \times XM + b_4 \times X^2 + e$$

where X is the predictor, M is the moderator, and Y is the outcome variable. In this model, when the moderator is at high versus low levels ( $M_H$  and  $M_L$ ), the inflection points are  $-(b_1 + b_3 \times M_H)/(2 \times b_4)$  and  $-(b_1 + b_3 \times M_L)/(2 \times b_4)$ , respectively. The shift of the inflection points is the difference between these two values. Previous studies (Langfred, 2004; Sui, Wang, Kirkman, & Li, 2016; Tangirala & Ramanujam, 2008) used the same approach to test moderated curvilinear effects. Calculating the shifts of inflection points and the instantaneous indirect effects requires examining nonnormally distributed compound coefficients. We followed the Monte Carlo bootstrapping approach recommended by Preacher and Selig (2012) to create 95% Monte Carlo bootstrapped confidence intervals (CIs, with 20,000 resamples).

**Results.** Table 1 presents the descriptive statistics and correlations among study variables. Tables 2 and 3 show the multilevel path modeling results for testing Hypotheses 1–2 and Hypotheses 3–5, respectively. Both multilevel path models in Tables 2 and 3 were fully saturated and, thus, had perfect model fit.

Table 1  
Study 1: Descriptive Statistics and Correlations

No.	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Gender <sup>T1</sup>	.41	.49	—												
2.	Prior within-team experience <sup>T1</sup>	1.09	.28	-.06	—											
3.	Number of prior team projects <sup>T1</sup>	5.14	3.77	-.03	-.10	—										
4.	Emotional stability <sup>T1</sup>	5.57	.98	-.02	.08	.02	(.85)									
5.	Openness <sup>T1</sup>	4.84	.94	.10	-.04	.12	.01	(.69)								
6.	Agreeableness <sup>T1</sup>	5.55	.76	.14*	-.03	.01	.19**	.17*	(.73)							
7.	Conscientiousness <sup>T1</sup>	5.17	1.01	.15*	.02	.02	.25**	.10	.23**	(.79)						
8.	Assertiveness <sup>T1</sup>	4.43	.95	-.01	-.07	.02	.26**	.19**	.03	.24**	(.75)					
9.	Warmth <sup>T1</sup>	4.59	1.15	.11	.00	-.05	.23**	-.09	.31**	.03	.33**	(.75)				
10.	Prosocial motivation <sup>T1</sup>	6.19	.87	.07	-.11	.07	.05	.06	.36**	.10	.06	.14*	(.88)			
11.	Advice seeking by peer <sup>T2</sup>	6.15	.74	.01	.00	.02	-.09	-.03	.02	-.01	.13*	.08	-.04	—		
12.	Peer liking <sup>T2</sup>	6.08	.88	-.10	.05	.06	-.09	-.02	.02	-.08	.07	-.07	.05	.34**	—	
13.	Leadership emergence <sup>T3</sup>	5.00	1.19	.13	.04	-.02	.08	-.04	.09	.12	.27**	.09	.13	.43**	.39**	(.96)

Note. N = 223 individuals in 69 teams. Gender was coded as 0 = male and 1 = female. Prior within-team experience was measured as a dichotomous variable such that 1 = no prior teamwork experience with any other members in the team, and 2 = have prior teamwork experience with one or more members in the team. Reliability coefficients are reported in parentheses along the diagonal. Time 2 (T2) was 6 weeks after Time 1 (T1) and Time 3 (T3) was 6 weeks after T2.

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

Table 2  
 Study 1: Multilevel Path Modeling Results for Hypotheses 1 and 2 (Main-Effect Model)

Variable	Advice seeking by peers				Peer liking				Leadership emergence			
	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>
Control variables												
Gender	.10	.07	.10	1.50	.07	.05	.09	1.44	.29	.17	.14	1.76
Prior within-team experience	.11	.12	.06	.90	-.10	.10	-.07	-1.01	.21	.26	.06	.83
Number of team projects completed	.01	.01	.09	1.44	.01	.01	.10	2.05*	.00	.02	-.01	-.23
Emotional stability	-.02	.05	-.04	-.49	-.04	.04	-.09	-1.17	.19	.08	.15	2.58**
Openness	-.01	.07	-.01	-.14	-.04	.04	-.07	-.87	-.14	.09	-.09	-1.54
Agreeableness	-.04	.08	-.05	-.51	-.02	.06	-.03	-.35	.13	.11	.08	1.21
Conscientiousness	.00	.05	.00	-.02	-.07	.04	-.14	-1.87	.03	.08	.03	.46
Emotional stability-squared	.01	.03	.01	.23	.03	.02	.09	1.90	.04	.06	.04	.67
Openness-squared	.08	.03	.12	2.43*	.02	.03	.03	.51	.22	.08	.15	2.70**
Agreeableness-squared	-.01	.05	-.01	-.13	.01	.03	.01	.24	-.14	.12	-.08	-1.18
Conscientiousness-squared	.03	.03	.05	.91	.00	.02	.00	-.07	-.01	.09	-.01	-.11
Main predictors/moderator												
Assertiveness	.18	.09	.28	2.22*	.01	.04	.02	.24	.33	.08	.24	3.93**
Warmth	-.06	.06	-.10	-1.00	-.09	.04	-.18	-2.10*	-.06	.09	-.04	-.65
Prosocial motivation	-.03	.09	-.04	-.36	-.05	.04	-.08	-1.09	.22	.09	.14	2.63**
Square terms												
Assertiveness-squared	-.17	.06	-.28	-2.92**	.01	.03	.03	.43	.07	.09	.06	.84
Warmth-squared	.00	.03	-.01	-.13	-.05	.02	-.10	-2.04*	.13	.08	.10	1.66
Mediators												
Advice seeking by peers									.63	.12	.30	4.63***
Peer liking									.50	.17	.18	3.04**
<i>R</i> <sup>2</sup>	.18				.13				.31			

Note. Within-level *R*<sup>2</sup> are reported.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

As shown in Table 2, after partialing out the control variables, warmth and its squared term, prosocial motivation, and the main effect of assertiveness, we found that the square term of assertiveness was negatively related to advice seeking by peers ( $b = -.17$ ,  $SE = .06$ ,  $p < .01$ ). To depict the pattern of this curvilinear relationship, we plotted it in Figure 2 using procedures recommended by Cohen, Cohen, West, and Aiken (2003). As shown in Figure 2, assertiveness had an inverted U-shaped relationship with advice seeking by peers such that the relationship showed an upward trend at lower levels of assertiveness and a downward trend at higher levels of assertiveness. The inflection point was calculated as .53 (i.e.,  $-b_1/(2 \times b_2) = -.18/(2 \times (-.17))$ ). To further investigate the simple slopes of assertiveness in predicting advice seeking by peers at different values of assertiveness, we calculated these simple slopes and presented them in Table 4. As shown in Table 4 (upper panel, main effect model), the simple slope is 1.00 ( $p < .001$ ) when assertiveness is at its minimum value. The simple slopes become smaller in magnitude as assertiveness increases and when it reaches its maximum value, the simple slope is  $-.43$  (*ns*). Overall, these simple slopes show the same pattern as depicted in Figure 2, supporting Hypothesis 1. Table 2 also reveals that the square term of warmth was negatively related to peer liking ( $b = -.05$ ,  $SE = .02$ ,  $p < .05$ ), after partialing out the effects of other variables in the model. Figure 3 shows that peer liking increases as warmth increases initially but after reaching a point, it decreases as warmth further increases. The inflection point is calculated at  $-.94$ . Table 4 (lower panel, main effect model) shows the simple slopes at different values of warmth, and these simple slopes show the same pattern as depicted in Figure 3, supporting Hypothesis 2.

As shown in Table 3, the interaction term between assertiveness and prosocial motivation was not significant ( $b = .03$ ,  $SE = .06$ , *ns*) and the lateral shift at high versus low levels of prosocial motivation has a CI including zero (shift quantity = .12 with 95% Monte Carlo bootstrapped CI =  $-.57, .67$ ). Thus, we did not find support for Hypothesis 3. Table 3 shows that prosocial motivation and warmth positively interacted in relating to peer liking ( $b = .12$ ,  $SE = .05$ ,  $p < .01$ ). We plotted this moderating effect in Figure 4, showing that the inverted U-shaped relationship between warmth and peer liking has a higher inflection point for individuals with higher prosocial motivation. We calculated the lateral shift quantity (= .89) and its CIs excluded zero (95% Monte Carlo bootstrapped CI = .36, 1.73). Further, we calculated the conditional simple slopes and reported them in the lower left panel of Table 4. The pattern of simple slopes at high versus low levels of prosocial motivation shows that prosocial motivation amplifies the initial positive influence of warmth on peer liking and reduces the negative effect of high warmth on peer liking. Thus, Hypothesis 4 was supported.<sup>3</sup> In addition, results in Table 3 showed that both advice seeking by peers ( $b = .65$ ,  $SE = .12$ ,  $p < .001$ ) and peer liking ( $b = .49$ ,  $SE = .19$ ,  $p < .01$ ) were positively related to leadership emergence. Note that Table 2 shows similar coeffi-

<sup>3</sup> Because of our focus on the shift of the inflection points of the inverted-U shapes, we do not include the interaction between the square term of extraversion facets and prosocial motivation. As a robustness check, we conducted supplementary analyses by adding the assertiveness-squared  $\times$  prosocial motivation and warmth-squared  $\times$  prosocial motivation terms to predict the mediators and outcome. Our conclusions for the hypothesized relationships remain unchanged.

Table 3  
 Study 1: Multilevel Path Modeling Results for Hypotheses 3 to 5 (Moderating Model)

Variable	Advice seeking by peers				Peer liking				Leadership emergence			
	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>
Control variables												
Gender	.10	.07	.10	1.50	.06	.05	.08	1.21	.29	.16	.14	1.82
Prior within-team experience	.11	.12	.06	.97	-.09	.09	-.06	-.94	.17	.26	.04	.67
Number of prior team projects completed	.01	.01	.09	1.42	.01	.01	.11	2.04*	.00	.02	-.02	-.27
Emotional stability	.02	.03	-.04	-.48	-.04	.04	-.08	-1.10	.19	.08	.15	2.50**
Openness	.00	.05	-.01	-.13	-.04	.04	-.08	-.98	-.15	.09	-.10	-1.61
Agreeableness	-.02	.05	-.05	-.51	-.03	.06	-.05	-.47	.13	.11	.08	1.20
Conscientiousness	-.01	.07	-.01	-.07	-.07	.04	-.15	-2.02*	.06	.08	.05	.75
Emotional stability-squared	-.04	.08	.02	.27	.04	.02	.10	2.14*	.03	.06	.03	.46
Openness-squared	.01	.03	.12	2.29*	.00	.03	-.01	-.08	.21	.09	.14	2.42*
Agreeableness-squared	.08	.04	-.01	-.21	.00	.03	.00	.00	-.11	.11	-.06	-.97
Conscientiousness-squared	-.01	.05	.05	.87	.00	.02	.01	.11	-.01	.09	-.01	-.10
Main predictors/moderator												
Assertiveness	.18	.09	.28	2.21*	.01	.04	.02	.25	.32	.08	.23	3.83***
Warmth	-.06	.06	-.10	-1.01	-.09	.04	-.18	-2.12*	-.05	.09	-.03	-.52
Prosocial motivation	-.03	.08	-.05	-.41	-.03	.04	-.06	-.83	.25	.10	.16	2.66**
Square terms												
Assertiveness-squared	-.17	.06	-.28	-2.85**	.03	.04	.05	.74	.06	.08	.04	.70
Warmth-squared	-.01	.04	-.02	-.23	-.08	.03	-.17	-3.08**	.18	.08	.14	2.46*
Interactive terms												
Prosocial motivation $\times$ Assertiveness	.03	.06	.03	.49	-.05	.05	-.06	-.91	-.31	.13	-.16	-2.36*
Prosocial motivation $\times$ Warmth	.01	.04	.01	.13	.12	.05	.18	2.90**	-.04	.11	-.02	-.38
Mediators												
Advice seeking by peers									.65	.12	.30	4.94***
Peer liking									.49	.19	.18	2.58**
$R^2$	.18				.16				.33			

Note. Within-level  $R^2$  are reported.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

clients of the mediators, but we relied upon Table 3 results because this model incorporates the moderating effects in the first stage of the model. Hypotheses 5a and 5b were both supported.

As supplementary analyses, we examined the instantaneous indirect effects (Hayes & Preacher, 2010) and the conditional instantaneous indirect effects at high versus low levels of the moderator in Table 4. Because Hypothesis 3 was not supported and the conditional instantaneous indirect effect was built upon it, we did not estimate these effects for assertiveness. We expected that the instantaneous

indirect effect of warmth on leadership emergence through peer liking is moderated by prosocial motivation. As shown in the lower right panel of Table 4, warmth's instantaneous indirect effects (via peer liking) changed sign (from positive to negative) when the predictor increases from its minimum value to the maximum. Moreover, when prosocial motivation is high versus low, the instantaneous indirect effects of warmth have different magnitudes. The pattern of these findings shows that prosocial motivation moderates the instantaneous indirect effect of warmth.

## Study 2

**Sample and procedures.** As a constructive replication, we collected Study 2 data from intact work teams in a large retail company in a city in China.<sup>4</sup> The company sells snack foods such as candied fruit, puffed food, minced meat, and pastries to customers. One retail store is considered a self-managed work team because employees of the store have a common goal, work inter-dependently, and have relatively stable membership in the store (Hackman, 2002). Specifically, the common goal for a store is to promote its sales, when customers come in, team members may work closely to meet with this goal. Some members introduce different snack foods to satisfy customers' needs, some help take

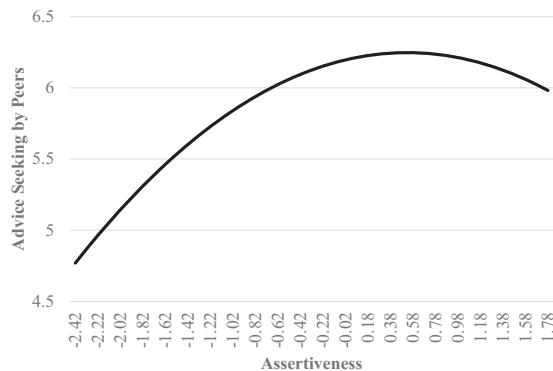


Figure 2. Study 1: Relationship between assertiveness and advice seeking by peers. The *x*-axis reports the range of the minimum (-2.42) and maximum (1.78) values of group-mean centered assertiveness.

<sup>4</sup> In conducting Study 2, even though the IRB is unavailable in China, we complied with all guidelines for the ethical treatment of human subjects. The fourth author, who was not affiliated with the participating company, collected the data.



Table 4  
Study 1: Simple Slopes and Instantaneous Indirect Effects

Model	Path a simple slope (SE)							Path b (SE)
	Min	-1.5	-.75	0	.75	1.5	Max	
Assertiveness—advice seeking by peers—leadership emergence								
Main-effect model	1.00*** (.27)	.69*** (.17)	.44*** (.11)	.18* (.09)	-.08 (.14)	-.33 (.22)	-.43 (.25)	.63*** (.12)
Warmth—peer liking—leadership emergence								
Main-effect model	.14 (.12)	.05 (.08)	-.02 (.05)	-.09* (.04)	-.16** (.06)	-.23** (.09)	-.26** (.10)	.50** (.17)
Moderating model								
High prosocial motivation	.38* (.17)	.24* (.12)	.11 (.08)	-.01 (.05)	-.14** (.05)	-.27** (.08)	-.31** (.09)	.49* (.19)
Low prosocial motivation	.24 (.13)	.09 (.08)	-.04 (.05)	-.16*** (.04)	-.29*** (.07)	-.41*** (.11)	-.46** (.13)	.49* (.19)

Note. Min, -1.5, -.75, 0, .75, 1.5, and Max refer to the values of the group-mean centered predictor variable (assertiveness or warmth). The simple slopes for a curvilinear relationship  $Y = b_0 + b_1 \times X + b_2 \times X^2$  are calculated as  $\partial Y / \partial X = b_1 + 2 \times b_2 \times X$ , where  $b_1$  and  $b_2$  are unstandardized regression coefficients. CI refers to Monte Carlo bootstrapped confidence intervals. Main-effect and moderating models correspond to Tables 2 and 3, respectively. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

the order, some prepare and serve food. Their specific task roles are not fixed and they will fill in a role whenever their team needs it. Furthermore, there is only team-based performance evaluation on a quarterly basis. Pay raises and bonuses are based on the whole store's performance rather than individual performance. As a key characteristic of self-managed teams, these stores or teams do not have designated store managers. Instead, employees in a store are all at the same hierarchical level and they collectively report to a regional manager who supervises 10 to 20 stores at the same time.

We distributed surveys on site at two points in time. Participation was voluntary, and responses were kept strictly confidential. At Time 1, we invited all 424 team members in 82 stores located in the same district of the city to provide information about their assertiveness, warmth, prosocial motivation, demographics, and other control variables. At Time 2, 3 months after Time 1, we used a store roster approach (similar to Study 1) to measure each member's advice seeking by peers, peer liking, and leadership emergence based on peers' ratings. After excluding teams with only 1 or 2 members completing the surveys, we received complete responses from 337 team members from 79 stores (individual level response rate is 79%). With-team response rates all exceeded the recommended 60% criterion (Timmerman, 2005). The average

team size was four. Among employees, 62% were women, and 57% of them had received college education or higher. All participating employees were assigned to their current store since they joined the company; thus, store employees' organizational tenure was the same as their store tenure. Their average tenure with the organization or store was 4.89 years.

**Measures.** All scales were originally developed in English and we followed the translation-back-translation procedure (Brislin, 1986) to translate them into Chinese. Unless otherwise indicated, all items used a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). At Time 1, we measured assertiveness ( $\alpha = .69$ ), warmth ( $\alpha = .79$ ), and prosocial motivation ( $\alpha = .81$ ) with the same scales as in Study 1 (Grant, 2008; McCrae & Costa, 2010).

At Time 2, 3 months after Time 1, we measured advice seeking by peers and peer liking by asking each peer to provide ratings on the same one-item scales that we used in Study 1. Similar to Study 1, we averaged all peers' ratings to reflect a focal member's advice seeking by peers and peer liking (advice seeking by peers: median  $r_{wg} = .99$ ; peer liking: median  $r_{wg} = .96$ ; James et al., 1993). Also at Time 2, we used the same round-robin method and the same

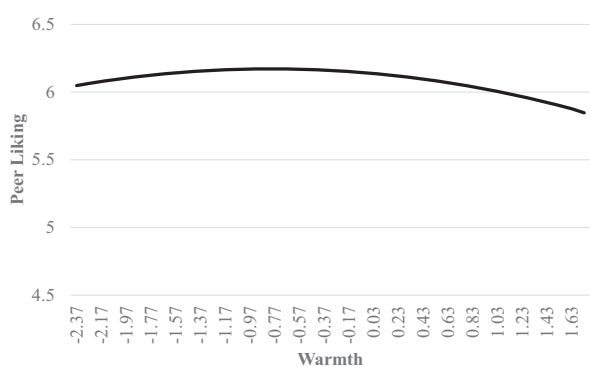


Figure 3. Study 1: Relationship between warmth and peer liking. The x-axis reports the range of the minimum (-2.37) and maximum (1.75) values of group-mean centered warmth.

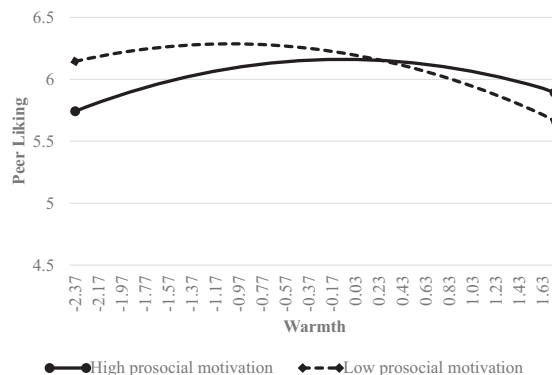


Figure 4. Study 1: Interactive effect of warmth and prosocial motivation on peer liking. The x-axis reports the range of the minimum (-2.37) and maximum (1.75) values of group-mean centered warmth.

Table 4 (continued)

Instantaneous indirect effect (95% CI)						
Min	-1.5	-.75	0	.75	1.5	Max
Assertiveness—advice seeking by peers—leadership emergence						
.64*** [.29, 1.01]	.44*** [.21, .69]	.28** [.13, .45]	.11* [.005, .26]	-.05 [-.20, .14]	-.21 [-.44, .06]	-.27 [-.54, .04]
Warmth—peer liking—leadership emergence						
.07 [-.05, .20]	.03 [-.06, .11]	-.01 [-.07, .04]	-.05* [-.10, -.003]	-.08* [-.16, -.02]	-.12* [-.23, -.02]	-.13* [-.26, -.03]
.19* [.01, .41]	.12 [-.003, .28]	.05 [-.03, .15]	-.01 [-.07, .05]	-.07* [-.16, -.01]	-.13* [-.27, -.03]	-.15* [-.31, -.03]
.12 [-.01, .29]	.04 [-.04, .14]	-.02 [-.08, .03]	-.08* [-.15, -.02]	-.14* [-.27, -.03]	-.20* [-.39, -.04]	-.22* [-.44, -.05]

four-item scale to measure leadership emergence as we did in Study 1 ( $\alpha = .95$ ). Based on acceptable interrater agreement index (median  $r_{wg(j)} = .99$ ), we aggregated peers' ratings of a focal person to represent that person's leadership emergence.

We controlled for several demographic variables (gender, store tenure, and education) because of their potential influence on leadership emergence (Zhang et al., 2012). Similar to Study 1, we controlled for individual members' other Big Five personality traits (emotional stability, openness to experience, agreeableness, and conscientiousness) and their square terms. Each personality trait was measured with a 10-item scale of the IPIP (Goldberg, 1999). Extending Study 1, we measured the other four facets of extraversion using the NEO scale (gregariousness, activity, excitement-seeking, and positive emotions) and controlled for their potentially curvilinear influences on leadership emergence processes. Further, because team members' prior successful work experience together might influence their perceptions of, and interactions with, each other, we included prior team performance at Time 1 as a control variable. Prior team performance was measured as quarterly sales growth performance and was provided by the company's accounting department (cf., Batt, 2002; Jiang, Chuang, & Chiao, 2015).

**Analysis.** We used the same multilevel path-analytical procedures as in Study 1. Group-mean centering was used and the endogenous variables were decomposed into their between-groups and within-group components in Mplus. Similar to Study 1, we focused on the within-group coefficients between the mediators and the outcome (Preacher et al., 2010).

**Results.** Table 5 presents the descriptive statistics and correlations among study variables. Tables 6 and 7 show the results of the main effect inverted U-shapes for testing Hypotheses 1–2 and the moderating effects of prosocial motivation for testing Hypotheses 3–5, respectively. The main effect and moderating models were both fully saturated and had perfect model fit. As shown in Table 6, after including all control variables and main effects of predictors, the square term of assertiveness was negatively related to advice seeking by peers ( $b = -.25$ ,  $SE = .07$ ,  $p < .001$ ). We plotted this relationship in Figure 5 that reveals that advice seeking by peers increases as assertiveness increases until a tipping point, and after that, advice seeking by peers decreases as assertiveness further increases. The inflection point is calcu-

lated as  $.19$  (i.e.,  $-b_1/(2 \times b_2) = -.09/(2 \times (-.25))$ ). Similar to Study 1, we calculated such simple slopes and reported them in Table 8. As the upper panel of Table 8 shows, the simple slopes changed from  $1.44$  ( $p < .01$ ) to  $-1.01$  ( $p < .01$ ) when assertiveness increases from its minimum to maximum value of the data. Therefore, Hypothesis 1 was supported.

Results in Table 6 also revealed that the square term of warmth was significantly related to peer liking ( $b = -.19$ ,  $SE = .09$ ,  $p < .05$ , inflection point =  $-.13$ ). As Figure 6 and Table 8 show, warmth initially had a positive sign (simple slopes are positive yet nonsignificant, e.g.,  $b = .92$ ,  $SE = .49$ ,  $p = .059$ ;  $b = .51$ ,  $SE = .28$ ,  $p = .069$ ) relating to peer liking up to a point, after which peer liking significantly decreases as warmth increases (e.g.,  $b = -.70$ ,  $SE = .35$ ,  $p < .05$ ). Based on the significant square term, we conclude that the general pattern of results supported Hypothesis 2, despite at some points along the inverted U-shape, the simple slopes are not significant.

Table 7 shows that after partialing out all control variables, predictors, and squared-terms, the interaction term between assertiveness and prosocial motivation was positively related to advice seeking by peers ( $b = .31$ ,  $SE = .11$ ,  $p < .01$ ). Figure 7 depicts the pattern such that the inflection point of the inverted U-shaped relationship was higher for those with high prosocial motivation than for those with low prosocial motivation. We calculated the lateral shift at high versus low levels of prosocial motivation and its CI excluded zero (shift quantity =  $1.21$ , 95% Monte Carlo bootstrapped CI =  $.37$ ,  $2.98$ ). In addition, we calculated the conditional simple slopes in the upper panel of Table 8 and the pattern of simple slopes at high versus low levels of prosocial motivation are similar to that shown in Figure 7. Thus, Hypothesis 3 was supported.

Results in Table 7 also showed that warmth and prosocial motivation positively interacted with each other in relating to peer liking ( $b = .21$ ,  $SE = .10$ ,  $p < .01$ ). As shown in Figure 8, prosocial motivation amplified the curvilinear effect of warmth on peer liking, such that the point of inflection shifted to the right for high prosocial motivation condition as compared with the low condition. Formally, the lateral shift quantity was  $.68$  and its 95% Monte Carlo bootstrapped CI exclude zero ( $= .10$ ,  $1.97$ ). We calculated the conditional simple slopes in the lower panel of Table 8, and these simple slopes demonstrated the same pattern as

Table 5  
Study 2: Descriptive Statistics and Correlations

No.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	Gender <sup>T1</sup>	—																	
2.	Store tenure <sup>T1</sup>	.12*	—																
3.	Education <sup>T1</sup>	.04	.02	—															
4.	Emotional stability <sup>T1</sup>	-.01	-.14**	-.15**	(.71)														
5.	Openness <sup>T1</sup>	-.02	-.07	-.03	.12*	(.68)													
6.	Agreeableness <sup>T1</sup>	-.01	-.13*	-.01	.38**	.44**	(.77)												
7.	Conscientiousness <sup>T1</sup>	.00	-.08	.06	.25**	.38**	.40**	(.75)											
8.	Assertiveness <sup>T1</sup>	.05	-.03	-.04	.00	.16**	.07	-.09	(.69)										
9.	Warmth <sup>T1</sup>	.07	.00	-.04	.12*	.44**	.48**	-.08	.39**	(.79)									
10.	Gregariousness <sup>T1</sup>	.02	-.03	.02	-.02	.21**	-.03	.07	.47**	.37**	(.81)								
11.	Activity <sup>T1</sup>	.10	-.04	.03	.17	.23**	.18**	.43**	-.04	.26**	.06	(.55)							
12.	Excitement-seeking <sup>T1</sup>	.05	.00	.07	-.10	.08	-.07	.32**	-.06	-.13*	.21**	.26**	(.66)						
13.	Positive emotions <sup>T1</sup>	.08	-.05	-.02	-.01	-.04	-.02	-.19**	.40**	.32**	.44**	.15**	.15**	(.77)					
14.	Prosocial motivation <sup>T1</sup>	-.03	-.06	.01	.22**	.38**	.35**	.45**	-.03	.22**	.11	.21**	-.07	.15**	(.81)				
15.	Prior team performance <sup>T1</sup>	-.06	.08	-.07	.01	.08	-.08	.03	-.06	-.04	-.02	.01	-.03	-.04	-.02	—			
16.	Advice seeking by peers <sup>T2</sup>	-.01	.03	-.12*	-.05	-.03	-.09	.11*	-.11*	-.17**	-.16**	.07	.14*	-.18**	.15**	.08	—		
17.	Peer liking <sup>T2</sup>	.05	.11*	-.06	-.07	.00	-.06	.07	.00	-.03	-.02	.08	.13*	-.06	.14*	-.08	.52**	—	
18.	Leadership emergence <sup>T2</sup>	.03	.08	.10	-.10	-.08	-.07	.11	.00	-.09	.06	-.01	.09	-.01	-.04	.01	.24**	.19**	(.95)
	Mean	.62	4.89	3.57	5.7	4.28	5.46	5.44	4.03	4.57	4.06	4.99	4.07	6.07	5.77	-.01	5.63	5.93	4.69
	SD	.49	2.29	.51	.73	.72	.76	.71	.74	.77	.68	.53	.76	.6	.89	.15	.87	.66	1.07

Note.  $N = 337$  members. Scores for team performance were assigned down to their respective individual member cases. The effective  $n$  for team performance is 79. Gender was coded as 0 = male and 1 = female. Advice seeking = Advice seeking by peers. Reliability coefficients are reported in parentheses along the diagonal. Time 2 (T2) was 3 months after Time 1 (T1).

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

shown in Figure 8. Overall, Hypothesis 4 was supported.<sup>5</sup> Table 7 additionally shows that, in support of Hypotheses 5a and 5b, advice seeking by peers ( $b = .28$ ,  $SE = .10$ ,  $p < .05$ ) and peer liking ( $b = .39$ ,  $SE = .14$ ,  $p < .01$ ) were positively related to leadership emergence.

Similar to Study 1, we conducted supplementary analyses to examine the instantaneous indirect effect and the conditional indirect effect at high versus low levels of prosocial motivation. As shown in the right panel of Table 8, assertiveness's instantaneous indirect effects had different magnitude for the high versus low prosocial motivation conditions. In the high prosocial motivation condition, the instantaneous indirect effects are more positive and less negative at various values of assertiveness. Similarly, warmth has differential instantaneous indirect effects on leadership emergence via peer liking at high versus low moderator conditions. As various values of warmth, the instantaneous indirect effects were more positive or less negative when prosocial motivation is high as opposed to low. Overall, our findings supported the moderating role of prosocial motivation in enhancing the instantaneous indirect effect of assertiveness (warmth) on leadership emergence via advice seeking by peers (peer liking).

## Discussion

Our two studies show that the assertiveness and warmth facets of extraversion have an initially positive relationship with advice seeking by peers and peer liking, respectively, but the relationships decrease and become negative as assertiveness and warmth increase to high levels. We also find that when individuals are highly prosocially motivated, warmth has a prolonged and strengthened positive effect on peer reactions and subsequently leadership emergence. Prosocial motivation similarly moderated assertiveness effects in Study 2 but not in Study 1.

## Theoretical Implications

Our primary contribution lies in the faceted approach to examining how extraversion influences leadership emergence through peer reactions in task and social contexts. Abundant yet ambivalent empirical evidence shows that the broad trait of extraversion plays a role in leadership emergence in teams (Judge et al., 2002), but facets of extraversion must be carefully considered (Judge et al., 2013). The socioanalytic theory of personality (Hogan, 1996) guided us in finding that the assertiveness facets have meaningful, curvilinear impacts on peer evaluations of getting ahead efforts, and the warmth facets have meaningful, curvilinear impacts on peer evaluations of getting along efforts, and ultimately on leadership emergence. Our findings help resolve ambiguities about extraversion effects on leadership outcomes by providing a clearer and more nuanced understanding of extraversion effects in self-managed teams (Ames & Flynn, 2007), and by examining the central role of peers in selecting and endorsing informal leaders. Lab or educational settings have been predominantly used to examine self-managed teams and leadership emergence (e.g., Barry & Stewart, 1997; Bass, 1949; Taggar et al., 1999), but our samples of leaderless student teams and fulltime self-managed sales teams provide more enriched settings and deeper understandings of how informal leaders emerge in diverse settings.

Our findings also help advance understandings of the complex, ongoing within-team interactions that relate assertiveness and warmth to leadership emergence. Self-managed teams are characterized by frequent interactions and communications among individual members. By considering how peers respond to a focal

<sup>5</sup> Similar to Study 1, we conducted supplementary analyses by adding the interaction effects between assertiveness's and warmth's squared terms and prosocial motivation in predicting the mediators and the dependent variable. Our conclusions remain unchanged after adding these terms.

Table 6  
 Study 2: Multilevel Path Modeling Results for Hypotheses 1 and 2 (Main-Effect Model)

Variable	Advice seeking by peers				Peer liking				Leadership emergence			
	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>
Individual-level control variables												
Gender	-.03	.08	-.02	-.39	.01	.05	.01	.10	-.02	.09	-.02	-.24
Store tenure	-.00	.02	-.01	-.10	.02	.01	.11	2.02*	.02	.02	.07	1.05
Education	-.02	.09	-.02	-.23	.04	.07	.04	.51	-.01	.09	-.01	-.09
Emotional stability	.06	.07	.05	.89	-.00	.04	-.01	-.10	-.16	.09	-.14	-1.98*
Openness	-.07	.06	-.06	-1.14	-.00	.04	-.01	-.12	-.08	.08	-.07	-1.07
Agreeableness	-.12	.07	-.12	-1.79	-.02	.05	-.03	-.50	.03	.14	.03	.24
Conscientiousness	.05	.06	.04	.76	.04	.04	.05	.92	.10	.10	.08	.98
Gregariousness	-.12	.07	-.11	-1.73	-.01	.03	-.01	-.26	-.06	.09	-.05	-.68
Activity	.10	.08	.07	1.21	.03	.04	.03	.89	-.07	.11	-.04	-.61
Excitement-seeking	.13	.05	.12	2.81**	.02	.04	.02	.47	-.04	.09	-.04	-.47
Positive emotions	.02	.06	.02	.36	.04	.06	.04	.71	-.07	.07	-.05	-.97
Emotional stability-squared	.04	.08	.03	.51	-.02	.04	-.02	-.37	-.12	.06	-.09	-2.08*
Openness-squared	.15	.07	.13	2.29*	.12	.06	.15	2.22*	-.14	.06	-.12	-2.25*
Agreeableness-squared	-.01	.08	-.02	-.15	.01	.05	.02	.27	.08	.14	.09	.52
Conscientiousness-squared	-.18	.09	-.13	-1.95	-.14	.11	-.14	-1.40	.17	.12	.11	1.35
Gregariousness-squared	.06	.09	.05	.72	.04	.05	.04	.87	.06	.08	.04	.75
Activity-squared	.18	.08	.11	2.63**	.11	.05	.09	2.35*	-.07	.11	-.04	-.65
Excitement-seeking-squared	.05	.05	.05	.94	.03	.05	.04	.58	.09	.09	.09	1.12
Positive emotions-squared	-.06	.09	-.04	-.74	.03	.06	.03	.48	-.03	.15	-.02	-.16
Team-level control variable												
Prior team performance	.32	.45	.09	.73	-.32	.36	-.11	-.91	-.16	.54	-.04	-.30
Main predictors/moderator												
Assertiveness	.09	.07	.09	1.30	.05	.04	.06	1.36	-.04	.07	-.04	-.62
Warmth	-.05	.09	-.05	-.55	-.05	.06	-.07	-.83	.08	.12	.08	.70
Prosocial motivation	.01	.05	.01	.10	.03	.04	.05	.75	.01	.08	.01	.12
Square terms												
Assertiveness-squared	-.25	.07	-.26	-3.57***	.01	.03	.01	.23	.03	.06	.03	.51
Warmth-squared	-.26	.09	-.34	-3.39***	-.19	.09	-.33	-2.40*	.20	.12	.24	1.68
Mediators												
Advice seeking by peers									.27	.10	.25	2.50*
Peer liking									.34	.14	.23	2.40*
<i>R</i> <sup>2</sup>	.30				.13				.20			

Note. Within-level *R*<sup>2</sup> are reported.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

member's assertiveness or warmth, we capture the dynamic and complex nature of within-team interactions and provide a nuanced view of how peer reactions influence leadership emergence processes. Our findings show that assertiveness has an initially positive influence on advice seeking by peers, but as assertiveness increases, the effect is weakened and becomes negative. In both studies, we also find that warmth has a similarly inverted U-shaped effect on peer liking. Furthermore, peer reactions were positively related to leadership emergence.

Our research extends the literature by introducing prosocial motivation as a critical contingency. Extraverts are often criticized for using task and social situations to gain attention and status (Ashton et al., 2002). By integrating two seemingly paradoxical perspectives, we show that highly assertive or warm members can be prosocially motivated and go beyond self-interests to help others and promote collective outcomes. This integration enables us to provide a clearer and more balanced view of the role played by extraversion facets, address calls to utilize a contingency approach to the relationship between traits and leadership emergence (Avolio, 2007), and additionally confirm that extraversion may not always result in desirable outcomes for team members and leaders (Ames & Flynn, 2007; Grant, 2013; Grant et al., 2011).

Regarding effects of assertiveness, in Study 2, prosocial motivation amplified the positive effect on advice seeking; the inflection point moved higher. In other words, assertive employees are often strong advocates for their ideas. If peers perceive that the advocacy is intended to benefit others, they will see assertive employees as useful sources for work-related advice. Consequently, assertive employees emerge as informal leaders. However, Study 1 did not indicate the moderating effect. With respect to warmth, in both Studies 1 and 2, when individuals are "givers" with high prosocial motivations, their warmth tends to have an enhanced, prolonged positive influence on peer liking in social interactions. In contrast, when they are "takers" with low prosocial motivation, their warmth is more likely to reduce peer liking, damage friendships, and ultimately hinder leadership emergence. Prosocial motivation may be a stronger moderator in the warmth—leadership emergence relationship than in the assertiveness—leadership emergence relationship because the two constructs are conceptually different. Warmth indicates intentions to form close attachments (McCrae & Costa, 2010); prosocial motivation suggests desires to promote others' interests (Grant, 2007). Thus, prosocial motivation is more aligned with warmth, as both focus on interpersonal interactions. From a trait-activation perspective

Table 7  
Study 2: Multilevel Path Modeling Results for Hypotheses 3 to 5 (Moderating Model)

Variable	Advice seeking by peers				Peer liking				Leadership emergence			
	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>b</i>	<i>SE</i>	$\beta$	<i>t</i>
Gender	-.03	.08	-.02	-.42	.00	.05	.00	.07	-.03	.09	-.02	-.28
Store tenure	-.01	.02	-.02	-.35	.02	.01	.09	1.79	.02	.02	.08	1.13
Education	-.03	.08	-.03	-.41	.02	.07	.02	.33	-.01	.09	-.00	-.06
Emotional stability	.09	.06	.08	1.35	.01	.04	.01	.27	-.20	.08	-.16	-2.51*
Openness	-.03	.06	-.02	-.43	.02	.04	.03	.62	-.13	.08	-.11	-1.73
Agreeableness	-.14	.07	-.13	-1.99*	-.00	.05	-.00	-.02	.01	.13	.01	.08
Conscientiousness	.00	.07	.00	.04	.03	.04	.03	.62	.12	.10	.10	1.21
Gregariousness	-.11	.07	-.10	-1.62	.01	.03	.01	.18	-.08	.09	-.06	-.89
Activity	.10	.07	.07	1.40	.02	.04	.02	.38	-.04	.11	-.02	-.35
Excitement-seeking	.09	.05	.08	2.01*	-.02	.04	-.02	-.43	.02	.08	.02	.22
Positive emotions	.01	.06	.01	.11	.07	.06	.08	1.24	-.11	.07	-.08	-1.68
Emotional stability-squared	.07	.07	.05	.94	-.01	.04	-.01	-.29	-.14	.06	-.10	-2.25*
Openness-squared	.03	.07	.02	.37	.06	.04	.07	1.38	-.04	.07	-.03	-.50
Agreeableness-squared	-.13	.08	-.16	-1.69	-.05	.05	-.09	-1.03	.21	.13	.24	1.51
Conscientiousness-squared	-.11	.09	-.08	-1.30	-.09	.08	-.09	-1.14	.08	.12	.06	.71
Gregariousness-squared	.08	.10	.06	.79	.06	.05	.06	1.13	.03	.08	.02	.36
Activity-squared	.09	.08	.05	1.22	.05	.05	.04	.89	.03	.13	.02	.24
Excitement-seeking-squared	.01	.06	.01	.17	.00	.05	.00	.01	.14	.08	.13	1.79
Positive emotions-squared	.04	.09	.03	.49	.08	.07	.07	1.24	-.12	.16	-.07	-.76
Prior team performance	.30	.45	.08	.68	-.33	.35	-.11	-.93	-.16	.54	-.03	-.30
Main predictors/moderator												
Assertiveness	.04	.07	.04	.66	.05	.04	.06	1.29	-.04	.06	-.03	-.57
Warmth	.04	.09	.04	.41	-.05	.06	-.07	-.86	.07	.12	.07	.62
Prosocial motivation	.00	.05	.00	.07	.03	.04	.05	.72	.01	.08	.01	.15
Square terms												
Assertiveness-squared	-.19	.06	-.20	-3.39**	-.01	.02	-.02	-.52	.04	.06	.04	.67
Warmth-squared	-.27	.09	-.34	-3.30**	-.24	.10	-.41	-3.12**	.28	.12	.33	2.47*
Interaction terms												
Assertiveness × Prosocial motivation	.31	.11	.25	3.10**	-.09	.06	-.10	-1.41	.07	.09	.05	.77
Warmth × Prosocial motivation	.15	.09	.20	1.76	.21	.10	.39	2.62**	-.35	.13	-.43	-2.63**
Mediators												
Advice seeking by peers									.28	.10	.26	2.48*
Peer liking									.39	.14	.26	2.80**
R <sup>2</sup>	.37				.17				.23			

Note. Within-level *R*<sup>2</sup> are reported.  
\* *p* < .05. \*\* *p* < .01.

(Tett & Burnett, 2003), prosocial desire may be a more warmth-relevant cue for fostering positive impressions about warmth—expressive behaviors. Thus, prosocial desire amplifies the benefits of warmth more saliently.

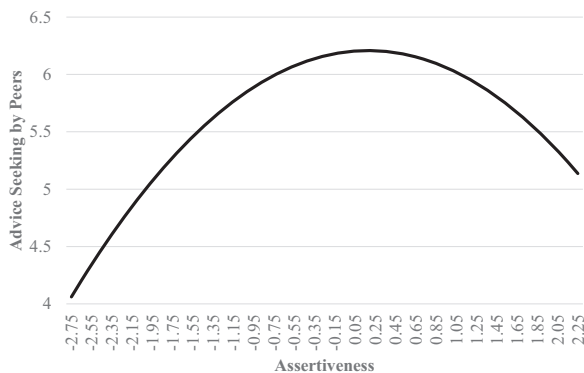


Figure 5. Study 2: Relationship between assertiveness and advice seeking by peers. The *x*-axis reports the range of the minimum (−2.75) and maximum (2.25) values of group-mean centered assertiveness.

Another possible explanation for finding prosocial motivation to moderate the effects of assertiveness in store teams (Study 2) but not in undergraduate student teams (Study 1) may be context characteristics such as differences in team climate and frequency of interactions. Store teams often handle high job demands and sales pressures. They usually work together all day and have worked together for a long time (average store tenure was about 5 years in Study 2). Such a team context may influence which traits will be exhibited and accepted (Tett & Burnett, 2003) for driving peers to seek task-related advice. In contrast, student teams have fewer job demands, need fewer interactions, and have fewer opportunities for feedback. Thus, the differences in goal pressure and goal-oriented climates may change the power of assertiveness and prosocial motivation to determine leadership emergence. Leadership research has often been criticized for failing to consider context (Liden & Antonakis, 2009). Thus, we encourage future research to further investigate whether context-relevant factors facilitate or inhibit the roles of assertiveness and warmth in leadership emergence processes.

**Practical Implications**

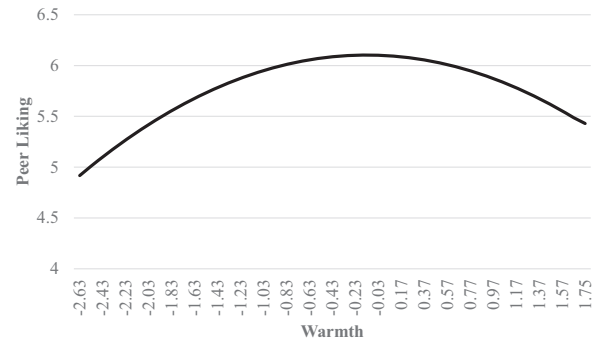
Our findings have important implications for practice. First, organizations give self-managed teams more autonomy in com-

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**Table 8**  
*Study 2: Simple Slopes and Instantaneous Indirect Effects*

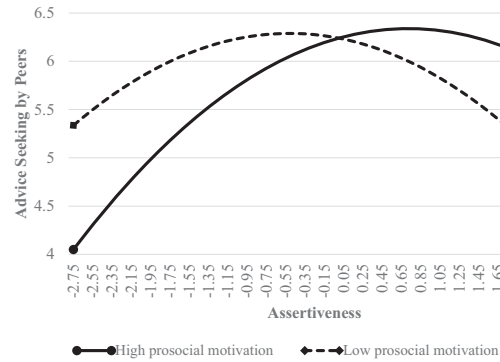
Model	Path $\alpha$ simple slope (SE)					Instantaneous indirect effect (95% CI)								
	Min	-1.5	0	.75	1.5	Max	Path $b$ (SE)	Min	-1.5	0	.75	1.5	Max	
Main-effect model	1.44** (43)	.83** (.25)	.46** (.15)	.09 (.07)	-.28* (.12)	-.64** (.21)	.27 (.10)	.39* (.08, .84)	.22* (.05, .49)	.12* (.02, .28)	.03 [-.01, .08]	-.07* [-.17, -.01]	-.17* [-.38, -.03]	-.27* [-.60, -.05]
Moderating model														
High prosocial motivation	1.33** (.34)	.85** (.21)	.56** (.14)	.28** (.10)	-.01 (.12)	-.30 (.18)	.28** (.10)	.37* (.09, .76)	.24* (.06, .49)	.16* (.04, .33)	.08* (.01, .18)	-.003 [-.07, .07]	-.08 [-.22, .01]	-.17* [-.38, -.02]
Low prosocial motivation	.87** (.33)	.39 (.20)	.10 (.14)	-.19 (.11)	-.48** (.14)	-.77** (.21)	.28** (.10)	.24* (.04, .54)	.11 [-.001, .27]	.03 [-.05, .12]	-.05 [-.14, .01]	-.13* [-.29, -.03]	-.21* [-.45, -.05]	-.30* [-.62, -.07]
Main-effect model	.92 (.49)	.51 (.28)	.23 (.14)	-.05 (.06)	-.33* (.17)	-.61* (.30)	-.70* (.35)	.34* (.14)	.17 [-.01, .49]	.08 [-.02, .23]	-.02 [-.07, .02]	-.11 [-.30, .003]	-.21 [-.57, .002]	-.24 [-.65, .003]
Moderating model														
High prosocial motivation	1.35* (.54)	.82* (.33)	.46* (.19)	.11 (.07)	-.24 (.14)	-.60* (.28)	.39** (.14)	.53* (.05, 1.23)	.32* (.04, .75)	.18* (.02, .41)	.04 [-.02, .11]	-.10 [-.28, .01]	-.23* [-.61, -.01]	-.28* [-.72, -.01]
Low prosocial motivation	1.03* (.47)	.50 (.26)	.14 (.13)	-.21 (.11)	-.56* (.22)	-.92* (.36)	-.103* (.41)	.40* (.02, 1.02)	.19 [-.003, .52]	.06 [-.04, .20]	-.08 [-.21, .002]	-.22* [-.52, -.03]	-.36* [-.85, -.04]	-.40* [-.96, -.05]

*Note.* Min, -1.5, -0.75, 0, .75, 1.5, and Max refer to the values of the group-mean centered predictor variable (assertiveness or warmth). The simple slopes for a curvilinear relationship  $Y = b_0 + b_1 \times X + b_2 \times X^2$  are calculated as  $\partial Y / \partial X = b_1 + 2 \times b_2 \times X$ , where  $b_1$  and  $b_2$  are unstandardized regression coefficients. CI refers to Monte Carlo bootstrapped confidence intervals. Main-effect models and moderating models are from Tables 6 and 7, respectively.  
\*  $p < .05$ . \*\*  $p < .01$ .



*Figure 6.* Study 2: Relationship between warmth and peer liking. The  $x$ -axis reports the range of the minimum (-2.63) and maximum (1.75) values of group-mean centered warmth.

parison with other forms of teams. Managers and members of self-managed teams should be aware that highly extraverted individuals may be poor candidates for assuming informal leadership roles. That is, both assertiveness and warmth facets of extraversion may have a “too-much-of-a-good-thing” effect on peer reactions in task and social situations and leadership emergence. Moderate levels of assertiveness allow individuals to show sufficient confidence and initiative without appearing too controlling or arrogant. Moderate levels of warmth generate friendly but not overwhelming interactions, and are ideal for gaining popularity in teams. Moreover, to achieve better outcomes for self-managed teams, organizations and managers should focus on selection and training processes. We highlight the importance of prosocial motivation in translating extraversion facets into positive peer reactions. Thus, managers may want to select more prosocially motivated employees for self-managed teams or try to enhance prosocial motivation through interventions such as ensuring that the work has beneficial collective impacts and introducing prosocially motivated newcomers to the team. In addition, managers should be aware that too much assertiveness and warmth without prosocial motivation can be viewed negatively in team interactions. Thus, management should train highly assertive or warm members to be more open to others’ ideas and attentive to others’ interests.



*Figure 7.* Study 2: Interactive effect of assertiveness and prosocial motivation on advice seeking by peers. The  $x$ -axis reports the range of the minimum (-2.75) and maximum (2.25) values of group-mean centered assertiveness.

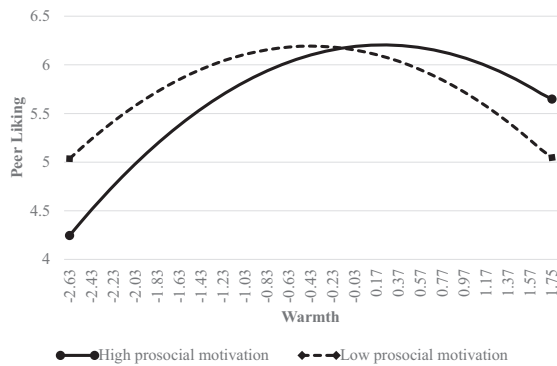


Figure 8. Study 2: Interactive effect of warmth and prosocial motivation on peer liking. The *x*-axis reports the range of the minimum (−2.63) and maximum (1.75) values of group-mean centered warmth.

### Limitations and Future Research Directions

Our study has several limitations that offer promising directions for future research. First, our theoretical model and empirical testing focused on self-managed teams that lacked formally assigned leaders. In the absence of formal leaders, team members may be more intrinsically motivated to attend to tasks. Self-managed teams are well-suited for examining our research questions. We would expect to observe weaker relationships in teams that have formally assigned leaders. Thus, we encourage future research to examine the relationships in more traditional teams under formal leaders (Zhang et al., 2012).

Second, we focused only on prosocial motivation and ignored other likely moderators. Warm people tend to genuinely like people (McCrae & Costa, 2010), but their peers may doubt whether the warmth is genuine. As an anonymous reviewer suggested, peer liking may be damaged if peers perceive increased warmth as being superficial or driven by impression management motives. We encourage researchers to further pursue whether perceived motives affect informal leadership status.

Third, we adopted a behavioral approach for examining assertiveness and warmth (Grant et al., 2011), expecting that the traits will be consistently aligned with behaviors. Future research could more directly measure individual behavior and peer perceptions regarding the value of behaviors to collective team interests. For example, when individuals demonstrate more task-oriented or relationship-based behaviors, their behaviors will appear to be leader-like and they may be selected as leaders (Gerpott, Lehmann-Willenbrock, Voelpel, & Vugt, 2018). Although we controlled for individual team experience and expertise, we did not explicitly capture individual task-related behaviors that may result in informal leadership endorsement, such as initiating structure, knowledge sharing, and coordination. Also, future research might explore how leadership emergence impacts team effectiveness.<sup>6</sup> Thus, we encourage future research to directly investigate how individual behaviors affect leadership emergence processes and further affect team viability and performance.

In conclusion, our research provides theoretical insights and empirical evidence showing how and when two facets of extraversion—assertiveness and warmth—have an inverted U-shaped effect on leadership emergence in self-managed teams. By examining the cur-

vilinear and interactive effects of getting ahead, getting along, and getting prosocial we contribute to a better understanding of the roles played by extraversion facets in the complex processes of within-team peer interactions and leadership emergence.

<sup>6</sup> As suggested by an anonymous reviewer, we performed supplementary analyses in Study 2 adding additional paths from peer reactions and leadership emergence to team performance 3 months later, which was measured by each team's quarterly sales growth rate we obtained from the accounting department of the participating company. The results showed that after partialing out the effects of control variables (including prior team performance) and all predictors/mediators, leadership emergence was positively related to subsequent team performance ( $b = .06$ ,  $SE = .03$ ,  $\beta = .30$ ,  $t = 1.97$ ,  $p < .05$ ).

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