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HOW DOES LEADER HUMILITY INFLUENCE TEAM PERFORMANCE? EXPLORING THE MECHANISMS OF CONTAGION AND COLLECTIVE PROMOTION FOCUS

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Using data from 607 subjects organized into 161 teams (84 laboratory teams, 77 organizational field teams), we examined how leader humility influences team interaction patterns, emergent states, and team performance. We develop and test a theoretical model, positing that, when leaders behave humbly, followers emulate their humble behaviors, creating a shared interpersonal team process (collective humility). This, in turn, creates a team emergent state focused on progressively striving toward achieving the team's highest potential (collective promotion focus), which ultimately enhances team performance. We test our model across three studies wherein we manipulate leader humility to test the social contagion hypothesis (Study 1), examine the impact of humility on team processes and performance in a longitudinal team simulation (Study 2), and test the full model in a multistage field study in a health services context (Study 3). Our findings collectively support our theoretical model, demonstrating that leader behavior can spread via social contagion to followers, producing an emergent state that ultimately affects team performance. We contribute to the leadership literature by suggesting the need for leaders to lead by example and showing how a specific set of leader behaviors influence team performance, providing a template for future leadership research on a wide variety of leader behaviors.

> Nothing is so contagious as example; and we never do any great good or evil which does not produce its like.
>
> —François de La Rochefoucauld, *Maximes*, 1665

"Humility" has been defined as an interpersonal characteristic that emerges in social contexts and connotes (a) a willingness to view oneself accurately, (b) an appreciation of others' strengths and contributions, and (c) teachability, or openness to new ideas and feedback (Owens, Johnson, & Mitchell, 2013). Partly in response to extensive research showing that leaders tend to see themselves in an overly positive light (Board & Fritzon, 2005; Chatterjee & Hambrick, 2011; Park, Westphal, & Stern, 2011), inductive and empirical research on leader humility has emerged suggesting that leader humility fosters supportive organizational contexts, including top management team integration and empowering climate (Ou, Tsui, Kinicki, Waldman, Xiao, & Song, 2014); legitimizes follower growth and development (Owens & Hekman, 2012); encourages follower loyalty and commitment (Basford, Offermann, & Behrend, 2014); reinforces employee learning orientation, job satisfaction, work engagement, and retention (Owens et al., 2013); and tempers the ill effects of leader narcissism, leading to positive follower outcomes (Owens, Wallace, & Waldman, 2015). Though these initial findings are encouraging regarding the value of leader humility in

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organizational contexts, understanding whether and exactly how leader humility influences an entire team's performance remains largely unexplored.

While leadership has been argued to be the most important contextual factor that influences team performance (Williams, Parker, & Turner, 2010), past reviews have asserted that much more research is needed to foster understanding of the mechanisms linking leader behaviors to team performance (Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006). While some traditional leadership approaches have been "criticized for failing to fully appreciate and model the dynamism and complexities of team leadership" (Burke et al., 2006: 302), our specific research question centers on understanding the impact of the nontraditional leadership approach of leader humility on team processes leading to team performance. We propose that the modeling of humble behaviors by team leaders may be one uniquely impactful way (among other leadership approaches) to foster effective team functioning because humble leader behaviors are equally imitable by team members and are relevant to the core team processes of constructive interrelating, task allocation effectiveness, information exchange, constant updating and monitoring, and self-correction (Burke et al., 2006; Johnson, Hollenbeck, DeRue, Barnes, & Jundt, 2013; Zaccaro, Rittman, & Marks, 2002). We theorize that, through social contagion, the modeling of leader humility will foster the team interpersonal process of collective humility (i.e., a group tendency toward owning limitations and mistakes, appreciating group members' strengths, and being teachable), which will in turn shape a team orientation that reflects the essence of the leader's modeled values in actions. As humility is centered in the idea of growth (Owens & Hekman, 2012), we propose that the influence of leader humility and collective team humility will shape a team orientation of focusing on continual improvement, advancement, and accomplishment (i.e., a collective promotion focus; Beersma, Homan, Van Kleef, & de Dreu, 2013; Higgins, 1997).

By examining how leader humility influences team performance, we extend leadership research by detailing the process of how this relatively new character-based leadership construct operates (Quick & Wright, 2011). We describe how humble behaviors, enacted by leaders and then emulated by team members, enhance the vital team processes mentioned above. We also contribute to the general humility and the team process literatures by introducing and operationalizing humility on the team level, and theorizing its function on team emergent states and outcomes. Lastly, we illuminate important leadership and team process antecedents of collective promotion focus (i.e., a collective team focus on progressively striving toward achieving the team's highest potential), fostering theoretical and practical insight regarding the development and application of this potent team property. We conducted three studies to test our model: the first establishes the direction of our model's causal arrow, the second establishes that our model predicts objective performance, and the third shows that our model operates in an organizational field context.

TOWARD A THEORY OF HOW LEADER HUMILITY INFLUENCES TEAM PERFORMANCE

Leader Humility

Reflecting the definition given above, leader humility is manifest by a set of power equalizing behaviors that co-occur and foster each other and that are unified by the theme of growth. Leaders' knowledge of their own limits and recognition of others' strengths fosters awareness of where they need to grow and of the people around them from whom they can learn to grow. Acknowledging weaknesses leaves leaders open to learning from and appreciating those who are skilled in areas where the leader may be lacking. As an organizing theoretical basis, scholars have effectively used Baumeister's (1998) self-experience framework to justify the dimensions of humility as comprehensively capturing the core ways that individuals understand and experience themselves (see Ou et al., 2014). This framework entails understanding the self in relation to the world (reflexive consciousness), in relation to others (interpersonal being), and by what one does (executive function). Reflecting each component of the self-experience framework, our view of humility captures how one views themselves in relation to the world (more objectively), how they view others (more appreciatively), and how they receive new information or perspectives (more openly).

Humility has also been connected to the concept of self-transcendence, or acknowledging something greater than the self and connecting with things outside the self (Dennett, 1995; Tangney, 2000; Templeton, 1997). Accordingly, the proposed dimensions of humility—drawing attention to others' strengths, being open to others' ideas and perspectives, and being willing to acknowledge

personal limits—are all manifestations of transcending the self (see Gordon, 2010; Morris, Brotheridge, & Urbanski, 2005; Seligman, 2002).[1] Leader 360-degree evaluation correlational analyses (Owens & Hekman, 2012: 801–802) and confirmatory factor analyses empirically support the co-occurrence of these three humility dimensions (Owens et al., 2013).

Like Costa and McCrae's (1992) conceptualization of extraversion and agreeableness as individual traits that are manifest on the "interpersonal plane," we view humility as an individual characteristic that "emerges in social interactions, is behavior based, and is recognizable to others" (Owens et al., 2013: 1518). Though humility has been examined on the intrapersonal, cognitive level (Roberts & Wood, 2003), our observable, social view of humility is appropriate here since our purpose is to understand humility as it pertains to leadership influence processes and team member interaction patterns. A core premise of our theoretical model is that leaders' modeling of humility is an influential team input that will lead to positive team interpersonal processes, task processes, and emergent states.

Many leadership writings assume that leaders shape group culture and values, and these drive behaviors, which then determine group performance (Deal & Kennedy, 2000; see also Berson, Da'as, & Waldman, 2015; Sun, Xu, & Shang, 2014). For example, transformational leaders, through their powerful analogies, inspiring visions, and uplifting stated values (Schein, 1990), produce a "transformational culture," which then in turn influences team performance behavior (i.e., Bass & Avolio, 1993: 119; Parry & Proctor-Thomson, 2003). It may be that leaders are thought to first shape group culture because many existing leadership theories describe leader behaviors that are not directly imitable by team members and do not represent the modeling of effective team functioning (e.g., charismatic behavior, setting up reward systems). However, when behaviors are more imitable, such as those comprised in the dimensions of humility, we theorize a more complex dynamic: humble leaders first unify follower behavior, which then produces a team culture or shared goal that reflects that behavior (in our specific case, a collective promotion focus that reflects collective humility), and ultimately influences team performance. We suggest that collective promotion focus is a *latter* mediator that comes about through group member interactions (Mathieu, Maynard, Rapp, & Gilson, 2008: 414).[2] Our model summary in Table 1 contains each team construct type, aggregation logic, definition, and function.

Leader humility social contagion. Leaders are theorized to be vital in providing the "enabling structure" (Burke et al., 2006: 289) for team functioning and performance largely by modeling positive ways of interrelating: "leader behavior 'models the way' organizational/group goals should be pursued" (Yaffe & Kark, 2011: 809), and leaders "model teamwork, or how team members should work together" (Zaccaro et al., 2002: 468). Thus, leaders can have a vital influence in shaping how team members interact through the leaders' own social modeling (see Dragoni, 2005; Naumann & Ehrhart, 2005).

This social modeling idea fits with evidence that followers emulate leaders' emotions (Johnson, 2009; Sy, Cote, & Saavedra, 2005) and behaviors (Fast & Tiedens, 2010; Visser, van Knippenberg, van Kleef, & Wisse, 2013). For example, one study showed that followers emulate leaders' citizenship behavior

[1] While philosophical- and theological-based writings hold self-transcendence as the core underlying basis of humility (Dennett, 1995; Tangney, 2000; Templeton, 1997), inductive examination of leaders and followers suggests that the core underlying, unifying logic of humility *in organizational contexts* is centered on the concept of growth (Owens & Hekman, 2012). Growth shares some similarity to transcendence in that it implies conceiving of a higher state or condition greater than one's current self. However, growth extends beyond transcendence in that it also implies reaching and stretching toward that higher state or ideal. An underlying sense of transcendence alone may still reflect the weakness-based connotations of humility (i.e., that humility is merely a "monkish virtue" that serves no real or practical purpose; see Hume, 1994: 219). In line with this, Grenberg (2005: 181) states that, in the context of acknowledging God or a higher ideal (i.e., connoting transcendence), "The humble person takes her awareness of limit as an impetus to action instead of as a warrant for despairing inaction" (i.e., connoting growth). Thus, while classical ideas about humility entail a transcendent perspective, we propose that it is one's growth-oriented response to that transcendent perspective that determines virtuous versus non-virtuous humility. It seems fitting that humility is centered in the concept of growth, since its lexical roots (*humus*, meaning "earth," and *humi*, meaning "from the ground") reflect the origin from which most things grow—the ground.

[2] "Emergent states are products of team experiences" (Marks, Mathieu, & Zaccaro, 2001: 358), and "shared mental models refer to common understanding established through experience among team members" (Zaccaro et al., 2002: 459).

TABLE 1
Model Summary

Construct Name	Leader Humility →	Collective Humility →	Collective Promotion Focus →	Team Performance
Team Construct Type	Team Input	Teamwork: Interpersonal Process	Emergent State: Shared Motivation	Team Output
Aggregation Logic/ Operationalization	Composition: Direct Consensus	Composition: Referent-Shift Consensus	Composition: Referent-Shift Consensus	Compilation
Definition	Leaders modeling to followers the behaviors of admitting mistakes and limitations, spotlighting follower strengths and deflecting praise to others, and being teachable—open to new ideas, advice, and feedback	An interpersonal team process that captures the three underlying dimensions of humility as behavioral interaction patterns of admitting mistakes and limitations, spotlighting team member strengths and deflecting praise to others, and being open to new ideas, advice, and feedback	A collective team focus on progressively striving toward achieving the team's highest potential	
Function	Exemplification of behaviors that foster effective team interrelating, task coordination, and self-management	Patterns of interrelating that foster voice, disclosure of limits, and identification of unique member strengths or expertise	A shared motivational logic that unifies regulatory focus toward attaining the team's highest possible performance	

(Yaffe & Kark, 2011). Especially when faced with ambiguous situations, such as judging appropriate workplace behavior, workers look to their leaders for modeling context-appropriate behaviors (Festinger, 1954; Hardin & Higgins, 1996; Salancik & Pfeffer, 1978). Followers may be especially likely to emulate their leaders because leaders have positional power (Cialdini & Trost, 1998). As teams watch their leaders give away some of their power by admitting limitations and mistakes, allowing themselves to be taught rather than doing all the teaching, and drawing attention to others' contributions and strengths, they reinforce a cooperative, others-oriented interactive logic; they send a message about the value of collective striving over personal status seeking. In contrast, some more traditional leadership approaches may reinforce status-seeking or attention-getting behavior as team members try to mimic a leader's attempts to be impressive, decisive, charismatic, or inspirational.

We propose that, when leaders model humble behavior, followers will emulate the behavior, which creates the shared group behavior of collective humility. Thus, collective humility describes team interaction patterns that reflect the dimensions of humility—that is, team members acknowledge and appreciate one another's strengths, listen to one another's feedback and new ideas with openness, and acknowledge mistakes and handle them constructively. Most recent attention given to humility in organizational contexts focuses on humility as an individual-level trait in leadership (Morris et al., 2005; Nielsen, Marrone, & Slay, 2010; Ou et al., 2014; Owens et al., 2015; Reave, 2005), team membership (Owens et al., 2013), and in relation to task performance (Johnson, Rowatt, & Petrini, 2011). However, some writers have suggested that humility can also be a group-level phenomenon, both as a property of teams (Owens & McCornack, 2010) and an attribute of entire organizations (Vera & Rodriguez-Lopez, 2004). We propose that humility on the team level is an interpersonal team process that captures the three underlying dimensions of humility as behavioral interaction patterns, similar to the behavior-based conception of collective personality (Hofmann & Jones, 2005). We view individual and collective humility as functionally isomorphic (Morgeson & Hofmann, 1999), meaning both constructs produce "regularized, consistent patterns of behavior that can be observed and described by others" (Hofmann & Jones, 2005: 510). Given the equivalence of observable behavior, we operationalize a referent-shift consensus composition model (Chan, 1998) that captures collective humility as a group-level phenomenon.

However, collective humility differs from individual humility because it captures the idea that

expressions of humility may be socially bounded or mainly expressed toward members of one's own work group where such behaviors have become normal and valued. Thus, collective humility more fully captures the dynamic, complementary, and co-occurring nature of the humility dimensions playing out in a social context and captures the dynamics through which teams develop collective qualities (Lewin, 1951). For example, acknowledging personal limitations may be easier, or at least less socially risky, in a context where one's strengths are recognized; transparency about limitations and acknowledging others' strengths makes being open to learning from others more natural. The norm of reciprocity also suggests that a person receiving positive feedback about their strengths or who is being listened to would be more likely to respond in kind (Cialdini, Vincent, Lewis, Catalan, Wheeler, & Darby, 1975). In contrast, in a team in which a member's true strengths are not acknowledged and valued, and the member's suggestions are not listened to, admitting mistakes or weaknesses would be more difficult as the member may already feel underestimated and undervalued. In sum, we theorize that leader displays of humble behavior will be emulated by members of their team, reflecting a behavioral social contagion process.

Hypothesis 1. Team leader humility will positively predict collective humility.

Collective humility and collective promotion focus. Leader humble behavior is perceived by followers as modeling *how to grow* and leads followers to feel that their own growth and improvement processes are legitimate and necessary (Owens & Hekman, 2012). Thus, in an organizational context, we expect that collective humility will orient teams toward focusing on maximizing team achievement, which is akin to emerging laboratory research on collective promotion focus (Beersma et al., 2013; Dimotakis, Davison, & Hollenbeck, 2012). A collective promotion focus is a shared team focus on progressively striving toward achieving the team's highest potential, and leads group members to approach opportunities (Rietzschel, 2011) and motivates them to be "more focused on what they want to achieve than on what could go wrong" (Beersma et al., 2013: 196). Indeed, "promotion-focused individuals are motivated mainly by internal motives like growth, development, and self-actualization" (Kark & Van Dijk, 2007: 506; see also Van Dijk & Kluger, 2004), as well as "advancement, growth, and accomplishment" (Higgins, 1997: 1282). Certainly, individual-level promotion focus can be induced—either in the laboratory or by a host of contextual factors (Cesario, Grant, & Higgins, 2004; Förster, Grant, Idson, & Higgins, 2001; Förster, Higgins, & Bianco, 2003). Likewise, we propose that collective promotion focus is a malleable team property that emerges or is shaped by team inputs, such as leadership and team behavioral patterns. We theorize that the influence of leader humility on collective promotion focus will work through the teamwork process of collective humility by providing the *opportunity*, *motivation*, and *ability* for groups to focus on achieving their highest potential.

First, the behavior of admitting mistakes and limitations provides the *opportunity* for a collective promotion focus to emerge. Because a team's collective effort comprises the aggregation of individual inputs, acknowledging limitations and weaknesses allows teams to identify potential areas for future improvement and minimizes the sting of failure by enabling team members to see mistakes and failures as a result of a worthwhile struggle toward growth. This effort fits with the idea of a collective promotion focus reflecting team members' having a risk-seeking bias, based on the beliefs that failures are necessary for continued success (Faddegon, Scheepers, & Ellemers, 2008: 880) and that missing an opportunity is far worse than making a mistake (Higgins, 1997).

Second, the collective humble behavior of acknowledging team members' strengths and contributions *motivates* group members to focus on maximal group performance. Clarity of capability leads to surer striving. Praising others for their strengths and contributions fosters an awareness of exemplars on the team, social models for learning and leadership. Team members receiving credit for their contributions gain immediate psychic rewards for improving and performing. From a social exchange perspective (Homans, 1961), these motivational boosts assure group members that applying extra effort to enable greater team achievement will be noticed and appreciated. Thus, a collective promotion focus characterized by setting and striving toward lofty performance aspirations is motivated by the belief that group members who contribute to the team will be praised, appreciated, and acknowledged.

Likewise, as teams become aware of each member's strengths and weaknesses through collective humility, they are able to make more informed and effective task allocations across members. In collectively humble teams, the underlying task selection

logic would likely be one of maximizing team achievements (i.e., a collective promotion focus) as opposed to other potential logics (e.g., assigning the most desirable tasks to group members with the highest status; Klein, Ziegert, Knight, & Xiao, 2006). Ultimately, understanding the unique skills and abilities of team members could optimize team performance, because, when team members understand how they fit with the team (Kozlowski, Gully, Nason, & Smith, 1999; Mohammed, Klimoski, & Rentsch, 2000), the team performs better (Lorinkova, Pearsall, & Sims, 2013).

Third, beyond producing the *opportunity* and *motivation* for a collective promotion focus to emerge, collective humility fosters the *ability* for a collective promotion focus to permeate a group through the interaction pattern of "teachability," or openness to new ideas and feedback. Compared with less open teams, teams that are open to feedback and new information are more likely to sense collectively that seeking new attainments, future possibilities, and improvements is normal and legitimate. Speaking openly, listening, and seeking new ideas are behaviors clearly associated with team learning and improvement (e.g., see Edmondson, 1999; Hirst, van Knippenberg, & Zhou, 2009). By seeking out and being receptive to new information, teams recognize new strategies for enhanced effectiveness. In contrast, being closed to new ideas would signal a focus on maintaining the status quo. This notion of a collective promotion focus orienting teams to strive toward maximizing collective achievement is akin to a type of team-level self-regulation, which is thought to be critical for team performance because it enables team members to self-manage their actions in ways that benefit the group (Cohen, Ledford, & Spreitzer, 1996).

In sum, we theorize that collective humble behavior naturally produces the opportunity, motivation, and ability for a collective promotion focus to emerge. This emergent state forms a shared motivational logic that acts as a reference point toward which teams regulate themselves (Schein, 1990) to achieve their highest potential.

Hypothesis 2. Collective humility will positively predict team collective promotion focus.

How leader humility influences team performance. Humility on the individual level has been empirically shown to foster higher performance in both work and academic contexts (Johnson et al., 2011; Owens et al., 2013). Humility is thought to enhance individual performance because admitting weaknesses highlights growth opportunities, appreciating others' strengths highlights growth exemplars, and being teachable enables personal growth to occur (Owens et al., 2013). On the team level, we propose that collective humility behavior enhances team performance through the mechanism of collective promotion focus.

Collective promotion focus involves team members focusing on "collective" goals rather than "personal" goals, and maximal "promotion" goals rather than minimal "prevention" goals (Rietzschel, 2011). Goal-setting theory explains that individuals and teams are more likely to attain what they intently and specifically focus on because they develop strategies for realizing their target (Locke & Latham, 2002). While individual goals tend to benefit the individual (i.e., self-enhancing), collective goals sometimes require individuals to subjugate their personal interests in order to benefit the team (i.e., team-enhancing). Teams typically perform better when team members put the team's interests ahead of their own (Ashforth & Mael, 1989). Similarly, teams that are focused on maximal team goals, such as achieving team "gains" (i.e., promotion-focused teams), likely outperform teams that are focused on minimal goals, such as "non-losses" (i.e., prevention-focused teams), because such promotion-focused teams tend to have greater positive affect and task satisfaction (Dimotakis et al., 2012: 426). When deciding whether to engage in a behavior, promotion-focused team members determine whether the behavior helps the team and whether it enables the team to attain maximal performance.

In summary, we theorize that teams with humble leaders will be characterized by collective humble behaviors generating a strong team-promotion focus. In line with Marks and colleagues' (2001) distinctions between team processes and team emergent states, we propose that humble leaders' behaviors contagiously lead to collective humility (a teamwork process marked by behavioral similarity), which then leads to a strong collective promotion focus (a motivational emergent state). This emergent state operates like a self-regulatory reference point toward which the team regulates their behavior. Due to this collective promotion focus, we propose that teams will continue to self-correct, self-reinforce, and self-monitor their actions toward realizing their achievement-maximizing goal and attaining tangible gains in team performance. Thus:

Hypothesis 3. Collective humility and collective promotion focus will mediate the relationship between leader humility and team performance such that leader humility will foster collective humility, which will in turn foster collective promotion focus, which will in turn enhance team performance.

To test our hypotheses, we conducted three studies. We first sought to determine whether manipulated leader humility led to higher levels of collective humility and, ultimately, to a team collective promotion focus. Second, we conducted a team simulation study to examine whether our proposed team processes predicted team performance and to rule out alternative mechanisms. Finally, we tested our entire model in a field study.

STUDY 1 (HAMMERCORP): LEADER HUMILITY, COLLECTIVE HUMILITY, AND TEAM COLLECTIVE PROMOTION FOCUS

Participants

The experiment was conducted with 89 undergraduate business students taking a senior-level organizational behavior course in a public northeastern U.S. university. Of the participants, 57% were Asian, 38% Caucasian, and 2% African American, with an average age of 22 years, and 39% being female. Students received course credit for their participation.

Experiment Design and Procedure

The participants were randomly divided into 31 work teams and assigned to one of two experimental conditions (16 teams in the humble leader condition and 15 teams in the non-humble leader condition). In order to create the manipulated condition for leader humility, we recruited four research confederates to play the roles of the team leader and one of the team members. The confederates were all Caucasian female students, with the average age of 22. Confederates had no knowledge of the study hypotheses. Before the experiment was initiated, we conducted several training sessions over a two-week period to help these confederates act one of three different roles: the humble leader, the non-humble leader, and the talkative follower. The scripts for the humble/non-humble leaders included statements to the confederate follower that validated/invalidated follower ideas (e.g., "Good suggestion" vs. "No, let's do it my way"), praised/put down the follower (e.g., "You were awesome on that project" vs. "Don't be such a slacker"), and vocalized limits/bragged about strengths (e.g., "I'm not sure I'm an HR expert" vs. "I'm so glad I'm the leader. This role really fits me"). A summarized script is given in Appendix A; a full script is available from the first author upon request. A manipulation check from two pretests (e.g., humility ratings by four observers) showed that each of the four confederates were effective in acting the part of the humble or non-humble leader role (mean humility ratings in these pretests were 4.52 for the humble condition and 3.00 for the non-humble condition; additional manipulation checks are reported below).

Each experimental condition included two research confederates and two to three participants. When they arrived at the laboratory room, the participants and the confederates were told that they had been assigned to play the role of leader or follower; the roles of team leader and one of the followers were always assigned to the confederates. Participants were then asked to participate in a strategic HR program rank-ordering task for a fictional chain of hardware stores (i.e., HammerCorp). We carefully selected a task with which participants would have a chance to interact in a way that humility could emerge (we encouraged interaction), where participants have varied backgrounds (we sampled a wide cross-section of HR, finance, accounting, marketing, and IT majors), and where the task had no clear right answer. We did this to foster an environment in which leader humility would be relevant and observable. It is important to note that team members were together for over an hour, which is a meaningful amount of time within which to make social judgments (Kenny, 2004). At the beginning of the tasks and at several points throughout, the confederate leader and follower engaged in scripted exchanges according to the script given for the respective experimental condition.

After accomplishing the tasks, the participants and the confederates were asked to fill out a survey that assessed team leader humility (as a manipulation check), collective humility, and team collective promotion focus. Confederates' survey responses were not included in the data analysis. After completing the experiment, the experimenter debriefed the participants and informed them about the purpose of the study. The confederates' identities were revealed and participants were asked not to discuss the experiment with other potential subjects.

Measures

Leader humility. We measured leader humility using a nine-item other-report humility scale that reflects the three proposed dimensions of humility and has shown strong predictive validity for humility in a leadership role (Owens et al., 2013). Sample items include "This leader admits it when he/she does not know how to do something," "This leader shows a willingness to learn from others," and "This leader often compliments others on their strengths." The scale reflects a direct-consensus model (Chan, 1998), since the construct is captured via consensus of member perceptions of the leader. The full set of items used in this study is included in Appendix B. The alpha reliability for this scale was .95.

Collective humility. Collective humility was measured using an adaptation of the nine-item peer-report scale (Owens et al., 2013) aimed at assessing individual humility. In a preliminary study, Owens and McCornack (2010) reported that team-level humility is psychometrically distinct from the constructs of psychological safety (Edmondson, 1999), team cohesion (Podsakoff & MacKenzie, 1994), team demands–abilities fit (Abdel-Halim, 1981), and team potency (Campion, Medsker, & Higgs, 1993). Items were adapted to reflect a team referent: "Members of this team admit it when they don't know how to do something," "Members of this team show appreciation for the unique contributions of other team members," and "Members of this team are willing to learn from one another." The full set of items from this study appears in Appendix B. As a referent-shift consensus model (Chan, 1998), collective humility was operationalized to reflect shared perceptions; thus, collective humility scores were averaged within each team. The alpha reliability for this measure was .92.

Team collective promotion focus. We assessed collective promotion focus using van Kleef, van Trijp, and Luning's (2005) shortened version of the Lockwood, Jordan, and Kunda (2002) measure of individual-level promotion focus; again, we adapted it to the team level. This adaptation was necessary because team collective promotion focus has been exclusively manipulated in laboratory-based groups and has never been measured (Beersma et al., 2013; Dimotakis et al., 2012; Levine, Higgins, & Choi, 2000; Rietzschel, 2011). Items asked participants to indicate their team's collective focus on "attaining our ambitions," "attaining the success we hope to achieve in the future," and "achieving our hopes and aspirations." Like collective humility, team collective promotion focus was operationalized as a referent-shift consensus model, and, thus, scores were averaged within each team. The full set of items is given in Appendix B. The alpha reliability for this scale was .82.

Though this measure captures our view of the core indicators of collective promotion focus, we wanted to ensure that the new scale reflected our intended construct from the perspective of respondents. To test the face validity of our scale items, we conducted a sorting task. Following previous guidelines for studies involving item sorting (Anderson & Gerbing, 1991), we recruited 13 researchers to sort the 4 items along with foil items from two other team emergent state scales (a 7-item team psychological safety scale from Edmondson, 1999, and a 5-item team-learning orientation scale from Bunderson & Sutcliffe, 2003). After providing a definition for each construct, participants were asked to assign each item to one of the construct categories according to their respective construct definitions. The collective promotion focus items were correctly categorized in 50 of 52 instances (96%) of item categorizations. We viewed this result as strong evidence of the face validity of the collective promotion focus items.

Controls. Our initial analysis approach, path analysis, and our smaller sample size limited our ability to control for potential covariates of our study variables. However, our complementary, bootstrapped, regression-based path analysis enabled us to control for average team size, which has been shown to influence team process and function (Cummings, Huber, & Arendt, 1974; Hackman & Vidmar, 1970; Menon & Phillips, 2011), and average team gender, because female team members may be more responsive to humble behaviors, which are more communal and more congruent to female social preferences (Eagly, 2009). In this analysis, we also controlled for average team age because humility has been theorized to be valued more by older individuals (Tangney, 2000).

Analyses

To ensure construct distinctiveness, we conducted a series of confirmatory factor analyses (CFAs) using Amos 19 (Arbuckle, 2010). Since our sample size was too low for CFA testing ($n = 89$), to conduct CFA tests, we supplemented this sample by administering our survey to an additional 153 students from the same university who were working in three-month project teams but were not involved in the lab study, for a total CFA sample size of 242. We only

used the supplemental sample when conducting the CFA test, not when conducting inter-rater agreement or any other analyses. We averaged the ratings of the 89 lab study participants after computing within-group inter-rater agreement using the null distribution (r_{WG}; James, Demaree, & Wolf, 1984) and intraclass correlations (ICC; Bliese, 2000) to justify aggregation. We conducted a one-way analysis-of-variance mean comparison test to determine whether measured leader humility, collective humility, and collective promotion focus were significantly different across the two conditions.

In testing our hypotheses, we use structural equation modeling (SEM) path analyses (using Amos 19) to derive overall model fit and path coefficients for each hypothesized study relationship. Given the team-level nature of our model, we use manifest variables in our estimations. We report the Akaike's information criterion (AIC) to show fitness for the hypothesized mediation model relative to a direct effects rival model (a smaller AIC value signifies a better model fit). Information criteria indices such as AIC are used to compare nonhierarchical models for fitness and can be computed with models that have very low degrees of freedom (Hooper, Coughlan, & Mullen, 2008). As a more rigorous test of our mediation hypotheses, we use bootstrapped regression-based path analyses (i.e., PROCESS software; Hayes, 2013; see also Preacher & Hayes, 2008) in which we included our control variables as covariates. This approach entails randomly sampling 5,000 bootstrapped cases from the original data to derive a bias-corrected and accelerated 95% confidence interval (CI) that reflects the mediation effect. This method helps to offset the weaknesses of the causal steps approach (for a review, see Hayes, 2009; or MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Results

The results of the CFA suggested that leader humility, collective humility, and team collective promotion focus were distinct constructs, as the three-factor solution (χ^2: 295.96; $df = 205$; root mean square error of approximation [RMSEA] = .06; comparative fit index [CFI] = .97; Tucker–Lewis index [TLI] = .96) fit the data better than all other rival models as the change in the χ^2 value was significant at the $p < .001$ level when comparing all other models. Average r_{WG} scores for our study variables ranged from .72 to .84. The ICC(1) scores for our team construct variables ranged from .24 to .47, and the ICC(2) scores ranged from .41 to .72. Though our ICC scores were low, they are similar to the ICC values of other studies with similarly low average team sizes (see Hofmann & Jones, 2005: 513). Lower average group sizes are said to result in a less reliable mean (leading to lower ICC(2) values), likely attenuating relationships at the group level (Bliese, 1998). This possible attenuation means that our results should be seen as conservative. Collinearity diagnostic tests of measured study variables revealed that all variance inflation factor (VIF) values ranged from 1.00 to 1.86, well below standard cutoffs.

Table 2 contains the results of our bivariate correlation analysis, which revealed that the manipulated leader condition ("1" = humble leader condition; "0" = non-humble leader condition) was positively correlated with measured leader humility, collective humility, and collective promotion focus. As a manipulation check, results of

TABLE 2
Study 1: HammerCorp Means, Standard Deviations, and Correlations[a]

		M	*SD*	1	2	3	4	5	6	7
1.	Collective promotion focus	3.56	.88	~						
2.	Team size	2.83	.79	−.14	~					
3.	Percent female	.39	.49	.15	.03	~				
4.	Average age	21.63	3.16	−.04	−.14	.03	~			
5.	Undergraduate year[b]	3.51	.53	.23	−.17	−.03	.34	~		
6.	Leader humility (manipulated)[c]	.52	.50	.33	−.00	−.10	−.11	−.05	~	
7.	Leader humility (measured)	3.56	1.06	.49	.04	.23	−.25	.02	.58	~
8.	Collective humility	3.57	.90	.59	−.03	.23	−.16	.13	.40	.63

[a] $N = 31$ teams. All correlations greater than .23 are significant at $p < .05$.
[b] "1" = freshman, "4" = senior.
[c] "1" = humble leader condition, "0" = non-humble leader condition. The between-team variances for leader humility, collective humility, and collective promotion focus are 2.03, 1.12, and 1.11, respectively.

a one-way analysis of variance test revealed that the means in measured leader humility were significantly higher in the humble leader condition ($M = 4.14$) than the non-humble leader condition ($M = 2.91$, $p < .001$), suggesting our manipulation was successful. The mean levels of collective humility and collective promotion focus were also significantly higher in the humble leader condition than in the non-humble leader condition ($p < .001$). From our SEM path analysis, manipulated leader humility was related to collective humility ($b = .51$, $p < .001$), and collective humility was related to collective promotion focus ($b = .69$, $p < .001$). The AIC of the leader humility manipulated mediation model (AIC = 10.07) was smaller than the rival model with direct paths modeled from leader and collective humility to promotion focus (AIC = 12.00). The same finding was observed for the leader humility measured mediational model (AIC = 10.00) compared with the rival direct effects model (AIC = 30.33), suggesting superior fit for the hypothesized model. Based on the results of our indirect effects analyses (using 5,000 bootstrapped samples), we observed that manipulated leader humility predicted collective promotion focus through the mediator of collective humility ($b = .40$; $R^2 = .26$, 95% CI [0.14, 0.85]). The 95% confidence interval for this path excluded zero, and thus Hypotheses 1 and 2 are supported. Any other ordered configuration of the path yielded an indirect effect confidence interval that included zero (e.g., collective promotion focus predicting collective humility), which lent additional support for our specific model.

Discussion

The purpose of this study was to test the proposed relationship between leader humility, collective humility, and team collective promotion focus, and to lend support for the causal flow of our model by manipulating leader humility. As hypothesized, leader humility positively predicted team collective promotion focus through collective humility. One limitation of this model was that the teams were together during only a short period of time, yielding limited opportunity for team processes and emergent states to truly unfold. Thus, to build off these findings, we used longitudinal teams engaged in a simulation to examine the effect of collective humility and collective promotion focus on team performance employing a controlled team simulation. We also included potential rival mediators (e.g., team cohesion, team psychological safety) and a greater number of controls (e.g., prior team performance, number of competitors, team size, percent female, and average age) to enhance confidence in our proposed theoretical path. Our aim with Study 2 was to gain further support of our model by testing how our proposed team processes predicted objective team performance independent of other team-level mediators.

STUDY 2 (CARCORP): TEAM COLLECTIVE PROMOTION FOCUS MEDIATES THE INFLUENCE OF TEAM COLLECTIVE HUMILITY ON TEAM PERFORMANCE

Participants and Procedures

Participants were 192 undergraduate business students enrolled in three upper-level business strategy classes in a university in the midwestern United States. The students were randomly assigned to 53 teams averaging 3.62 individuals; 61% were male, 39% were female; average age was 23.21 years. Teams participated in a multistage computer simulation (CarCorp) created by industry experts to reflect real auto-manufacturing market trends. The simulation, nearly identical to business simulations used in previously published management articles (e.g., Bunderson, Van der Vegt, & Sparrowe, 2013; Lorinkova et al., 2013), required multiple strategic decisions over the course of 10 weeks (for an overview, see Interpretive Simulations, 2014). Teams competed for market share and stock value. Each week the stock values were posted based on the effectiveness of decisions made the previous week. At Week 6, students independently rated their team on the team variables (collective humility, promotion focus, cohesion, and psychological safety). Participants received course credit for completing the online assessments (100% response rate).

Measures

All study survey measures were scaled to a five-point agreement scale (1 = "*strongly disagree*"; 5 = "*strongly agree*").

Collective humility. Collective humility was measured using the same nine-item scale that was used in Study 1. The alpha reliability for this measure was .92.

Team collective promotion focus. Team collective promotion focus was measured using the same four-item scale used in Study 1. The alpha reliability for this scale was .92.

Team performance. Team performance was captured by the ending stock price reflecting the value of each team's company at the end of the simulation. The simulation was designed to capture effective strategic decision-making responsiveness to changing situational demands throughout the simulation. Every team started at the same stock price ($50 per share), and the ending stock price ranged from $1.79 to $172.25 per share.

Controls. Like Study 1, we measured and controlled for average team size, average team gender, and average team age in our bootstrapped path analyses for indirect effects. In order to demonstrate the generative effects of our proposed model on team performance, we also controlled for the team stock price after the third round of the simulation. In addition, to account for the level of industry competitiveness, we controlled for the number of other teams that each team was competing against in the simulation. We also controlled for the rival mediators of team psychological safety and cohesion by using Edmondson's (1999) seven-item psychological safety measure (e.g., "It is safe to take a risk on this team" and "Members of this team are able to bring up problems and tough issues"; $\alpha = .75$) and Podsakoff and MacKenzie's (1994) six-item team cohesion scale (e.g., "There is a great deal of trust among members of my project team" and "The members of my project team are cooperative with one another"; $\alpha = .92$).

Analyses

We conducted a series of CFAs on all measured study variables to ensure that they were operationally distinct. Given that individual team members assessed team-level variables, we averaged the ratings after computing within-group inter-rater agreement (r_{WG}; James et al., 1984) and ICCs (Bliese, 2000) to justify aggregation. As in Study 1, we conducted an initial SEM path analysis (Amos 19; Arbuckle, 2010) and reported the AIC to show fitness for the hypothesized mediation model relative to a direct effects rival model, and then reported the results of our bootstrapped regression-based path analyses (i.e., PROCESS software; Hayes, 2013; see also Preacher & Hayes, 2008) as a more rigorous test of our mediation hypotheses, as these analyses included all of our control variables. Multicollinearity statistics were also calculated for all survey-derived variables. All VIF values were below the standard cutoffs that signal potential multicollinearity problems (i.e., all VIF values were below 2.0).

Results

The results of the CFA suggested that the hypothesized five-factor model was the best fit, when compared to the rival models (χ^2: 696.91, $df = 392$; RMSEA = .06; TLI = .93; CFI = .93). The change in the χ^2 value was significant at the $p < .001$ level when comparing all rival models to the proposed model. Average r_{WG} scores for all team variables ranged from .79 to .94. The ICC(1) scores for our team variables ranged from .09 to .45, and the ICC(2) scores ranged from .46 to .71. As mentioned, our low average team size may explain the lower ICC(2) values (see Hofmann & Jones, 2005) and render our results more conservative. Given this, and the fact that our r_{WG} scores were above standard cutoffs, we proceeded to aggregate member ratings of team level variables.

Table 3 displays the means, standard deviations, and descriptive statistics of our study variables, and Table 4 contains the results of our indirect effects analyses (based on 5,000 bootstrapped samples). From our SEM path analysis results, the path coefficients suggest that collective humility was positively related to collective promotion focus ($b = .55$, $p < .001$), and collective promotion focus was related to team performance ($b = .45$, $p < .001$). The AIC of the hypothesized mediation model was smaller than the rival model with direct paths from collective humility and collective promotion focus to team performance (17.58 vs. 34.89), suggesting superior fit for the hypothesized model. As Model 1 shows (in Table 4), collective humility positively predicted team performance through the mediator of collective promotion focus ($b = .42$, 95% CI [0.07, 1.08]) and when controlling for psychological safety and team cohesion. The overall model explained 46% of the variance in team performance ($R^2 = .46$), supporting Hypothesis 2. To test alternative paths using other mediators, we examined six other potential mediated models. Specifically, we tested whether team cohesion and team psychological safety culture mediated between collective humility and team performance instead of collective promotion focus. We also tested models that included cohesion and psychological safety as additional mediators along with collective promotion focus. In all alternate models, the 95% confidence intervals straddled zero, indicating these paths were not statistically significant (see Table 4). Thus, our hypothesized team process mediation model was supported while rival models were not.

TABLE 3
Study 2: CarCorp Means, Standard Deviations, and Correlations[a]

		M	*SD*	1	2	3	4	5	6	7	8	9
1.	T2 stock price[b]	54.00	44.68	~								
2.	Team size	3.62	.60	−.34	~							
3.	T1 stock price[b]	45.56	1.94	.25	−.09	~						
4.	Number of competitors	1.58	.66	−.01	.03	.39	~					
5.	Percent female	.61	.26	.09	.03	−.01	.04	~				
6.	Average age (years)	23.21	1.42	.17	.02	−.05	−.28	−.07	~			
7.	Team psychological safety[c]	5.60	.55	.41	−.26	.08	−.11	.08	.07	~		
8.	Team cohesion[c]	5.46	.83	.24	−.20	.01	−.02	.13	−.10	.83	~	
9.	Collective humility[c]	4.03	.26	.41	−.02	.06	−.08	−.07	.13	.58	.59	~
10.	Collective promotion focus[c]	5.59	.73	.45	−.13	.09	−.06	.07	−.08	.55	.57	.55

[a] $N = 53$ teams. All correlations greater than .26 are significant at $p < .05$.
[b] T1 and T2 refer to Time 1 and Time 2 survey administrations.
[c] The between-team variances for collective humility, collective promotion focus, team cohesion, and psychological safety are .33, 1.38, 2.79, and 1.18, respectively.

Discussion

The purpose of this study was to test the proposed relationship between collective humility and team performance, with team collective promotion focus as a mediator. As hypothesized, in this controlled lab simulation, collective humility positively predicted team collective promotion focus and team performance. Furthermore, team collective promotion focus mediated the relationship between collective humility and team performance. We included team cohesion and team psychological safety as controls in our model to examine whether our model predicted performance unique from these other variables. We were unable to identify any path where these rival variables mediated the relationship between collective humility and team performance. Thus, our proposed model explains team performance unique from these established constructs. As

TABLE 4
Study 2: CarCorp Bootstrapped Indirect Effect Model Comparison Analyses on the Mediating Role of Team Collective Promotion Focus in the Collective Humility–Team Performance Relationship[a]

Indirect Paths	Indirect Effect *b*	Bootstrapped *SE*	*t*	Bias-corrected and accelerated 95% confidence interval
1. Collective humility → Collective promotion focus → Team performance	**.42**	**.21**	**1.99***	**95% CI [0.07, 1.08]**
2. Collective humility → Team cohesion → Team performance	−.35	.12	−1.12	95% CI [−1.25, 0.03]
3. Collective humility → Team psychological safety → Team performance	.10	.20	.51	95% CI [−0.10, 0.75]
4. Collective humility → Collective promotion focus → Team cohesion → Team performance	−.06	.18	.77	95% CI [−0.35, 0.02]
5. Collective humility → Collective promotion focus → Team psychological safety → Team performance	.04	.09	.44	95% CI [−0.03, 0.37]
6. Collective humility → Team cohesion → Collective promotion focus → Team performance	.05	.07	.71	95% CI [−0.03, 0.29]
7. Collective humility → Team psychological safety → Collective promotion focus → Team performance	.02	.05	.42	95% CI [−0.01, 0.21]

[a] Bootstrapped results are based on 5,000 samples (see Preacher & Hayes, 2008). All models contain the following predictor/control variables: team size, T1 stock price, number of competitors, percent female, average age, team psychological safety, team cohesion, collective humility, and collective promotion focus.
* $p < .05$

collective humility positively predicted objective performance in this competitive auto industry simulation, this may provide support for the proposed idea that humility can be a source of competitive advantage (Vera & Rodriguez-Lopez, 2004).

Studies 1 and 2 suggest isolated support for key parts of our theoretical model: manipulated leader humility predicts collective humility and team collective promotion focus (Study 1); collective humility predicts team performance, and this relationship is mediated by team collective promotion focus (Study 2). To build upon these studies, we sought to replicate and extend these findings by testing the entire model with a field sample. We also included a measure of transformational leadership to distinguish the impact of leader humility from this established leadership construct. As Schaubroeck, Lam, and Peng (2011: 869) summarized, "To date, transformational leadership is arguably the most reliable and potent mainstream leadership behavior variable for predicting team performance." One theorized difference between these leadership approaches is the imitability of behaviors. With the exception of consideration, the dimensions of idealized influence, inspirational motivation, and intellectual stimulation are arguably not as imitable by team members compared with the behaviors comprising humility. These transformational leadership dimensions "collectively inspire followers to achieve more than was thought possible [by] encourag[ing] followers to question assumptions and think about new ways of doing tasks" (Williams et al., 2010: 306). Though leader encouragement is important, the influence of humility comes more through modeling rather than encouragement or exhortation, which in turn leads to social emulation of the leader's behaviors. Thus, while Schaubroeck et al. (2011) found that transformational leadership influenced team performance through cognitive-based trust and team potency, we wanted to see whether it would also predict team performance through collective humility and collective promotion focus, or if this pathway for enhancing team performance was unique to leader humility.

STUDY 3 (HEALTHCORP): TESTING THE FULL MODEL IN THE FIELD

Participants and Procedures

Participants were 326 health services employees organized into 77 work teams (average team size = 4.23, 66% female, average age 38 years, 77% Caucasian). This health services company, hereafter called HealthCorp, has offices and clientele throughout the United States and in Puerto Rico and Great Britain. As part of an annual organizational assessment of culture, we added measures of leader humility, transformational leadership, collective humility, team collective promotion focus, and leader-rated team performance. Ideally, we would have temporally separated all subjective measures, but HealthCorp allowed us to administer only two separate surveys. Therefore, Time 1 included an assessment of employee-rated leader humility and transformational leadership (response rate 67%). Time 2, approximately one month later, assessed employee-rated collective humility and team collective promotion focus (response rate 54%). At Time 2, leaders rated their team's performance (response rate 74%).

Measures

All study measures were scaled to a five-point agreement scale (1 = "*strongly disagree*"; 5 = "*strongly agree*").

Leader humility. Leader humility was measured using the same nine-item scale used in Studies 1 and 2. The alpha reliability for this scale was .97.

Collective humility. Collective humility was measured using the same nine-item scale used in Studies 1 and 2. The alpha reliability for this measure was .96.

Team collective promotion focus. Team collective promotion focus was measured using the same four-item scale used in Studies 1 and 2. The alpha reliability for this scale was .93.

Team performance. Team performance was measured using an adapted four-item scale (Walumbwa, Avolio, & Zhu, 2008). Sample items include "In your estimation, how effectively does this team get their work done?" and "How would you judge the overall quality of the work performed by this team?" The full set of items appears in Appendix B, and the alpha reliability score for this scale was .96.

Controls. As in the previous studies, we measured and controlled average team size, average gender, and average age in our bootstrapped path analyses. We also controlled for employee ratings of leader transformational leadership to observe the impact of leader humility beyond this commonly studied construct. We measured transformational leadership using the 16-item assessment that captured the four dimensions of transformational leadership from the

MLQ-5× (Bass & Avolio, 1990). The alpha reliability for this scale was .96.

Analyses

We conducted a CFA to determine the distinctiveness of all study variables and calculated r_{WG} and ICC values to justify aggregating individual assessments to the team level. As with Studies 1 and 2, we conducted an initial SEM path analysis (Amos 19; Arbuckle, 2010), and report the AIC to show fitness for the hypothesized mediation model relative to a direct effects rival model. We then report the results of our bootstrapped regression-based path analyses (i.e., PROCESS software; Hayes, 2013; see also Preacher & Hayes, 2008) as a more rigorous test of our mediation hypotheses.

Results

The results of CFA analyses suggested that five-factor model (χ^2: 1454.75, df = 838; RMSEA = .06, CFI = .93, TLI = .93) fit the data better than all other rival models (e.g., those combining our leadership constructs, our team constructs, or both) as these rival models had CFI and TLI values that were below .90, RMSEA values above .06, and significant $\Delta\chi^2$ values at the $p < .001$ level. For our aggregation tests, the average r_{WG} scores for our team-level variables ranged from .79 to .96. The ICC(1) scores for each team-level construct ranged from .07 to .19. The ICC (2) scores for each team-level construct ranged from .25 to .50. For each team-level variable, between-group-level effects were significant at the $p < .05$ level, suggesting a team-level effect. Thus, we felt justified in aggregating the scores to the team level. As mentioned, our low average team size may explain the lower ICC(2) values (see Hofmann & Jones, 2005). Multicollinearity diagnostic tests revealed that all VIF values were below the standard cutoffs that signal potential multicollinearity problems (i.e., all VIF values were below 3.0).

As Table 5 shows, bivariate correlation analyses provided initial support for our proposed relationships.

From our path analysis, the path coefficients suggest that leader humility was related to collective humility (b = .30, $p < .05$), collective humility was related to collective promotion focus (b = .67, $p < .001$), and collective promotion focus was related to team performance (b = .47, $p < .001$). The AIC of the hypothesized mediation model was smaller than the rival model with direct paths modeled from leader humility, collective humility, and collective promotion focus to team performance (17.37 vs. 55.15), suggesting superior fit for the hypothesized mediation model. Table 6 contains the results of our indirect effects analyses (based on 5,000 bootstrapped samples). In this table, Model 1 shows that, when all control variables and transformational leadership were included, leader humility had an indirect effect on team performance through collective humility and team collective promotion focus (b = .04; 95% CI [0.01, 0.13]). The overall model explained 26% of the variance in team performance (R^2 = .26). We also examined whether leader humility influences team performance through only one of our proposed mediators (i.e., either collective humility or collective promotion focus) and found no support for these single-mediator models. (See Models 2 and 3.) To more fully establish the unique effect of

TABLE 5
Study 3: HealthCorp Means, Standard Deviations, and Correlations[a]

		M	*SD*	1	2	3	4	5	6	7
1.	Team performance	3.64	.55	~						
2.	Percent female[b]	.66	.32	.09	~					
3.	Team size	4.23	2.73	−.13	.23	~				
4.	Average age	38.18	5.29	−.03	−.02	−.18	~			
5.	Leader humility[c]	3.87	.59	.21	.17	.02	−.07	~		
6.	Collective humility[c]	3.72	.55	.42	.20	−.15	.17	.33	~	
7.	Collective promotion focus[c]	5.37	.80	.44	.25	−.25	.03	.36	.68	~
8.	Transformational leadership[c]	3.51	.70	.25	.21	.17	−.09	.53	.16	.22

[a] N = 77 teams. All correlations larger than .23 are significant at $p < .05$.
[b] Gender was coded "1" = female, "0" = male.
[c] The between-team variances for leader humility, collective humility, collective promotion focus, and transformational leadership were 1.08, 1.39, 1.41, and 1.53, respectively.

TABLE 6
Study 3: HealthCorp Bootstrapped Indirect Effect Model Comparison Analyses on the Influence of Leader Humility on Team Performance through Collective Humility and Collective Promotion Focus[a]

Indirect Paths	Indirect Effect *b*	Bootstrapped *SE*	*t*	Indirect Effects (Bias-corrected and accelerated 95% confidence interval)
1. Leader humility → Collective humility → Collective Promotion focus → Team performance	**.04**	**.02**	**2.02***	**95% CI [0.01, 0.13]**
2. Leader humility → Collective promotion focus → Team performance	.02	.03	.73	95% CI [−0.01, 0.12]
3. Leader humility → Collective humility → Team performance	.03	.03	.99	95% CI [−0.01, 0.13]
4. Transformational leadership → Collective humility → Collective promotion focus → Team performance	.00	.00	.00	95% CI [−0.04, 0.02]
5. Transformational leadership → Collective promotion focus → Team performance	.01	.02	.47	95% CI [−0.02, 0.07]
6. Transformational leadership → Collective humility → Team performance	−.01	.02	.46	95% CI [−0.08, 0.02]
7. Leader humility → Transformational leadership → Collective humility → Collective promotion focus → Team performance	−.00	.01	−.16	95% CI [−0.03, 0.01]

[a]Bootstrapped results are based on 5,000 samples (see Preacher & Hayes, 2008). All models contain the following predictor/control variables: percent female, team size, average age, leader humility, collective humility, collective promotion focus, and transformational leadership.

*$p < .05$

leader humility, we reran all bootstrapped analyses with transformational leadership as the main predictor (replacing leader humility in the model; see Models 4–6), and the confidence intervals for all potential mediational paths straddled zero (whether or not we controlled for leader humility). Finally, we examined whether transformational leadership might mediate between leader humility and team performance in addition to our proposed mediators of collective humility and collective promotion focus (Model 7), and, again, the confidence interval straddled zero.

Furthermore, to strengthen the causal direction of our model, we also reran the model in the reverse direction (team performance → team collective promotion focus → collective humility → leader humility), and the results were not significant. Thus, the results of the AIC and bootstrapping analyses support Hypotheses 1–3 and the causal direction of our proposed mediation model. Overall, these results suggest that leader humility influences team performance through a two-stage process of collective humility and then collective promotion focus. Moreover, this path from leadership to team performance is distinct from the process linking transformational leadership to team performance.

Post hoc test. In our rationale for Hypothesis 2, we theorized that collective humility would foster better awareness of team member unique strengths leading to task allocation effectiveness, which would in turn foster a focus on optimizing team achievement, or collective promotion focus. In our Study 3 data, we also had a measure of "team demands–abilities fit" (Abdel-Halim's [1981] five-item individual-level measure aggregated to the team level;[3] sample items include "I feel that my team tasks and I are well matched," and "My team tasks give me a chance to do the things I feel I do best"). As a post hoc test, we added this potential mediator to our bootstrapped indirect effect analyses. We found that team demands–abilities fit mediated between collective humility and collective promotion focus when including all controls. In other words, the 95% confidence interval for the bootstrapped indirect effect analysis did not straddle zero (i.e., [.004, .08]) for the following model: leader humility → collective humility → team demands–abilities fit → collective promotion focus → team performance. Thus, teams expressing high levels of humble behavior tended to have a better fit

[3] Average r_{WG} = .86, ICC(1) = .10; ICC(2) = .24; α = .85.

between team member skills and task demands, which led to collective promotion focus and to higher team performance.

Discussion

The purpose of Study 3 was to test our full conceptual model with an organizational field sample (as illustrated in Figure 1). The triangulation of our three studies lends strong support to leader humility being an important antecedent to team performance and influencing team performance through the two-stage process of collective humility and collective promotion focus. We also differentiated the impact of leader humility from transformational leadership by controlling for this construct and rerunning the model with transformational leadership as the independent variable. We view the fact that transformational leadership did not predict collective humility or collective promotion focus as evidence for the differential impact of the specific, imitable behaviors comprised in leader humility.

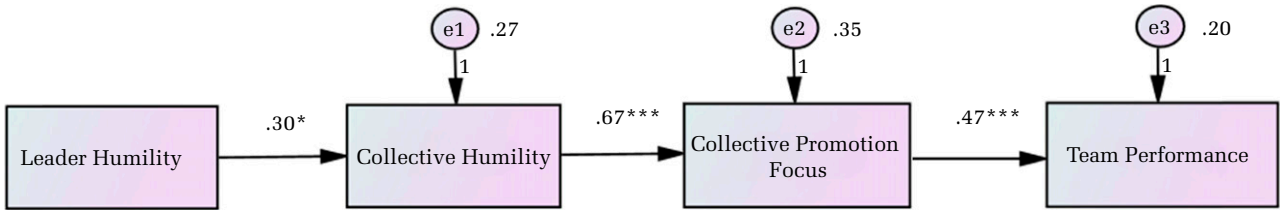
GENERAL DISCUSSION

The most important contribution our research makes is to help illuminate how one nontraditional leadership approach—leader humility—influences team performance. Though leader humility is one of many leadership approaches that have recently been found to foster positive effects on teams (e.g., Gelfand, Leslie, Keller, & de Dreu, 2012; Liden, Wayne, Liao, & Meuser, 2014; Schaubroeck et al., 2011; Yaffe & Kark, 2011), this effort sought to illuminate how it is uniquely situated to foster some of the core team effectiveness processes that teams theorists have identified. Specifically, we found that humble leader behaviors influenced group performance by fostering the constructive interpersonal processes inherent in collective humility and by catalyzing a specific collective regulatory focus. Post hoc analyses in Study 3 also confirmed that the theorized mechanism of task allocation effectiveness also mediated the effect of leader humility and team performance. Certainly, the model we proposed and tested could apply to many types of leader behaviors: leaders model a behavior, followers emulate it, a strategic orientation is created, and this strategic focus influences performance. Our process model for how leaders influence group performance may help provide insight into how leaders so greatly affect firm performance (e.g., CEOs account for 38.5% of the variance in firm performance; Hambrick & Quigley, 2014), leading us to inquire whether imitable CEO behaviors shape performance-enhancing interaction patterns and, in turn, strategic foci, throughout the organization.

Our findings also inform the leadership literature by showing that leaders who express humility may help their teams to transcend the comparative–competitive social lens that often leads to overestimating oneself and underestimating others, which is arguably a poor foundation for effective teamwork (see Anderson, Srivastava, Beer, Spataro, & Chatman, 2006; Lauber, Baetge, & Acomb, 1986). Our theoretical rationale and empirical findings also contribute to the leadership literature by underscoring the importance of leading by example, and may help explain why followers view leader hypocrisy so harshly (Dufresne & Clair, 2013; Quinn, 2004). Indeed, Dasborough, Ashkanasy, Tee, and Tse (2009) found that leader insincerity produced negative follower emotions, such as cynicism toward the leader. Hypocrisy, or incongruence between leader behaviors and espoused values (Quinn, 2004), is thought to be a major weakness resulting from the more visionary styles of leadership (Cha & Edmondson, 2006). In fact, this finding of hypocrisy flowing from charismatic leadership may have partly motivated the growth of values-based leadership, or leadership that is aligned with the "authentic, true self" (Gardner, Avolio, Luthans, May, & Walumbwa, 2005: 344; Sparrowe, 2005). Our theoretical rationale and empirical findings suggest that followers are closely attuned to leaders' behaviors, and the specific behaviors that leaders model can profoundly influence team interaction processes and performance.

Like Schaubroeck and colleagues (2011), we explored two types of leadership in our last study, and found that, while transformational leadership was positively associated with team performance (see Table 6), its effect did not manifest through the same path as leader humility. Though Schaubroeck and colleagues (2011) revealed that transformational leadership influences team performance by fostering cognition-based trust and team potency, leader humility's influence was through contagion of the behaviors themselves, shaping specific teamwork and regulatory-focus aspects of team functioning. Perhaps one reason why transformational leadership did not predict performance as strongly in this context is that the performance circumstance did not warrant a new compelling vision or was not one of "extreme challenge, stress, and uncertainty," which are situations when transformational leadership is theorized to be most important (Bass, 1985: 815). In

FIGURE 1
Study 3: Structural Equation Modeling Path Analysis[a]



[a] Path weights represent standardized path coefficients. Fit of the hypothesized mediation model (AIC = 17.37) was superior to the rival model in which direct paths were modeled between all study variables and team performance (AIC = 55.15).
* $p < .05$, *** $p < .001$

contrast, qualitative evidence suggests that leader humility is less effective in times marked by extreme threat or time pressure (Owens & Hekman, 2012). Thus, leader humility may be more beneficial to team effectiveness relative to transformational leadership during everyday challenges (times of low to moderate amounts of challenge, stress, pressure, or threat). It would be meaningful for future research to explore the relative benefits of both forms of leadership across different types of situations—specifically, whether leader humility would be less effective when more directive, power-centralized styles of leadership are required.

Our results also contribute to the burgeoning literature examining humility, and contribute to the debate about its worthiness as a virtue (Exline & Geyer, 2004; Grenberg, 2005; Owens, Rowatt, & Wilkins, 2011). This effort represents additional evidence for the strengths-based view of humility, that it is a virtue foundational to progress and development and has tangible value in organizational contexts. Far from being a sign of weak-willed, stooped-shouldered meekness (see Tangney, 2000), humility keeps individuals in a state of continual adaptation. Our findings suggest that humility appears to embolden individuals to aspire to their highest potential and enables them to make the incremental improvements necessary to progress toward that potential. These studies are also the first empirical effort to confirm the contagious nature of humility as leader-modeled humility fostered collective humility in teams. The implications are clear: individuals must act virtuously if they want virtue to spread. Organizational members can develop virtues by practicing them, and virtue abilities, like physical abilities, are subject to development or deterioration (Vera & Rodriguez-Lopez, 2004; see also Dunning, 1995). Future research should examine whether our model holds for other virtues, such as courage (Koerner, 2014; Schilpzand, Hekman, & Mitchell, 2015) or compassion (Rynes, Bartunek, Dutton, & Margolis, 2012), and whether these virtuous behaviors enhance or undermine group performance.

Lastly, our model also contributes to the vast regulatory focus literature (Beersma et al., 2013; Dimotakis et al., 2012; Higgins, 1997; Rietzschel, 2011). Specifically, our findings advance regulatory focus research by (a) identifying an important team outcome that results from collective promotion focus and (b) identifying specific leader and team behaviors that foster a collective promotion focus. Our field-based examination of collective promotion focus is novel, as, to our knowledge, this construct has been exclusively manipulated among laboratory-based groups rather than measured among naturally occurring groups found in field settings (Beersma et al., 2013; Dimotakis et al., 2012; Levine et al., 2000; Rietzschel, 2011). Our findings also explain how this strategic orientation might emerge from team behaviors, such as collective humility, which is a novel antecedent of a collective promotion focus. These results build on findings that a collective promotion focus can spring from group mottos (Faddegon et al., 2008) as well as team reward structures (Levine et al., 2000). As this research focused only on promotion regulatory focus, it would be meaningful for future research to explore the association of leader and team humility and prevention regulatory focus. It may be that leader humility is negatively related to team performance in situations that may call for a prevention regulatory focus, such as high reliability contexts (Roberts, 1990). Future research should also explore specific team behaviors spurred by a team promotion focus. Although post hoc analysis of our Study 2 data suggested that resource investment behavior (millions of dollars invested into increasing factory capacity, new product launches, and research and development) mediated the influence of promotion focus climate on team performance (i.e., stock price), we recommend that future research

more directly theorize and test specific team behaviors fostered by collective promotion focus that enhance performance.

Strengths, Limitations, and Future Research

This series of studies has several strengths, including three samples used in experimental, simulation, and longitudinal field designs. We also used objective and subjective team performance measures, which further enhanced confidence in our theoretical predictions (Campbell, Stanley, & Gage, 1963). Thus, we took advantage of the strengths of the rigor and internal validity of laboratory contexts as well as the power and generality of field contexts.

Although our studies in aggregate strongly support our model, they had individual limitations that should be noted. In our studies, collective humility and team collective promotion focus were measured from the same sources at the same time. Thus, the relationship between the variables may be inflated because of common method variance (CMV). However, as reported in the results section, the two constructs loaded onto separate factors, and regression analyses showed that multicollinearity was not a concern in any of our studies. In addition, CMV could not explain the relationship between our predictors and team performance, because team performance in Studies 2 and 3 were assessed by a different source. To further allay concern over CMV, we recommend future research replicate our findings by examining different operationalizations of collective humility and team collective promotion focus, such as behavioral or extra-team observer assessments. Our studies are also limited in that all were conducted with Western samples and thus their generalizability to Eastern contexts is unclear. We recommend future research to try to replicate our findings using samples from Eastern contexts.

Though it appears that leader and collective humility fosters team performance effectiveness in a simulated auto industry and in a health services context, future research should also explore various team contexts with varying levels of task specialization, hierarchical adherence, collective humility dispersion, and time pressure. For example, leader and collective humility may have different effects within a Navy Seals squad, Marine infantry platoon, basketball team, or heart surgery unit. We can also see the benefits of exploring the level of disjunctivneness (vs. conjunctiveness) of team tasks (Steiner, 1972) to understand boundary conditions for the effectiveness of collective humility, and the impact of leader humility on teams with different types of interdependence (e.g., pooled, sequential, or reciprocal). Lastly, future research should explore other potential antecedents of collective humility besides immediate leader modeling, such as higher-level or executive leader modeling, shared team leadership structures, and demographic or functional diversity.

CONCLUSION

Leadership is the most important contextual factor in shaping team performance (Hambrick & Quigley, 2014). Our theoretical rationale and empirical findings help extend and enrich theory showing that imitable leader behaviors, like those encompassed in humility, are an important mechanism for influencing team performance. Specifically, followers emulate leader behaviors, which generate a shared team regulatory orientation that ultimately influences team performance. This research also provides evidence toward the idea that historic virtues do still have relevance in predicting important, bottom-line outcomes. We hope that the theory and findings reported here spur further theoretical and empirical attention toward a better understanding of the relevance and process of imitable leader behaviors within team contexts.

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APPENDIX A: STUDY 1—SAMPLE HUMBLE/ NON-HUMBLE LEADER DIALOGUE[4]

HUMBLE LEADER CONDITION

Initiating Task

HUMBLE LEADER CONFEDERATE: Let's start. What do you guys think about how to do the ranking task? I'm not sure I'm an HR expert, but I've a suggestion—How about doing the ranking in an ascending order? That is, rank the items from 1 to 20, from the most valuable practices to the least valuable ones.

FOLLOWER CONFEDERATE: I've another idea. How about we start by putting a plus next to the best ones and a minus next to the ones we think are bad? So we do a first cut at the items, and then after that we go through and rank them individually?

HUMBLE LEADER CONFEDERATE: Yes, great idea! What do the rest of you think? Although I'm the leader, I may not be the smartest in HR practices and I welcome your suggestions.

(Wait for others to respond, listen and nod.)

FOLLOWER CONFEDERATE: Having a first cut at the items makes things easier.

HUMBLE LEADER CONFEDERATE: I really appreciate all these great ideas. Let's do what Sarah has suggested.

FOLLOWER CONFEDERATE: Yes!

HUMBLE LEADER CONFEDERATE: Good! Let's start!

During Team Discussion Time

HUMBLE LEADER CONFEDERATE: (Item 15) Employee commitment is important for the company. This might be a good way to increase their commitment. What do you guys think?

FOLLOWER CONFEDERATE: I think raising money for Planned Parenthood will cause conflict in the organization. Probably that is not one of the best ideas, even though personally I might think it's a good idea.

HUMBLE LEADER CONFEDERATE: Good point. It can be both good and bad. Any thoughts?

(Wait for others to respond, listen and nod.)

HUMBLE LEADER CONFEDERATE: Good idea! Great, let's keep going!

NON-HUMBLE LEADER CONDITION

Initiating Task

NON-HUMBLE LEADER CONFEDERATE: Let's start. As I'm the leader, I hope you guys can follow my suggestion. Can you guys start by ranking in an ascending order? That is, rank the items from 1 to 20, from the most valuable practices to the least valuable ones.

FOLLOWER CONFEDERATE: I've another idea. How about putting a plus next to the best ones and a minus next to the ones we think are bad? So we do a first cut at the items, and then after that we go through and rank them individually?

NON-HUMBLE LEADER CONFEDERATE: No, let's follow my suggestion. I like my way more. I am so glad I was chosen to be the leader. The role really fits my personality.

FOLLOWER CONFEDERATE: But I think my way is also good.

NON-HUMBLE LEADER CONFEDERATE: No, just follow my way. Let's start.

During Team Discussion Time

NON-HUMBLE LEADER CONFEDERATE: (Item 15) Employee commitment is important for the company. This might be a good way to increase their commitment.

FOLLOWER CONFEDERATE: I think raising money for Planned Parenthood will cause conflict in the organization. Probably that is not one of the best ideas, even though personally I might think it's a good idea.

NON-HUMBLE LEADER CONFEDERATE: I don't think so. Let's move on to the next item.

APPENDIX B: SURVEY MEASURE ITEMS

LEADER HUMILITY (ADAPTED FROM OWENS ET AL., 2013)

This leader actively seeks feedback, even if it is critical.
This leader admits it when he or she doesn't know how to do something.
This leader acknowledges when others have more knowledge and skills than himself or herself.
This leader takes notice of others' strengths.
This leader often compliments others on their strengths.
This leader shows appreciation for the unique contributions of others.

[4] For full dialogue scripts, please contact the corresponding author.

This leader shows a willingness to learn from others.
This leader shows he or she is open to the advice of others.
This leader shows he or she is open to the ideas of others.

COLLECTIVE HUMILITY (ADAPTED FROM OWENS ET AL., 2013)

Members of this team actively seek feedback, even if it is critical.
Members of this team admit it when they don't know how to do something.
Members of this team acknowledge when others have more knowledge and skills they do.
Members of this team take notice of each other's strengths.
Members of this team often complement one another on their strengths.
Members of this team show appreciation for the unique contributions of other group members.
Members of this team are willing to learn from one another.
Members of this team are open to the ideas of one another.
Members of this team are open to the advice of one another.

TEAM COLLECTIVE PROMOTION FOCUS (ADAPTED FROM LOCKWOOD ET AL., 2002)

In general, our team is focused on . . .
. . . attaining our ambitions.
. . . becoming the team we hope to become in the future.
. . . attaining the success we hope to achieve in the future.
. . . achieving our hopes and aspirations.

TEAM PERFORMANCE (LEADER RATING; WALUMBWA ET AL., 2008)

All in all, how competently does the team perform its work?
In your estimation, how effectively does the team get its work done?
How would you judge the overall quality of the work performed by the team?
How would you judge the overall perceived competence of the team?