



Charismatic Leadership and Work Team Innovative Behavior: the Role of Team Task Interdependence and Team Potency

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Abstract

Although the importance of leadership for innovation processes has been acknowledged, the understanding of the relationships between leadership styles and levels of innovation in work teams is still limited. This study among team managers and team members of 133 Spanish bank branches (i.e., work teams) investigated whether the influence of charismatic leadership on work team innovative behavior comes about via team potency, and whether the relationship between charismatic leadership and team potency is moderated by the level of task interdependence within the team. Data were collected at three different time points. Results of structural equation modeling showed that only at high levels of task interdependence, team managers' charismatic leadership at time 1 was significantly positively related to an increase in team potency at time 2, which in turn was positively related to manager ratings of their work teams' innovative behavior at time 3. This means that only at high levels of task interdependence, charismatic leadership had a significant indirect effect on team innovative behavior via team potency. Thus, our study sheds light on the boundary conditions of this effect.

Keywords Charismatic leadership · Team potency · Team innovation · Task interdependence · Work teams

Past research has demonstrated that innovation is an important factor for future organizational success and competitive advantage (e.g., Anderson, De Dreu, & Nijstad, 2004; Janssen, van de Vliert, & West, 2004; Scott & Bruce, 1994; Van der Vegt & Janssen, 2003), and consequently for organizational survival. Together with forces such as increasing competition and consolidation, the need for innovation has been driving a shift in organizations toward structures in which work teams are the basic unit (Kozlowski & Ilgen, 2006; Pearce & Ensley, 2004). One of the assumptions underlying this strategy is the belief that the confluence of different perspectives and skills in work teams will facilitate

innovation (i.e., the implementation of new ideas, processes, products, or practices) because it requires the collaboration of several people working in a coordinated fashion. If an innovation by a work team is successful, it can be incorporated in other areas of the organization too, giving rise to a new practice at the organizational level (Anderson & West, 1998; Axtell, Holman, & Wall, 2006; Caldwell & O'Reilly, 2003; Fay, Borrill, Amir, Haward, & West, 2006 in González-Romá, 2008). So, as many current-day organizations need to be innovative in order to compete and survive, gaining insight into factors promoting innovation in work teams is not only important from a theoretical but also from a practical point of view.

Whereas initial studies on workplace innovation mainly focused on predictors of innovation at the organizational level (see for reviews: Camisón-Zornoza, Lapedra-Alcamí, Segarra-Ciprés, & Boronat-Navarro, 2004; Damanpour, 1991), research on innovation at the team level also flourished from the 1990s of the past century onward. Hülshager, Anderson, and Salgado (2009) performed a meta-analysis of three decades of primary studies into the direct relations between team

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characteristics and processes and team innovation, and they identified vision, external communication, support for innovation, task orientation, and internal communication as the most powerful agents of innovative work behavior in teams. Based on their findings, they recommend team leaders to stimulate innovation through a consistent striving to provide their team members with clearly stated, visionary and motivating higher order goals, and high norms and support for innovative endeavors, as well as enhancing their team members' commitment to excellence. The type of leadership that matches best with these requirements is charismatic leadership. Charismatic leaders do not only inspire followers through their willingness to take risks and through their commitment to their change vision but also energize followers to aim toward achieving higher goals and objectives (Dvir, Eden, Avolio, & Shamir, 2002; Howell & Shamir, 2005; Shamir, House, & Arthur, 1993 in Paulsen, Maldonado, Callan, & Ayoko, 2009). Therefore, the current study focused specifically on charismatic leadership in relation to work team innovative behavior. As our study had a team-level outcome variable, we studied this relationship at the team level.

Unfortunately, previous studies on the relationship between specific leadership behaviors and team innovation have yielded contradictory results that did not provide a clear understanding on how leadership may contribute to innovative behavior in work teams. According to Anderson, Potocnik, and Zhou's (2014) review on innovation and creativity in organizations, unraveling the role of leadership as facilitator of work team innovation is one of the most pressing issues in research on the team level. It is particularly important however, to move theoretical knowledge in this area one step further by not simply looking at the relationship of a single antecedent factor with work team innovative behavior, but rather by gaining insight into the underlying psychological processes. Therefore, our study aimed to advance theoretical knowledge by also exploring the underlying mechanism linking charismatic leadership to team innovative behavior.

Nederveen Pieterse, Van Knippenberg, Schippers, and Stam (2010) pointed out that a possible cause for the inconsistent findings regarding the relationships between leadership and follower innovative behavior might be the presence of moderator variables. Such a focus on moderation of the impact of leadership is consistent with the contingency approach in leadership research (Fiedler, 1964). Although this approach was originally formulated at the individual level of analysis, it seems logical that the contingency principle might apply to other levels of analysis, i.e., the team level, as well. So, by also including a potential moderator of the

charismatic leadership-team innovative behavior relationship, our study aimed to add to our scarce knowledge in this area.

To summarize, innovation has been recognized as a key factor in organizations' ability to create a sustainable competitive advantage, and organizations often rely on teamwork to pursue new ideas, processes, products, and procedures toward implementation (Eisenbeiss, Van Knippenberg, & Boerner, 2008; Hülshager et al., 2009). Thus, innovation at the team level holds the promise of organizations gaining a competitive edge (Nederveen Pieterse et al., 2010). Moreover, results of empirical studies on leadership in relation to team innovation are far from conclusive (Anderson et al., 2014). Identifying how leadership, as a key driver of team processes, may stimulate work team innovative behavior is therefore important from both a theoretical and a practical point of view. Li and Karam (2017) performed a study among employees ($N = 578$) of local banks in the Mideast of the USA and found a positive relationship between charismatic leadership and innovation at the branch level. The present study among Spanish bank branches (i.e., work teams) aims to contribute to the understanding of the relationship between charismatic leadership and team-level innovative behavior by shedding light on the underlying psychological process of this relationship (mediation) and the boundary conditions for the effects of charismatic leadership (moderation).

Charismatic Leadership and Team Innovative Behavior

Our conceptualization of team innovative behavior is based on Amabile's (1988, p. 126) definition of innovation as "the successful implementation of creative ideas." Within an organizational context, the ideas in question can be anything from ideas for new products, processes, and services within the organization's line of business to ideas for new procedures and policies within the organization itself. In the present study, we conceptualize team innovative behavior as the application of new ideas, processes, products, and procedures within work teams. According to West and Farr (1990), team innovation is a question of relative, not absolute, novelty. What may be highly novel, thus innovative, for one work team might already be common practice for another team (Anderson et al., 2014; West, 2002).

One of the views on the way in which leadership is related to employee (innovative) behavior is a motivational one, proposed by Parker and Wu (2014). This motivational view particularly applies to charismatic leaders, as they are characterized by articulating and

communicating a visionary mission, instilling hope and optimism, displaying confidence in followers, setting high expectations, and showing confidence that these expectations can be achieved (Bass & Avolio, 1995; House & Shamir, 1993; Shamir & Howell, 1999). We propose that, in this way, they also challenge their followers to experiment with putting new ideas, processes, products, and procedures into practice, i.e., to show innovative behavior. In the following paragraphs, a hypothetical, underlying mechanism for this relationship is presented.

Charismatic Leadership, Team Potency, and Team Innovation

To date, hardly any studies have been performed on the underlying mechanism relating charismatic leadership to team innovation. Paulsen et al. (2009) performed a cross-sectional survey among 178 employees of 34 R&D teams in one organization. Their results showed that more charismatic leadership was related to more innovative behavior of team members, and that this relationship was mediated by higher levels of team (collective) identity and team cooperation, respectively. Michaelis, Stegmaier, and Sonntag (2009) studied 194 employees working in R&D teams of a multinational automotive company and found that charismatic leadership and trust in top management were both positively related to innovation implementation behavior and that both relationships were mediated by followers' affective commitment to change. However, neither of these studies was based on an overarching theoretical framework, and though hypotheses were formulated at the team level, data were analyzed at the individual level.

The research model of the current study is based on Bandura's (1986) Social Cognitive Theory (SCT). According to SCT, one way to build self-efficacy is to help people overcome their anxiety and fear. Factors that lower employees' anxiety and fear associated with (attempts at) innovation should therefore cultivate growth in people's efficacy beliefs about their innovative capacity (Ng & Lucianetti, 2016). Though SCT was originally formulated at the individual level, in more recent research it has also been applied to the collective (group) level. Collective efficacy is defined as "a group's shared belief in its conjoint capability to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1997, p. 477). Charismatic leadership may be one of the factors that cultivate a team's collective confidence in its' innovative capacity, in turn resulting in higher levels of team members' innovative behavior.

Instead of collective efficacy, we propose team potency as a potential mediator in the charismatic leadership—innovative behavior relationship. Team potency is defined as "the collective belief of a team that it can be effective" (Guzzo, Yost, Campbell, & Shea, 1993, p. 87), and it is known to increase members' confidence in their team's ability to meet new challenges and tolerate ambiguous and uncertain situations (Campion, Medsker, & Higgs, 1993; Gully, Incalcaterra, Joshi, & Beaubien, 2002). As such, team potency is a construct parallel to yet different from perceived collective efficacy. Though both are beliefs operating at the team level and shared by team members, they differ in a fundamental respect. Whereas team potency reflects generalized employee beliefs about the team's performance capabilities across tasks and contexts, perceived collective efficacy refers to beliefs about task-specific activities (Collins & Parker, 2010; Gully et al., 2002; Lee, Tinsley, & Bobko, 2006). As team potency is broader in scope than collective efficacy, it is probably more relevant for the display of innovative behaviors that go beyond the common team task-specific activities. In a study among 117 interdisciplinary work teams in vocational colleges in Germany, Widmann and Mulder (2018) found that team potency was indeed significantly positively related to innovative work behavior via team learning behaviors such as knowledge sharing and team reflexivity. In addition, we expect that higher levels of potency will make teams more inclined to try out new ideas and procedures, because they are more confident to be successful in implementing them in spite of their novelty.

Our line of reasoning is supported by several previous empirical studies. Schaubroeck, Lam, and Cha (2007) found a positive relationship between transformational leadership—of which charisma is an essential part—and team potency. In their paper, they state that the way that transformational leaders communicate instills a high level of confidence in a team's ability to achieve ambitious collective goals. Further evidence for this point of view is offered by Lester, Meglino, and Korsgaard (2002), who specifically studied the relationship between leader charisma and team potency. They found that charismatic leadership positively influenced the evolution of potency in newly formed work groups over time and also pointed at the role of communication. Based on Bandura's SCT (1986, 1997), they consider verbal persuasion as the key factor, that is, persuasion from others can enhance an individual's belief that (s)he can perform effectively. Extending this relationship to the group level, they expected verbal persuasion to have a significant effect on group (team) potency. As Guzzo et al. (1993) already indicated that

leadership is a key determinant of group potency, verbal persuasion will be particularly effective when it originates from a team's leader. Charismatic leaders are considered to be very effective in persuasion—relying on outstanding rhetorical skills, extensive eye contact, vocal variety, and inclusive terminology—to articulate an idealized version of their organization (Conger & Kanungo, 1987).

Team potency, in turn, consistently has been shown to be positively related—cross-sectionally as well as longitudinally—to important team outcomes such as effort, performance, service quality, and member (task) satisfaction (see, e.g., Gully et al., 2002; Lee et al., 2002; Lester et al., 2002). As mentioned before, Pearce and Ensley (2004) found that team potency is reciprocally related to a team's shared vision of its future state, whereas this self-reinforcing cycle in turn is positively related to team innovation effectiveness as perceived by team members, team managers, and internal customers. Howell and Shea (2006) studied 41 product innovation teams in 13 organizations and found that by elevating team potency, team innovation performance can be sustained longer term. They concluded that the sense of confidence generated by high levels of team potency helps teams to persevere in the face of adversity, which is of particular importance to teams facing the daunting challenge of developing a new product over an extended time period.

So, based on the above, we propose team potency as a mechanism underlying the relationship between charismatic leadership and team innovative behavior. However, this potential role of team potency has never been empirically tested, let alone longitudinally. Therefore, we propose:

Hypothesis 1: Charismatic leadership and team innovative behavior are indirectly related through team potency, so that charismatic leadership is positively related to team potency, which in turn is positively related to team innovative behavior.

The Moderating Role of Team Task Interdependence

In the current study, we will specifically look at the moderating effect of team task interdependence. We do so because task interdependence is a key characteristic of work teams and previous research has shown it can play a moderator role between team inputs, on the one hand, and team states, processes, and outcomes, on the other hand (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Kozlowski & Ilgen, 2006). Moreover, task

interdependence sets “requirements and constraints that must be considered in team theory, research, and practice” (Kozlowski & Bell, 2013).

The concept of task interdependence can be described as the extent to which the work of any team member is dependent upon the work of other members in the same team, so that interaction and coordination of team members is required to complete tasks (Langfred, 2007). According to Burke et al. (2006), it can be considered a defining characteristic of a team. Members of teams that are highly interdependent are expected to facilitate task performance by providing each other with information, advice, help, and resources (Van der Vegt, Emans, & Van de Vliert, 1999). Typically, task interdependence increases when the work itself becomes more difficult and employees require a higher level of mutual assistance in terms of, for instance, materials, information, or expertise (Van der Vegt, Emans, & Van de Vliert, 2001). It describes the degree to which a task requires collective action and can be seen as a structural feature of the instrumental relations that exist between team members (Van der Vegt et al., 2001). When the level of task interdependence is high, team members work in a collaborative way to complete tasks. Conversely, when the level of task interdependence is low, team members act in a more independent manner.

Past research has examined the moderating role of task interdependence and found this contingency variable to amplify, attenuate, or show no effect on the relationship between leadership and other variables at the team level of analysis (Burke et al., 2006; Duffy, Shaw, & Stark, 2000; Horowitz & Horowitz, 2007; Stewart & Barrick, 2000). Burke et al. (2006) demonstrated that the importance of leadership in teams is significant when task interdependencies are higher. In a meta-analysis on the relationship between shared leadership and team performance, Nicolaides et al. (2014) found that shared leadership is particularly effective when task interdependence is high. On the other hand, a meta-analysis by D'Innocenzo, Mathieu, and Kukenberger (2016) did not find a moderating effect of team task interdependence on the shared leadership—team performance relationship. Ceri-Booms, Curseu, and Oerlemans (2017) performed a meta-analysis on the relationship between task- and person-focused leadership behaviors, and team performance and their results showed no moderating effect of task interdependence on the relationship of these types of leadership behavior with team performance.

Kim and Vandenberghe (2018) found that the impact of charisma on team identity is attenuated by high task interdependence. They explain this moderation by stating that task interdependence can be considered a

“substitute for leadership” in relation to the specific outcome variable of their study, i.e., team identity. In the present study, however, the level of task interdependence between team members is expected to play an amplifying moderating role in the relationship between charismatic leadership and team potency. As mentioned in the previous paragraph, charismatic leaders communicate a high level of confidence in team members’ ability to reach collective goals, thus boosting team potency. In teams with high levels of task interdependence where team members depend on each other to accomplish team goals/tasks, the role of the leader articulating and communicating a common visionary mission, and showing confidence in team members that they can do a good job is more important than when team members can work independently (i.e., low levels of task interdependence). In the former situation, the influence of charismatic leadership on team potency will be stronger because higher levels of interdependence are associated with complex team tasks that require coordination, and under these conditions, the role of a charismatic leader articulating and communicating a common visionary mission and showing confidence in the team is critical to enhance team potency. When interdependence is lower, team members can work more independently to perform team tasks and achieve team goals. Under these conditions, the influence of a charismatic leader to develop a collective belief that the team can be effective will be weaker than in the previous case because his/her role to coordinate team members’ behaviors is not so needed as in the former situation.

We suggest a model in which not only the relationship between charismatic leadership and team potency but also the indirect relationship between charismatic leadership and team innovative behavior depends on the level of team task interdependence (a first-stage moderation model; Edwards & Lambert, 2007). More specifically, we assume that charismatic leaders promote team innovative behavior via enhancing team potency, and that this indirect effect will be stronger where the level of task interdependence is high (vs. low). Therefore, we hypothesize the following:

Hypothesis 2: The indirect relationship between charismatic leadership and team innovative behavior via team potency is moderated by team task interdependence so that the indirect effect of charismatic leadership on team innovative behavior is stronger in teams with high task interdependence compared with teams with low task interdependence.

To summarize, in the current study, we tested a model including team potency as a mediator linking

charismatic leadership to team innovative behavior, and team task interdependence as a moderator. Our study can be framed as a replication and slight extension of prior work. Though we already know that each of the component relationships holds (i.e., replication), we extend prior work by combining these variables into a single model, and testing their relationships at the team level using a time-lagged design. Moreover, to our knowledge, we also extend prior work in that this is the first study on a mediational process underlying the relationship between charismatic leadership and team innovation that departs from an overarching and well-established theoretical framework, i.e., SCT.

Method

Participants and Procedure

The data analyzed here were part of a broader research project (Bashshur, Hernandez, & Gonzalez-Roma, 2011; González-Romá & Hernandez, 2014). Except for one previously published paper in which the same charismatic leadership data were used, none of the variables (scales) used in the present study have been used in previous publications based on data from the same project (see [Appendix](#)).

The study sample is composed of the managers and employees of branches of three Spanish saving banks operating in the same metropolitan area. Branches had similar structures and sizes across the three banks and performed similar tasks. Although branch managers were physically in the same location as their teams and interacted with them on a daily basis, they did not share the same office space (i.e., they had a separate office). They played a special role as the link between the larger organization and the bank branch, and they had greater responsibility and power than the rest of the team. Branch members had functionally interdependent roles, and they had to interact with each other in order to achieve common goals set at the branch level and can therefore be considered work teams (Kozlowski & Bell, 2003).

Data were collected at three different points in time, so that we are able to test a model going from the independent variable charismatic leadership (time 1) through team potency (time 2) to the outcome variable team innovative behavior (time 3), with a moderating effect of task interdependence (time 1) on the relationship between charismatic leadership and team potency. Moreover, whereas team members provided the data on charismatic leadership, team interdependence, and team

potency, the data on team innovative behavior came from branch managers.

The first survey and the second one were separated by 6 months; the second survey and the third one were separated by 12 months. We expected these time lags to be long enough to observe significant relationships among the study variables over time, but it was mainly determined by the participating organizations' availability. Researchers suggest that longitudinal studies do not necessarily have to provide equally spaced repeated measurements (see Ployhart & Vandenberg, 2010). At time 1 and time 2, branch employees filled out questionnaires during administration sessions held in their own bank branch during working hours. When an employee could not participate in a session, the set of questionnaires was personally delivered to him or her and collected later by the corresponding questionnaire administrator. Confidentiality and anonymity of responses were guaranteed. At time 3, the branch managers rated the innovative behavior of their own work team. At time 1, we collected data from 798 subjects who were members of 178 branches (response rate = 95.4%). At time 2, 736 subjects from the 178 branches responded to the questionnaire (response rate = 88%). At time 3, 143 branch managers provided data on team innovative behavior. In order to make sure that team composition did not change too much across the three time points, we selected teams with a stability rate (i.e., the rate of common team members from time 1 (T1) to time 3 (T3)) of 50% or higher, and teams with three or more respondents on T1 and time 2 (T2; not including the manager) were included in the final sample. After applying these conditions, the final sample was made up of 133 teams. The average size of these teams (not including the manager) was 4.5 (SD = 1.6) ranging from 3 to 12 members, and the average team tenure was 29.9 months (SD = 40.7).

Measures

Charismatic Leadership Charismatic leadership (time 1) was measured by means of a four-item scale (e.g., “My team manager believes in and transmits the importance of our collective mission”) with six response options (1, totally disagree; 6, totally agree). The scale was taken from Morales and Molero's (1995) adaptation of Bass and Avolio's (1995) Multifactor Leadership Questionnaire. The Cronbach's α was .93.

Team Potency Team potency (time 2) was measured by means of a four-item scale (e.g., “In my team, we believe that we can solve any problem that we encounter”) with six response options (1, totally disagree; 6, totally

agree) taken from Guzzo et al. (1993). The Cronbach's α was .89.

Team Task Interdependence Team task interdependence (time 1) captures the level to which the work of any team member is dependent upon the work of his/her colleagues in the same team. It was assessed with a three-item scale (hidden, the authors) with five response options (1, not at all; 5, very much). The scale items were the following: To what extent do the team members have to coordinate in order to do their job? To what extent does the work of a member of your team depend on the work of the other team members? To what extent do the team members need to have meetings to perform their tasks? The Cronbach's α was .77.

Team Innovative Behavior Team innovative behavior (time 3) was rated by branch managers on three behavioral items taken from González-Romá, Fortes-Ferreira, and Peiró's (2009) innovation scale, i.e., “In my team, people make use of their knowledge and skills in order to put new working methods, new services, or new products into practice,” “In my team, people often put new ideas to improve the quality of their work (results) into practice,” and “In my team, we often try out new ideas and methods” with six response options (1, totally false; 6, totally true). The items in our questionnaire assess incremental innovation, which is not as disruptive as radical innovation, and refers to, e.g., smaller adaptations of existing products and services, or to new ways of working. Being a competitive industry, the banking industry does need innovation in the ways of serving people. The Cronbach's α was .82.

Aggregation Statistics

To assess the appropriateness of aggregating individual scores to the team level, we first calculated $Rwg(j)$ (e.g., James, Demaree, & Wolf, 1984). We used the uniform distribution as the null distribution because we did not expect any systematic response bias affecting the participants' responses. Under this assumption, the uniform distribution is an appropriate null distribution (James et al., 1984). Moreover, the uniform distribution is “the most natural candidate to represent nonagreement” (Cohen, Doveh, & Nahum-Shani, 2009, p. 149). The median $Rwg(j)$ value is .89, .79, and .94 for charismatic leadership, team task interdependence, and team potency, respectively. Then we conducted a series of ANOVAs and computed the associated intraclass correlation coefficients (ICC). ICC(1) indicates whether there is a team-level effect on the variable of interest and provides an estimate of consistency between

two individual raters form the same team, and ICC(2) provides an estimate of the reliability of the team-level mean (Bliese, 2000). The ANOVAs showed that perceptions of charismatic leadership, team task interdependence, and team potency differed significantly across teams ($F(132, 467) = 3.327, p < .001$; $F(132, 469) = 1.473, p < .001$; $F(132, 470) = 3.856, p < .01$), supporting the validity of the aggregated measures (Chan, 1998). For charismatic leadership and team potency, both ICC (1) (0.34 and 0.44, respectively) and ICC (2) (0.70 and 0.74, respectively) showed acceptable levels. Whereas ICC (1) was also acceptable for team task interdependence (.09), ICC (2) for this variable was low (.32). This implies that the reliability of the team mean was low for team task interdependence and that the relationships between the group means of task interdependence and the other study variables might be underestimated. However, we took into account measurement error (low reliability) in our modeling approach.

Results

Descriptive Statistics

Table 1 shows the means, standard deviations, and correlations for the study variables. As we can see from this table, team-level charismatic leadership at T1 was significantly related to team potency at T2 ($r = .32, p < .001$) but not to team innovative behavior at T3 ($r = -.033, p > .05$). Team potency at T2 was significantly related to team innovative behavior at T3 ($r = .24, p < .01$). These results already provide preliminary support for hypothesis 1.

Hypotheses Testing

The study hypotheses were tested by means of structural equation modeling (SEM) at the team level with latent variables in Amos 18.0. Using latent variable analysis can take measurement errors into account, simultaneously estimate a measurement model and a structural model, and provide information about overall model fit. Following previous studies (e.g., Zhang, Hempel, Han, & Tjosvold, 2007), we aggregated the individual items of charismatic leadership and team potency and used these aggregates as indicators of latent team variables. For example, there were four items measuring charismatic leadership, and four items measuring team potency. We aggregated each of these items at the team level and used them as indicators of team-level charismatic leadership and team potency, respectively. We estimated the models using maximum likelihood estimation. Team size and team tenure were included as control variables, since these variables can influence team innovative performance. Innovation poses high process demands on teams, and team size will likely increase these demands (Curral, Forrester, Dawson, & West, 2001). According to minority influence theory (Nemeth & Owens, 1996), a well-functioning, integrated group will be more successful in innovating than a less well-integrated group. However, increasing group size will likely hinder effective integration since there will be more team members who have to reach agreement on team objectives, more who will seek to influence decision making, and more who will debate quality of task issues. Therefore, we expect team size to have a negative relationship with team innovative behavior. With respect to team tenure, we rely on literature on the effects of CEO tenure. Hambrick and Fukutomi (1991) found that higher executive tenure leads to lower levels of innovation, since executives are more committed to the status quo. This is in line with upper echelon’s theory, stating that a managers’ learning process occurs in the first years within the firm. After

Table 1 Descriptive statistics, reliabilities, and inter-correlations

Variables	Mean	SD	1	2	3	4	5	6
1. T1 charismatic leadership	4.33	.82						
2. T1 interdependence	3.41	.59	.357**					
3. T2 team potency	4.80	.51	.324**	.316**				
4. T3 innovative behavior	4.19	.77	-.033	.116	.236**			
5. Team size	4.53	1.59	-.104	.117	-.012	.160		
6. Team tenure (months)	29.89	40.67	-.124	-.180*	-.003	.090	.177*	

Note. $N = 133$

T1, time 1; T2, time 2; T3, time 3

* $p < .05$; ** $p < .01$, two-tailed

that, managers apply themselves to strategies they feel most committed and confident to (Bantel & Jackson, 1989; Finkelstein & Hambrick, 1990). We expect a similar process to take place among members of work teams.

Hypothesis 1 stated that charismatic leadership would have an indirect effect on team innovation. We tested hypothesis 1 in the *indirect model (the full mediation model)*. The indirect model showed good fit to the data ($\chi^2(60) = 102.54$, TLI = .958, CFI = .968, RMSEA = .073). We also compared the indirect model with a partial mediation model in which charismatic leadership had a direct effect on team innovation. This partial mediation model did not show a better fit than the indirect model ($\Delta\chi^2(1) = 0.85$, $\chi^2(61) = 101.69$, TLI = .957, CFI = .968, RMSEA = .074), so we accept the indirect model as the final model. In the indirect model, T1 charismatic leadership was related to T2 team potency ($\beta = .35$, $p < .001$), which in turn was related to T3 team innovative behavior ($\beta = .23$, $p < .05$). We used bootstrap estimates and constructed a bias-corrected confidence interval (95%) to test the indirect effect (cf. Preacher & Hayes, 2008). The results indicated that charismatic leadership had a significant positive indirect effect on team innovative behavior via team potency (bootstrap estimate = .08, standard error = .08, bias-corrected CI [.016, .175]). Therefore, hypothesis 1 was supported.

Hypothesis 2 was tested with moderated SEM. We tested hypothesis 2 in a *moderated indirect model*. The indicators of team potency and of team innovation respectively, were still the four and three items in each scale. Yet, we followed the approach by Mathieu, Tannenbaum, and Salas (1992) to create the indicator of the latent interaction variable (also see, e.g., Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Specifically, each exogenous variable (i.e., charismatic leadership and interdependence) had only one indicator that was the standardized scale score of the respective variable. The error variance for each observed indicator was set to one minus its reliability (Cortina, Chen, & Dunlap, 2001). The indicator of the latent interaction variable was the multiplication of the indicator of charismatic leadership and interdependence (see the following Fig. 1). Mathieu et al.'s (1992) approach is one of the most user-friendly approaches to test moderation in SEM, because only one indicator for the latent product is used and the calculations are relatively straightforward. Moreover, this approach is likely to produce parameter estimates as accurate as the more complicated approaches where the latent exogenous variables and the interaction variable have more indicators (Cortina et al., 2001). Given the strength of the Mathieu et al.'s (1992) approach, it is commonly used in the field of I/O psychology and organizational behaviors,

especially when sample size is relatively small (e.g., Wang, Demerouti, & Le Blanc, 2017). In order to test the simple slopes and conditional indirect effects in SEM, we followed the previous studies by using a moderator centering approach (Preacher, Rucker, & Hayes, 2007). The model showed acceptable fit to the data ($\chi^2(43) = 71.86$, TLI = .940, CFI = .961, RMSEA = .071). As shown in Fig. 2, the interaction of charismatic leadership and task interdependence on team potency was significant ($\beta = .22$, $p < .05$).

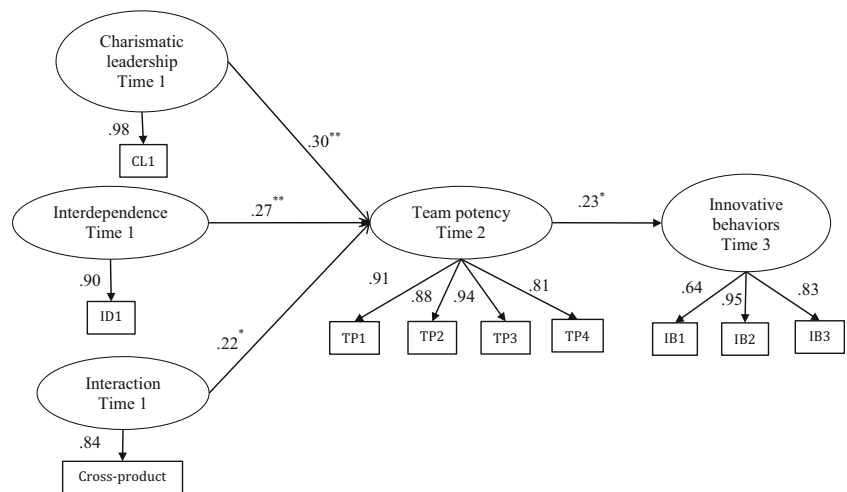
We plotted the interaction effects by adopting the procedure described in Aiken and West (1991) (Fig. 3). For teams with low task interdependence, T1 charismatic leadership was not significantly related to T2 team potency ($b = .04$, $p > .05$). The simple slope was larger and statistically significant when the interdependence was high ($b = .42$, $p < .001$).

We again used bootstrap estimates to test the conditional indirect effect. The results indicated that at low levels of interdependence, charismatic leadership did not have a significant indirect effect on team innovative behavior (bootstrap estimate = .014, standard error = .038, bias-corrected CI [-.052, .181]); while at high levels of interdependence the indirect effect of charismatic leadership was significant (bootstrap estimate = .167, standard error = .120, bias-corrected CI [.005, .458]). The conditional indirect effects were plotted in Fig. 3. As shown in Fig. 3, the indirect effects were significant at moderate and high levels of T1 task interdependence, but not at low T1 task interdependence. Taken together, hypothesis 2 was supported.

Discussion

The main aim of the present study was to ascertain whether the relationship between charismatic leadership and work team innovative behavior comes about via team potency, and to clarify whether this indirect effect is moderated by team task interdependence. Our results supported the hypothesized relationships between charismatic leadership and team potency and team potency and work team innovative behavior, respectively. However, the positive relationship between charismatic leadership and team potency turned out to be significant only in teams where the level of task interdependence was high, whereas it was not significant in teams in which the level of task interdependence was low. Likewise, only in teams with high task interdependence, the indirect effect of charismatic leadership on team innovative behavior was significant.

Fig. 1 The moderated indirect model. Note: Control variables (team size, team tenure) are not presented for clarity. Standardized coefficients are presented. * $p < .05$; ** $p < .001$. The number of teams is 133



Theoretical Implications

Our study has a number of theoretical implications. Overall, our study contributes to filling the gap in the literature on workplace innovation as identified by Anderson et al. (2014) regarding the role of leadership as facilitator of work team innovation, and makes the following, more specific contributions. Firstly, we uncovered one of the underlying mechanisms linking charismatic leadership and team innovative behavior rather than simply looking at the relationship of a single antecedent factor—i.e., charismatic leadership—with work team innovative behavior. Process models like the one we tested can help us to better understand the role that charismatic leadership plays in the innovation process at the team level and might also explain why previous studies on this relationship yielded inconsistent results. In addition, our study contributes to the literature on the influence of charismatic leadership at the team level by investigating the relationship between charismatic

leadership and work team innovation across time. Our results were in line with our theoretical rationale that charismatic leadership boosts work teams’ collective confidence, which in turn leads to the stamina needed for work team innovative behavior. We could speculate that team potency is strengthened through charismatic communication. Charismatic leaders make team members’ collective identity more salient by focusing on a collective entity and shared values (Shamir et al., 1993). In a study among 71 product and process innovation teams in a large automotive firm, Pearce and Ensley (2004) already showed that a team’s shared values and vision are positively related to its potency. Moreover, by stimulating participation in decision making, periodically making time for collective team reflection, managing conflict in a cooperative fashion, and offering support for the implementation of new ideas, charismatic leaders could also contribute to innovation in work teams (González-Romá, 2008).

Secondly, our study sheds light on the boundary conditions of the association of charismatic leadership and team potency, as our results show that a high level of task interdependence amplifies this positive relationship. This suggests that leaders’ charisma particularly affects the collective confidence of a work team when team members depend on each other to accomplish the team goals/tasks. This can be explained by the fact that under this condition in particular, team members need their leader’s charismatic qualities to coordinate their efforts toward the accomplishment of (complex) team tasks and goals.

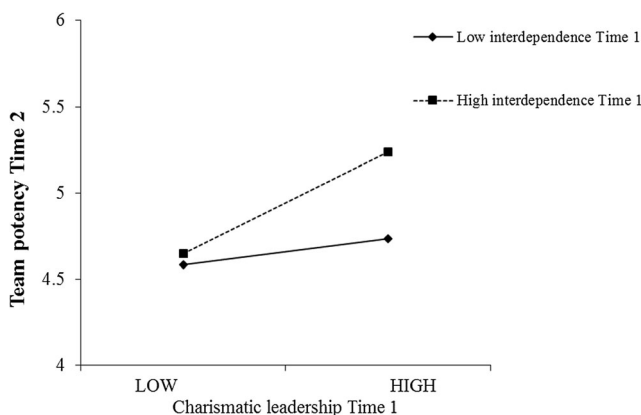


Fig. 2 The moderation effect of time 1 interdependence (IT1) on the relationship between time 1 charismatic leadership (CLT1) and time 2 team potency

Practical Implications

Our results have clear practical implications for organizations. First, as team potency is an important factor driving work team innovative behavior, ways to boost team

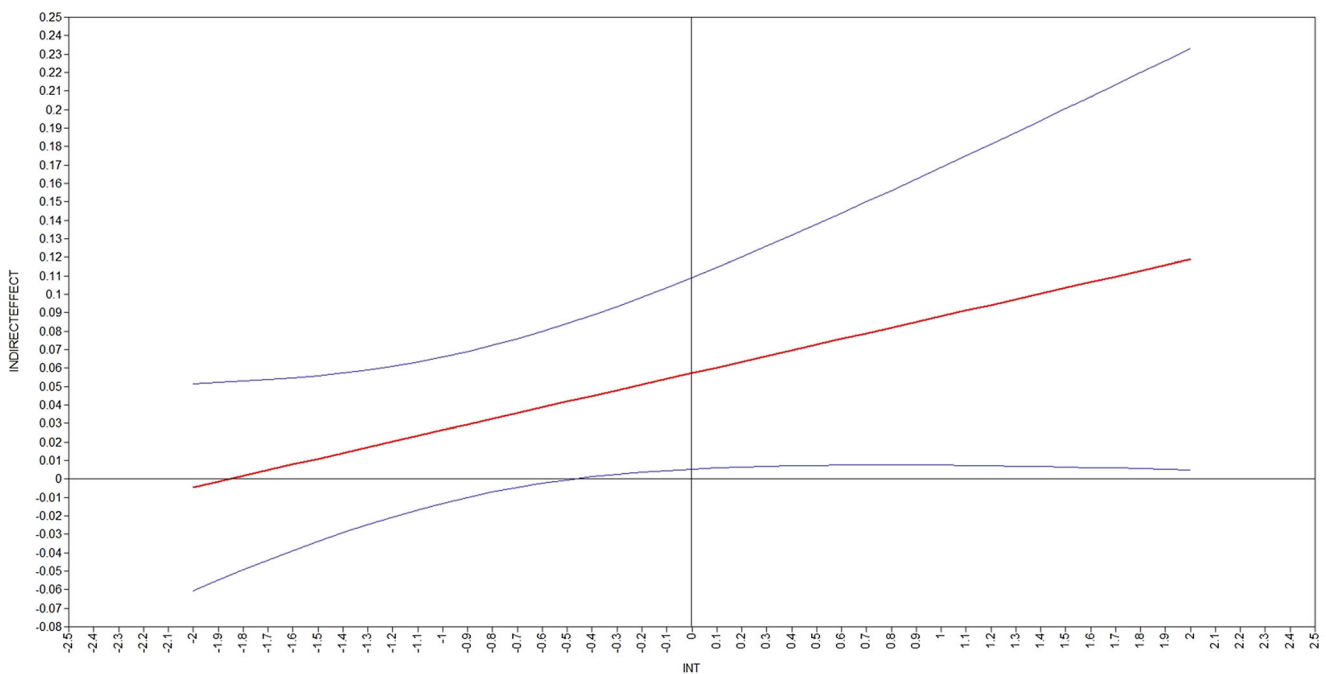


Fig. 3 Conditional indirect effects for T2 team potency. Note: The line in the middle represents indirect effect estimates at each level of the moderator, and the other two lines represent 95% confidence intervals from 10,000 bootstrap samples. The effect of T1 charismatic leadership

on T3 team innovative behavior (via T2 team potency) was significant at high and moderate T1 task interdependence levels but not at low T1 task interdependence

members' shared feelings about their teams' performance capabilities should be sought. Looking for team leaders with strong charismatic qualities seems particularly effective in this respect. Charismatic leaders can optimize their influence, inter alia, through their communication with team members. In addition, one could also look for other team or organizational factors that are likely to enhance the positive effects of charismatic leadership (e.g., specific aspects of team/organizational climate). Another option could be to train existing leaders to behave (more) charismatically. Finally, organizations should be aware that charismatic leadership may be more effective for teams in which members' tasks are highly interdependent.

Limitations and Strengths

Our study has several limitations that have to be considered. First, the data of the independent and the mediating variables were collected from the same source. As a consequence, the relationship between charismatic leadership and team potency might have been inflated by common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, charismatic leadership and team potency data were gathered at two distinct time points. Such time separation is a powerful way to reduce artificial factors contributing to common method variance (Johnson, Rosen, Chang, Djurdjevic, & Taing, 2012). Moreover, recent research has shown that

common method bias makes it even more difficult to detect interaction effects (Siemsen, Roth, & Oliveira, 2010), thus this has rendered the test of the hypothesized interaction effect of charismatic leadership and team task interdependence (even) more conservative.

Second, the sample used in our study was composed of only one type of team, which limits the generalizability of our results. Future studies should replicate our results using other types of teams. Third, other potential linking mechanisms that might explain the effect of charismatic leadership on work team innovative behavior could also be examined in future studies. A good candidate is team work engagement which is fueled by team social resources and predicts team creative and innovative performance (Devloo, Salanova, Rodriguez Sanchez, & Anseel, 2013; Salanova, Llorens, & Schaufeli, 2011).

Despite these limitations, our study definitely has strengths too, in terms of the three-wave time-lagged design and the use of data from multiple sources (team managers and team members). In this way, our findings make a substantive empirical contribution to the literature on the role of leadership as facilitator of work group innovation (Anderson et al., 2014) by uncovering (part of) the underlying process. However, future research could aim to identify and validate the *specific influence tactics* that charismatic leaders use to effect leadership outcomes (Mhathre & Riggio, 2014).

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Appendix

Table 2 Data transparency table

Variable/publication	Current manuscript	Publication No. 1	Publication No. 2	Publication No. 3
Charismatic leadership	X	X		
Team potency	X			
Team innovative behavior	X			
Team interdependence	X			
Positive affective team climate		X		
Negative affective team climate		X		
Leader influence		X		
Frequency of leader-team interaction		X		
Team members’ perceived support			X	
Team managers’ perceived support			X	
Team positive affect			X	
Team negative affect			X	
Team climate uniformity				X
Task conflict				X
Team communication quality				X
Team performance			X	X

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