

## SPECIAL ISSUE ARTICLE

# Introducing changes at work: How voice behavior relates to management innovation

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### Summary

This multistudy research examines the unit-level relationship between promotive voice behavior and management innovation. Study 1 utilizes multisource data from 62 work units and reports that willingness to discuss ideas mediates the unit-level relationship between promotive voice and management innovation. The results of Study 1 also show that the unit's available resources make the relationship stronger between promotive voice and willingness to discuss ideas. Study 2 employs a scenario-based design to constructively replicate and expand the results of Study 1, utilizing a sample of 100 working adults. The results of the second study also show that resource availability positively moderates the relationship between promotive voice and willingness to discuss ideas. Furthermore, Study 2 shows that the indirect effect of promotive voice on management innovation through willingness to discuss ideas is stronger when more resources are made available to the work units. This moderated-mediation effect is shown to be significant using two different operationalizations of management innovation. The implications for theory and practice are discussed.

### KEYWORDS

creativity, innovation, management innovation, proactive behavior, promotive voice behavior

## 1 | INTRODUCTION

In today's ever changing business landscape, organizations are increasingly looking for proactive input from employees because proactivity is expected to increase organizational functioning (Bindl & Parker, 2010). One way by which organizations can access valuable employee input is through voice behavior. Voice is a proactive behavior that relates to the employees' expression of ideas, opinions, or suggestions with the intent to change and improve the current state of affairs (Bashshur & Oc, 2015; Detert & Burris, 2007; Van Dyne & LePine, 1998). Researchers have discovered that employees who engage in voice experience some benefits, such as higher performance evaluations (Fuller, Marler, Hester, & Otondo, 2015; Grant, 2014; Grant, Parker, & Collins, 2009; Whiting, Podsakoff, & Pierce, 2008), higher job satisfaction (Wanberg & Kammeyer-Mueller, 2000), more salary

increases and promotions (Seibert, Kraimer, & Crant, 2001), and a higher degree of social integration as newcomers (Wanberg & Kammeyer-Mueller, 2000). However, organizations also value voice because the benefits of this behavior can affect the outcomes of work units or the organization (Bashshur & Oc, 2015; Bindl & Parker, 2010). For instance, frequent employee voice behavior in work units has been associated with a higher level of task performance (Frazier & Bowler, 2015; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2013).

In addition to enhancing task performance in units, scholars have proposed that voice is associated with creativity and innovation (Rank, Pace, & Frese, 2004). Nemeth (1986) argues that when employees speak up with views dissenting those of the majority in their work unit, they prompt others to consider creative (i.e., novel and useful) alternatives to resolve crucial work issues. Scholars have also revealed that voice is an antecedent of innovation (i.e., idea implementation). Thus, when employees speak up with dissenting views in work units in which team reflexivity is high (De Dreu, 2002) or members of the unit have high levels of participation in decision-making (De Dreu &

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

West, 2001), implementation of ideas in these units is also high. These studies contribute significantly by suggesting that voice fosters innovation, which is required by organizations in order to succeed (Grant & Ashford, 2008; Morrison & Phelps, 1999). However, there are certain important questions that remain unanswered and require addressing.

First, although previous research (De Dreu, 2002; De Dreu & West, 2001) has proposed a conceptual pathway linking the communication of ideas through minority dissent, a type of voice behavior, with the implementation of these ideas, this literature has not yet examined the proposed processes empirically. To achieve theoretical progress, researchers need to empirically examine the underlying theoretical mechanisms of their conceptual models (Aguinis & Edwards, 2014). Second, although previous research suggests that dissenting voice can lead to general forms of innovation, little is known about whether other types of voice can foster specific forms of innovation. The nature of voice behavior is broad and more complex than what a sizeable portion of literature suggests (Burriss, 2012; Liang, Farh, & Farh, 2012; Maynes & Podsakoff, 2014; Van Dyne, Ang, & Botero, 2003). Therefore, it is important to understand the effects that different types of voice have on specific outcomes, in order to advance our knowledge of this construct and to enable ourselves to provide better advice to practitioners (Morrison, 2011, 2014). Third, previous research has focused mainly on social exchange theory (Blau, 1964) to gain an understanding of the relationship between voice behavior and other dimensions of performance, such as idea implementation (Ng & Feldman, 2012). Failure to conceptualize an organizational phenomenon such as voice, utilizing different conceptual perspectives, restricts the researchers' ability to realize novel theoretical contributions (Ng & Feldman, 2012). Therefore, scholars advocate for an expansion of the set of theoretical lenses used to "better understand the psychological processes underlying the use of voice" (Ng & Feldman, 2012, p. 228).

In this article, we seek to address these identified literature gaps by using the conservation of resources (COR) theory (Hobfoll, 1989) as our conceptual lens and by proposing a theoretical model relating unit-level promotive voice behavior (Liang et al., 2012) with management innovation (Birkinshaw, Hamel, & Mol, 2008). Figure 1 graphically depicts our conceptual model. Unit-level management innovation comprises the implementation of a new management practice, process, or structure into the unit that affects the work and members of the whole unit (Birkinshaw et al., 2008; Vaccaro, Jansen, Van Den Bosch, & Volberda, 2012). Management innovations are important because they constitute one of the most sustainable sources of competitive advantage for firms today (Hamel, 2006; Hamel & Breen,

2007). We propose that the unit-level relationship between promotive voice and management innovation is mediated by the unit's willingness to discuss ideas. Specifically, we propose that when promotive voice is present and more frequent in a work unit, members of that unit are more willing to undertake efforts to discuss ideas obtained through voice, in order to evaluate and select the most appropriate ones vis-à-vis idea implementation. Testing this mechanism is important because it enables researchers to understand the process through which work behaviors are related with work outcomes (Grant, Gino, & Hofmann, 2011; Podsakoff, Podsakoff, MacKenzie, Maynes, & Spoelma, 2014). Because situational characteristics impact the consequences of proactive behaviors, such as voice behavior in work units (Grant & Ashford, 2008; Griffin, Neal, & Parker, 2007), we also theorize that resource availability moderates the relationship between ideas expressed through voice and willingness to discuss ideas. Specifically, we expect that when units have access to more resources to implement their ideas, their willingness to discuss ideas will be higher. Resource availability then constitutes a situational characteristic that can influence the likelihood of the introduction of management innovations into work units (Wu, 2010). In the following sections, we will present the conceptual arguments and the empirical results of two studies that provide support for the idea that if work units seek to profit from ideas expressed through voice, in the form of management innovation, unit members will require that efforts are put forth to have access to resources.

## 2 | THEORY AND HYPOTHESES

### 2.1 | Proactive behaviors and unit-level promotive voice

Proactive behaviors are employees' self-initiated, anticipatory actions that aim at changing and improving oneself or the work environment rather than passively adapting to present conditions (Crant, 2000; Grant & Ashford, 2008; Parker & Collins, 2010). Provided this broad definition, several constructs can be included in the category of proactive behavior. Specifically, the list of constructs that scholars have regarded as proactive behaviors includes the following, but is not limited to, taking charge (Morrison & Phelps, 1999), issue selling (Ashford & Dutton, 1993), feedback seeking (Ashford & Tsui, 1991), and voice (Van Dyne & LePine, 1998).

In this article, we study voice behavior at the group level. Often, scholars who study voice at the group level conceptualize voice as the shared beliefs about speaking up in groups (i.e., engaging in voice is safe and worthwhile; Morrison, Wheeler-Smith, & Kamdar, 2011) or as the shared perceptions of a climate that encourages voice behavior in the group (Frazier & Bowler, 2015). In these cases, scholars adopt a referent-shift consensus approach (Chan, 1998) and refer to this construct as a voice climate. In the present research, although we study voice at the group level, our interest is on the actual voice behavior within the work unit and not on the voice climate (Frazier & Bowler, 2015; Morrison et al., 2011). Therefore, we conceptualize unit-level voice behavior as the aggregate level of voice within the unit. This way of conceptualizing voice does not follow a referent-shift

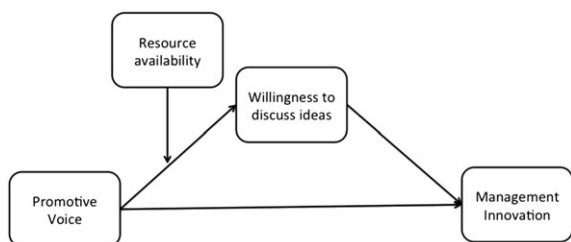


FIGURE 1 "Theoretical model"

consensus approach but an additive approach (Chan, 1998). Next, we provide the rationale for conceptualizing unit-level voice behavior, following an additive approach.

First, Morrison (2011) argues that when individuals engage in voice, they make a cognitive and calculative process that weighs whether it is safe and worthwhile to speak up vis-a-vis remaining silent. Although this process may depend on situational characteristics (Morrison, 2011), we expect that because individual employees differ in dispositional characteristics (Tangirala, Kamdar, Venkataramani, & Parke, 2013), assessments of the environment (Burris, 2012), and personal beliefs about voice (Detert & Edmondson, 2011), members of a work unit will not necessarily display voice or other individual behaviors with the same frequency (Bliese, Chan, & Ployhart, 2007). Second, our treatment of unit-level voice as the average frequency of voice in the group is also related to the dependent variable of our study (i.e., the implementation of management-related practices, processes, or structures). As previous research shows, the introduction of ideas at work is in part a function of the number of ideas that are available for evaluation and selection before implementation. Specifically, previous research shows that frequent voice behavior is related with the generation of more ideas (Frese, Teng, & Wijnen, 1999), and groups that are able to generate a large number of ideas are more likely to detect suitable ideas for evaluation and subsequent implementation (Axtell et al., 2010; Stevens & Burley, 2016). Following this logic, we expect that work units in which voice is more frequent will be able to outperform units in which voice is scarcer in terms of the average number of ideas produced. Thus, we believe that voice frequency within the group (and not shared perceptions or beliefs about voice) will be a more accurate antecedent of the implementation of management innovations in work units. Our reasoning is consistent with the arguments that Somech and Drach-Zahavy (2013) propose for aggregating individual-level constructs, using an additive approach. In line with their line of reasoning, we expect that aggregated levels of voice comprise a resource pool that individual unit members bring into the unit (Kozlowski & Klein, 2000).

There is recent evidence of research investigating group-level voice that does not conceptualize employee voice as a voice climate. For instance, Frazier and Bowler (2015) differentiate between voice behavior and voice climate at the group level and show that in groups in which voice is encouraged (i.e., the voice climate is favorable), group members display voice behavior more frequently (Frazier & Bowler, 2015). In another article, McClean, Burris, and Detert (2013) study the unit-level relationship between aggregated levels of individual-level employee voice behavior and collective-level turnover in restaurants. The approach by McClean and her coauthors is similar to that of Lam and Mayer (2014), who conceptualize group-level voice as the aggregate level of voice behavior in hospitals, in order to study the hospital-level relationship between voice behavior and service performance. Last, Weiss and Morrison (2018) used an experimental design to conceptualize voice at the team level. In their study, the authors formed groups of three participants and asked one participant per group to speak up if they were in the voice condition. Conversely, one participant per group in the no-voice condition was asked to remain silent even if they had an opinion, and the study characterized the difference between both experimental conditions by the

frequency or the amount of voice that one member of the group displayed. Thus, in their experiment, different members of the group expressed voice with different frequencies. In summary, given the nature of voice as a behavior resulting from an individual-level cognitive process, our focus on management innovation as the dependent variable, and given an emerging literature stream on employee voice that moves away from defining group-level voice as a voice climate, we conceptualize unit-level voice as the aggregate level of voice behavior in the work unit.

In this research, we focus on promotive voice behavior. Liang et al. (2012) distinguished promotive from prohibitive voice. These authors define promotive voice by following the traditional definition of voice, as "employees' expression of new ideas or suggestions for improving the overall functioning of their work unit or organization" (Liang et al., 2012, p. 74). In contrast, Liang et al. (2012) define prohibitive voice as "employees' expressions of concern about work practices, incidents, or employee behavior that are harmful to their organization" (p. 75). We focus on promotive voice (and not on other types of voice) for several reasons. First, promotive voice pertains to employees taking control and challenging the status quo within the organization, which are the fundamental elements of proactivity at work (Parker & Collins, 2010). Second, although promotive voice presents some similarities with other proactive work behaviors, it is fundamentally different from related constructs (Parker & Collins, 2010). For instance, it is more specific than taking charge and individual innovation (which are focused on both the creation and implementation of solutions), and it is more general than problem prevention (which mostly pertains to responding to or anticipating problems) or minority dissent (which pertains to speaking up with views that oppose those of the majority). Third, our focus on promotive voice over prohibitive voice is underpinned by our interest in management innovation. According to Van Dyne and LePine (1998), "promotive behaviors are proactive; they promote, encourage, or cause things to happen. Prohibitive behaviors are protective and preventative; they include interceding to protect those with less power as well as speaking out to stop inappropriate or unethical behaviors" (p. 108). Prohibitive voice is concerned with the suppression of work practices, whereas promotive voice is concerned with the implementation of new work practices (Li, Liao, Tangirala, & Firth, 2017).

## 2.2 | Management innovation

Although most research in the domain of innovation has focused on product or technological innovation (Crossan & Apaydin, 2010; Volberda, Van Den Bosch, & Mihalache, 2014), recent studies reflect an increasing interest in a different type of innovation called management innovation (Birkinshaw et al., 2008). Management innovations manifest in the workplace as new management-related practices, processes, or structures (Vaccaro et al., 2012). Management innovation is different from process innovation. Whereas process innovation refers to general improvements in processes of production or delivery methods (OECD, 2005), management innovation refers specifically to changes in management-related activities. Moreover, management innovation is not only about the implementation of changes of new processes but also about managerial practices or structures. The

majority of research on management innovation has been conducted through analyses at the organization level. Researchers in this literature conceptualize management innovation at the organization level because this type of innovation represents changes in the managerial activities affecting the whole organization (Birkinshaw et al., 2008). Consistent with existing literature, we conceptualize management innovation at the unit level as “the implementation of a management practice, process, or structure, which is new to the unit and is intended to further the goals of the unit.” Following this definition, we expect that management innovations at the unit level will affect the entire unit.

Extant research on management innovation assumes that the implemented ideas are brought by either managers themselves or by external consultants (Birkinshaw et al., 2008). Therefore, research investigating internal processes in work units leading to management innovations has been very limited, with only a few researchers suggesting that the internal sources of the organization other than managers can implement management innovations (Mol & Birkinshaw, 2009). For instance, there are no studies that focus on the role of unit members as the proactive initiators of management innovations. We believe that it is important to study the innovative effects of proactivity because research shows that when individuals' ideas are valued and incorporated into a decision, their commitment to that decision increases, and implementation is more successful (Korsgaard, Schweiger, & Sapienza, 1995). In line with this idea, Volberda et al. (2014) made a specific call for more research investigating the way collective efforts of individuals can lead to the implementation of management innovations. We respond to this call for research and investigate this issue, following a COR perspective (Hobfoll, 1989).

### 2.3 | Conservation of resources theory

Although originally proposed as a framework for the understanding of stress, COR is a motivational theory (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). The basic tenet of Hobfoll's (1989) COR theory is that individuals are motivated to retain and protect their current resources and acquire new resources. Resources are defined “as anything perceived by the individual to help attain his or her goals” (Halbesleben et al., 2014, p. 1338). COR also suggests that individuals avoid situations that may lead to either lose resources, perceive the threat of such a loss, or fail to gain sufficient resources after a significant investment of resources (Hobfoll, 2001).

COR's first principle establishes the primacy of resource loss —“resource loss is disproportionately more salient than resource gain” (Hobfoll, 2001, p. 343). The second principle of this theory states that “people must invest resources in order to protect against resource loss, recover from losses, and gain resources” (Hobfoll, 2001, p. 349). As losing resources or poorly allocating resources may be conducive to undesirable states, people seek to allocate resources in a way that maximizes their fit with their environment (Halbesleben et al., 2014). To do so, individuals can use resources to adapt to their environments or to alter their environment. One way by which individuals can influence the environment in order to achieve their goals is by proactively engaging in promotive voice behavior (Maynes & Podsakoff, 2014; Van Dyne & LePine, 1998). Thus, following a COR perspective,

promotive voice is an enabler that allows employees to introduce changes in order to enhance performance (Ng & Feldman, 2012).

### 2.4 | Management innovation and employee voice

Successfully implemented management innovations can increase performance (Walker, Damanpour, & Devece, 2011) and facilitate the attainment of goals of a unit (Birkinshaw et al., 2008). COR posits that individuals use and invest resources in order to attain their goals (Halbesleben et al., 2014). From a COR perspective, given that innovations can provide meaningful benefits to a unit (Birkinshaw et al., 2008) and its members (Seibert et al., 2001), unit members will be motivated to utilize some of their resources to affect their work environment by proposing changes that may facilitate their goal attainment (Ng & Feldman, 2012). In other words, unit members may invest effort (i.e., personal resources) by engaging in the cognitive processes necessary to generate and communicate ideas via voice (Morrison, 2011) in order to bring about change that may improve the functioning of the unit. Following this reasoning, we view ideas, opinions, and suggestions that work unit members communicate through voice as an input that units can utilize to generate management innovations. In fact, unit-level promotive voice has been associated with innovation and productivity gains (Li et al., 2017). This process implies that, if voice is frequent, units will have more ideas that can be selected as input to later implement as management innovations. Conversely, if voice is infrequent, units will have fewer ideas that can be selected as input to later implement management innovations.

Research on innovation also underpins the reasoning that voice leads to management innovation. This literature tends to conceptualize innovation as one process that begins with the generation of an idea and concludes with the implementation of that idea (Janssen, 2000). Thus, scholars have conceptualized this process as one comprising two stages (Bledow, Frese, Anderson, Erez, & Farr, 2009; Hammond, Neff, Farr, Schwall, & Zhao, 2011). The first stage of the innovation process puts emphasis on the identification of a problem and the development and communication of ideas to solve that problem, whereas the second stage focuses on the evaluation, selection, and implementation of such ideas (Patterson, 2002). The role of employees in the first stage of the innovation process is crucial. Kesting and Ullhøi (2010) argue that employees are potentially creative individuals who may find new inspiration or spot new opportunities and that, because the number of employees is larger than that of managers, employees can potentially produce more ideas. This is important because different studies on innovation in the workplace have shown that units that generate more ideas are more likely to detect ideas suitable for implementation (Axtell et al., 2010; Frese et al., 1999; Stevens & Burley, 2016). Kesting and Ullhøi (2010) also propose that employees possess in-depth and context-dependent operational knowledge and relevant network contacts outside the organization that can add value to their ideas. Thus, employees can become a large source of generation and communication of valuable ideas within the work unit. In our research, promotive voice represents the key aspect of the first stage of the innovation process, in which employees speak up and communicate ideas, whereas management innovation

represents the key aspect of the second stage, in which units successfully implement a selected idea (Birkinshaw et al., 2008). Considered together, the previous arguments suggest that

**Hypothesis 1.** *Unit-level promotive voice behavior is positively related to management innovation.*

## 2.5 | Willingness to discuss ideas as mediator

In general, organizational members are primarily interested in implementing a few great ideas rather than a large number of nonrelevant ones (Baer, Leenders, Oldham, & Vadera, 2010). To achieve this objective, employees need to be involved in the decision process through several meetings and discussion rounds leading to the evaluation and selection of ideas (Kesting & Ulhøi, 2010). In this phase, unit members monitor each other, help each other out, and provide constructive feedback (Hülshager, Anderson, & Salgado, 2009). All these activities require an extensive use of cognitive, social, and emotional resources. Following COR's second principle, individuals are likely to invest such resources in order to obtain future resources if they perceive that the outcome of this endeavor will be valuable for them (Halbesleben et al., 2014). Thus, we expect that work units will devote efforts to discuss and select ideas when members perceive that those ideas can generate changes that facilitate goal attainment (Halbesleben et al., 2014). Given that the number of ideas generated is related to the successful implementation of them (Axtell et al., 2010; Frese et al., 1999; Stevens & Burley, 2016), we expect that the higher the number of ideas available for evaluation are, the higher the disposition to participate in this discussion of ideas within the unit. In this study, we address the employees' willingness to coordinate their actions and efforts within the unit, employing the concept of willingness to discuss ideas (Wan, Ong, & Lee, 2005). Formally, we define willingness to discuss ideas as a collective effort whereby employees of a work unit display interest about expressing and exchanging information and knowledge between one another.

In work units with higher levels of promotive voice, ideas will be generated more frequently, offering more feasible alternatives for discussion. We expect that employees will more probably perceive some of these alternatives as potential solutions that can facilitate goal attainment for the work unit. Accordingly, unit members will be more willing to invest efforts in exchanging ideas and discussing the alternatives that may lead to the implementation of management innovations. Conversely, in work units demonstrating lower levels of promotive voice, ideas will be less frequent, leading to fewer feasible alternatives. Thus, we expect that employees will be less likely to perceive some of these alternatives as potential solutions, and members will be less willing to invest efforts in discussing ideas vis-à-vis idea implementation.

Research on employee participation provides supportive evidence for our unit-level mediation prediction. Integrating research on voice and participation coming from different fields, Kaufman (2015) suggests that voice can provide more effective methods of employee participation (e.g., discussion of ideas) when voice moves from the individual level to the collective level. Specifically, as voice escalates

beyond the individual level and takes a more relevant place within a unit (e.g., when voice is more frequent at the unit level), the unit is more likely to gain value from voice. In this way, units can move beyond voice as information communicated through employees' ideas, opinions, or suggestions into using voice as an input to solve pressing organizational problems (Wilkinson, Gollan, Marchington, & Lewin, 2010). Thus, units can use this information to engage in a more formal collective process of discussion of these ideas, opinions, or suggestions with the goal of detecting the ones that are most suitable for implementation (Mowbray, Wilkinson, & Tse, 2015).

Theories on innovation also support the mediating role of willingness to discuss ideas. In the two-stage process of innovation (Patterson, 2002), we argue that voice represents the first stage, and management innovation represents the end of the second stage (i.e., the successful implementation of an idea). However, to successfully implement an idea, the second stage suggests that employees are required to evaluate and select an idea before its implementation. In a work unit, this evaluation and idea selection require a collective effort among unit members, which we conceptualize as willingness to discuss ideas. Thus, we expect that willingness to discuss ideas should mediate the relationship between promotive voice and management innovation.

**Hypothesis 2.** *The positive relationship between unit-level promotive voice behavior and management innovation is mediated by willingness to discuss ideas.*

## 2.6 | Resource availability as moderator

We argue that in units in which promotive voice is frequent, unit members are more willing to discuss ideas obtained from promotive voice, in order to evaluate and select potential solutions to implement as management innovations. We now propose a condition that facilitates this process. Specifically, we predict that units whose members perceive they have more access to resources will be more willing to discuss ideas compared with units in which members perceive that they have less access to such resources (Klein & Knight, 2005). We conceptualize resource availability as a unit's availability of financial resources, space, time, and personnel. This way of conceptualizing resources is consistent with existing research on proactivity (Fuller, Marler, & Hester, 2006) and innovation (Choi & Chang, 2009).

The COR theory establishes a conceptual way by which resources can moderate the relationship between voice and willingness to discuss ideas. COR's corollary 1 posits that "those with greater resources are less vulnerable to resource loss and more capable of orchestrating resource gain" (Hobfoll, 2001, p. 349). This corollary is important because it suggests that parties endowed with more resources are more likely to invest said resources compared with parties with fewer resources. Hence, when resources are available in a work unit, employees will be willing to invest efforts in order to evaluate and select ideas, which may facilitate goal attainment. In other words, their willingness to discuss ideas will be high when the unit's availability of resources is high.

Conversely, COR's corollary 4 states that "those who lack resources are likely to adopt a defensive posture to conserve their

resources" (Hobfoll, 2001, p. 356). This corollary is important because it suggests that parties endowed with fewer resources are more likely to hold on to their current resources instead of actively seeking to gain new resources. Thus, work units endowed with fewer resources will devote efforts toward maintaining the status quo by not encouraging ideas that may change the current situation. In fact, work units will face difficulties when trying to discuss ideas with few resources because the value of the ideas expressed by promotive voice rests on the endorsement that voice receives (Burris, 2012; Detert & Burris, 2007; McClean et al., 2013). Fundamentally, promotive voice requires further action and resources in order to be able to make a difference in the workplace (Burris, 2012; Morrison, 2014). For instance, if members of a work unit suggest substantial ideas for the implementation of a new procedure but the unit has access to few resources, members of the unit will be less willing to devote efforts into discussing those ideas because that endeavor would be perceived as futile. Regarded together, the previous arguments suggest that work units that have access to more resources are more likely to engage in the discussion process to select the ideas that have potential for implementation compared with units that have less access to such resources. Formally,

**Hypothesis 3.** *The positive relationship between unit-level promotive voice and willingness to discuss ideas is moderated by resource availability: The greater the resources available to the work unit are, the more positive the relationship.*

The combination between our second and third hypotheses suggests an instance of moderated mediation (Edwards & Lambert, 2007). Statistically, the combination of these predictions suggests a first-stage moderation of the mediating effect such that the positive indirect effect of the unit-level promotive voice on management innovation through willingness to discuss ideas is strengthened when the unit has more resources at its disposal. Conceptually, we propose that this mediating process will be facilitated when work units have access to sufficient resources. Research shows that having access to resources facilitates the implementation of ideas into the organization in general (Anand, Gardner, & Morris, 2007; Anderson, De Dreu, & Nijstad, 2004; Klein & Knight, 2005; March, 1991) and facilitates idea implementation in the organization in the particular case of management innovations (Anand et al., 2007). Following a COR perspective, we argue that when unit members perceive that they have access to resources, they are more likely to engage in the process of discussion of ideas (Halbesleben et al., 2014). We do not expect that work units will necessarily use these resources while discussing ideas. Rather, we expect that they will use these resources during the implementation stage (Anand et al., 2007), but that the perception of having access to resources will increase the likelihood that unit members will put forth the effort and energy required to discuss potential ideas for implementation. Thus, we propose the following.

**Hypothesis 4.** *The indirect effect of unit-level promotive voice on management innovation through willingness to discuss ideas is moderated by resource availability to the unit: The indirect effect is stronger when resource availability is higher.*

## 3 | STUDY 1

### 3.1 | Research context

Participants were contacted by the study authors through a research center of a top-ranked business school in Chile. The authors contacted the CEOs of small- and medium-sized enterprises (SMEs) attending an executive education program focused on SME development. At the beginning of the program, research assistants from the research center asked the participating executives for their collaboration to collect data from their respective companies. To incentivize participation, the research center promised to deliver a document containing feedback about their company. This feedback was aggregated at the company level such that individual responses could not be identified. All 57 CEOs (100%) who were enrolled in the university program agreed to participate in the study and allowed the research center to communicate with their personnel. These CEOs were not asked to answer the surveys that were utilized in this research. After the data collection procedures were concluded, the first author sent the documents with the promised feedback.

### 3.2 | Sample and procedures

Research assistants approached the managers in charge of the HR function of the 57 participating companies by using email. This email contained information about the research and links to the online surveys. The HR managers further distributed this link among the company employees. After clicking on the link, respondents accessed a cover letter elucidating the purpose of the study and providing assurances of confidentiality. Each participant was asked to provide his or her name for matching purposes. This procedure would also enable the study authors to cross check in order to determine if multiple responses from the same individual were submitted. Investigators at the research center sent between three to four reminders to the companies during the three-week period of data collection.

The data used to test the hypotheses of this paper comprised 62 work units (average unit size = 5.4) working in 36 privately owned SMEs (average company size = 27 employees) from a wide range of industries in Santiago, Chile. To qualify as a work unit for our study, we required data to be submitted by at least two subordinates and their unit manager. Unit managers responded to a survey that contained measures of management innovation, taking charge, unit size, and demographic information. Most managers were male (75%) and had been working in their company for an average of 7.4 years, and a majority had finished their university education (66%). Subordinates in the work units responded to a survey containing measures of promotive voice, willingness to discuss ideas, resource availability, and their demographic information. A majority of the subordinates were male (65%) and had completed at least high school (95%), and all of them had been working in the company for at least 1 month (average tenure 5.4 years).

### 3.3 | Measures

We made scale translations from English to Spanish, implementing back-translation methods (Brislin, 1986). Because both the authors

of this research are bilingual, the first author translated scales from English to Spanish, and the second author back-translated them from Spanish to English. We then checked the translations case by case until we reached a consensus. We employed a 7-point Likert-type scale to assess all the study constructs.

### 3.3.1 | Management innovation

Unit supervisors responded to a 6-item scale to assess management innovation, the development of which we describe below. Because management innovations are observable and supervisors have access to observe all implemented changes, we conceptualize management innovation as a global property of the unit, and the most appropriate way to assess this type of variable is by asking a single expert, in this case, the unit supervisor (Kozlowski & Klein, 2000). Therefore, unit supervisors assessed the extent to which the six management-related activities of the management innovation scale effectuated changes, using a Likert-type scale ranging from “no changes” (1) to “changed completely” (7). The scale items were the following: (1) “The way we issue information (reports, lists, etc.) for internal or external use of the organization,” (2) “The way we search for new markets, projects, businesses, practices, services, etc. to incorporate into the organization,” (3) “The way we coordinate within the unit,” (4) “The way we design plans aimed at solving problems, needs, or weaknesses of the organization,” (5) “The way we interact with customers,” and (6) “The way we coordinate and execute projects that come from ‘above’ (management, board of directors, etc.)” We developed this scale in four phases, utilizing multiple samples and methodologies, following the best practice recommendations (Hinkin, 1995, 1998).

The goal of the first phase was to develop scale items by applying a qualitative pilot study. In this phase, the first author interviewed full-time MBA students to collect examples of key management-related processes, practices, or structures. After the 10th interview, the author stopped the interviewing process once he reached the data saturation threshold (Glaser & Strauss, 1967). On the basis of the results of these interviews, we created a list comprising 55 specific processes, practices, and structures. Subsequently, we employed content analysis (Krippendorff, 2004) to identify responses that were closely related and grouped them together into a more general category. We continued this procedure until we reached a group of 12 general categories, from which we developed scale items.

The goal of the second phase was to reduce the number of items. In accordance with the definition of management innovation (Birkinshaw et al., 2008), we wanted to reduce our item list to a group of items representing important activities (i.e., relevant for accomplishing the goals of the unit) that also had the potential to change (i.e., subject to receiving improvements). Therefore, we sent a survey to an MBA class and received 47 usable responses (87%). The survey first asked participants to rank items representing the five most important managerial processes, practices, or structures that are required to achieve the goals of their former department or work unit (1 = *most important*, 5 = *fifth most important*). The survey subsequently asked the participants to rate the extent to which each of the five selected procedures presented changes during the year before enrolling into the MBA program, employing a 5-point Likert-type scale

(1 = *no changes*, 5 = *changed completely*). Participants further had the opportunity to describe, rank, and rate up to two procedures not included in the list. Finally, we selected six items that displayed changes significantly different from zero and that were consistently rated among the three most important positions in the participants' lists.

The goal of the third phase was to assess the psychometric properties of the scale. In this phase, we analyzed responses of 192 employees (response rate = 91.4%) from 15 service-oriented organizations in Chile. We conducted an exploratory factor analysis to assess the internal consistency of the scale and a confirmatory factor analysis (CFA) to corroborate our findings. The exploratory factor analysis presented only one component with an eigenvalue greater than 1 (3.67), suggesting that one factor captured a majority of the variance. The results of the CFA show that the expected one-factor solution fits the data well ( $\chi^2 = 18.17$ ,  $df = 9$ , CFI = 0.98, RMSEA = 0.075, SRMR = 0.03). Coefficient alpha for management innovation was 0.83 in this sample.

The goal of the last phase was to assess the convergent and discriminant validity by conducting a series of CFA using maximum-likelihood estimation procedures (Kline, 1998). In this phase, we analyzed responses from 129 employees based in the United States recruited through a crowdsourcing Web platform. We tested our scale (coefficient alpha = 0.81) against another management innovation measure (Vaccaro et al., 2012; coefficient alpha = 0.72), a team innovation measure (Anderson & West, 1998 coefficient alpha = 0.87), and a team effectiveness measure (Flood et al., 2000; coefficient alpha = 0.90). To assess discriminant validity, we compared the expected 4-factor solution against more parsimonious models, using  $\chi^2$  test changes to evaluate the best model fit. The 4-factor solution ( $\chi^2 = 299.125$ ,  $df = 224$ , CFI = 0.94, RMSEA = 0.051, SRMR = 0.065) fits the data better than other alternative models in which we combined different measures into a single latent factor, providing evidence for discriminant validity. To test for convergent validity, we evaluated the significance level of each of the items on its expected factor. Because all loadings in the 4-factor solution were significant ( $p < 0.001$ ), we obtained evidence for convergent validity.

### 3.3.2 | Promotive voice behavior

To measure promotive voice, work unit subordinates were asked to respond to three items, assessing their own behavior by applying a frequency scale ranging from (1) “almost never” to (7) “almost always.” The items were based on the 6-item scale by Van Dyne and LePine (1998), but we only utilized the items referring to verbal behaviors (Detert & Burris, 2007). A sample item is as follows: “I develop and make recommendations concerning issues that affect the group.”

### 3.3.3 | Resource availability

To measure resource availability, work unit subordinates responded to an 8-item agreement-type scale. Because the measurement of resources varies considerably across studies (Crook, Ketchen Jr., Combs, & Todd, 2008), it is crucial to employ measures that reflect the particular circumstances of the research setting being studied (McClellan et al., 2013). Thus, we developed items through intensive

interviews with academic consultants specialized in Chilean SMEs. The face validity of these items and their practical applicability in the setting presented in this study were also validated by the CEOs and owners of comparable companies to the ones participating in this study. A sample item states the following: "This group has enough budget to develop new projects."

### 3.3.4 | Willingness to discuss ideas

To measure willingness to discuss ideas, work unit subordinates responded to the 3-item scale by Wan and colleagues (Wan et al., 2005), using an agreement-type scale. We slightly rephrased items in order to accurately represent the characteristics of our study (i.e., we replaced the word "organization" with "group"). A sample item states that "Employees in our group are enthusiastic about exchanging information and sharing knowledge with each other."

### 3.3.5 | Control variables

We controlled for several variables and unit characteristics that may influence the relationship between employee voice and management innovation. The first set of controls included gender (0 = female; 1 = male), education (1 = middle school, 2 = high school, 3 = two-year college degree, 4 = bachelor, 5 = graduate school in Chile, 6 = graduate school abroad), average tenure of unit members (in years), and unit size (number of employees working in the unit). We included these control variables because we wanted to maintain consistency with the previous research on proactive work behaviors (Zhang, Law, & Lin, 2016). In the previous sections, we argued that the work unit members are the ones who suggest and implement ideas. Our arguments are in line with the dominant view within the organizational behavior literature that states that leaders support, guide, and influence the conditions that enable others to implement ideas into the organization (Mumford & Licuanan, 2004). However, it is also possible that, in certain work settings, leaders may be more proactively involved in the generation and implementation of ideas. Therefore, we controlled for the leaders' taking charge behavior to account for the potential effect of leaders who decide to generate ideas and introduce changes themselves. We measured the leaders' taking charge behavior with the 3-item version (Parker & Collins, 2010) of the taking charge scale (Morrison & Phelps, 1999). Leaders assessed the extent to which they engage in the behaviors described in the scale, employing the same frequency scale that we utilize to measure voice. A sample item is as follows: "How often do you try to institute new work methods that are more effective?" Last, although we propose that voice behavior affects management innovation on average, it is possible that the dispersion of voice within units may influence our findings. Thus, we accounted for the effect of voice deviance within work units in our analyses by including the standard deviation of unit-level voice (i.e., voice *SD*) as a control variable.

## 3.4 | Preliminary analysis

We examined the discriminant and convergent validity of the study's constructs. Therefore, we conducted a series of CFA with maximum-likelihood estimation procedures (Kline, 1998). The expected three-factor solution with voice, resources, and willingness to discuss ideas

loading on separate factors fits the data well ( $\chi^2 = 204.743$ ,  $df = 74$ , CFI = 0.96, RMSEA = 0.07, SRMR = 0.03) according to the commonly accepted cutoff values that indicate good fit (Hair, Tatham, Anderson, & Black, 1998; Kraimer, Shaffer, Harrison, & Ren, 2012). We also investigated for alternative, more parsimonious models to compare with the three-factor solution by using  $\chi^2$  test changes to evaluate the best model fit to the data (Kline, 1998). In particular, we examined all the possible combinations of two constructs loading together into the same latent factor. Therefore, we tested a two-factor model with voice and resources loading on a single latent factor ( $\chi^2 = 539.324$ ,  $\Delta\chi^2 = 334.581$ ,  $df = 76$ ,  $p < 0.001$ ); another two-factor model with willingness to discuss ideas and resources loading on a single latent factor ( $\chi^2 = 780.825$ ,  $\Delta\chi^2 = 576.082$ ,  $df = 76$ ,  $p < 0.001$ ); another two-factor model with voice and willingness to discuss ideas loading on a single latent factor ( $\chi^2 = 881.923$ ,  $\Delta\chi^2 = 677.18$ ,  $df = 76$ ,  $p < 0.001$ ); and last, a single-factor model ( $\chi^2 = 1107.5$ ,  $\Delta\chi^2 = 902.757$ ,  $df = 77$ ,  $p < 0.001$ ). Because the fit of the three-factor model is significantly better than that of all the alternative models, the three factors considered in our model are, therefore, considered as distinct latent constructs. This finding provides evidence of discriminant validity. To test for convergent validity, we evaluated whether each item had a significant loading on its posited underlying factor. All factor loadings for this solution were significant ( $p < 0.001$ ) and corresponded to their respective latent construct, showing evidence for convergent validity.

Second, we took various precautions to minimize issues concerning common method bias (CMB). First, we gathered the dependent variable of the study from surveys completed by supervisors and the key independent variables from surveys completed by their subordinates. Second, the online survey reminded the respondents to provide responses that reflect what they believe and not what they think they should believe about themselves and about the unit. The CEOs of the participating organizations also encouraged this practice, as they were going to receive a document containing feedback and they wished to read about what their employees really thought and felt. Third, the online survey reminded the respondents that their individual responses would remain confidential. Together, these techniques help reduce socially desirable responses and CMB (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Last, despite our precautions pertaining to CMB conducted at data collection stage, we also implemented statistical techniques to assess whether CMB was a major concern in our data. The Harman's single factor test (Podsakoff et al., 2003), reported above as the one-factor CFA solution, indicates that CMB does not present a serious problem in our data. However, because this test has its limitations, we also examined the effects of adding a latent CMB factor to the hypothesized three-factor solution. Thus, we ran one more CFA specifying the three measurement factors and a method latent factor (Podsakoff et al., 2003). While conducting this analysis, we specified method loadings in all the scales, but not for every item in every scale (Kraimer et al., 2012; Spector & Brannick, 2009). Otherwise, the model failed to converge into an identifiable solution. This four-factor model converged into an identifiable solution ( $\chi^2 = 190.691$ ,  $df = 68$ , CFI = 0.97, RMSEA = 0.07, SRMR = 0.03). However, although the overall fit indices were good, none of the lambda loadings of the method factor were significant, indicating that the parsimonious



three-factor solution fits our data more appropriately. Furthermore, the method factor explains less than 1% of the variance, which furnishes further evidence that CMB does not pose a major threat to our findings (Podsakoff, MacKenzie, & Podsakoff, 2012).

### 3.5 | Data aggregation

To analyze promotive voice, willingness to discuss ideas, and perceived resource availability at the unit level, we first needed to aggregate these constructs. Scholars who study multilevel methods have proposed that theory must drive the way for measuring and aggregating constructs (Bliese et al., 2007; Lüdtke et al., 2008). Given our conceptualization of willingness to discuss ideas and perceived resource availability as shared perceptions of individuals within the unit (i.e., a climate variable), we used a referent shift consensus approach model of aggregation (Chan, 1998). Following this approach, we asked unit members to report their perceptions of the group's willingness to discuss ideas and access to resources, not their individual willingness to discuss ideas and their personal access to resources. For these two constructs, high ICC values were anticipated because members who belong to one unit are expected to develop similar views and perceptions of the issues affecting the unit (Bliese, 2000). Because ICC values were above the generally recommended threshold for aggregation of shared perceptions for resource availability (ICC1 = 0.17, ICC2 = 0.53,  $p < 0.01$ ) and willingness to discuss ideas (ICC1 = 0.10, ICC2 = 0.39,  $p < 0.01$ ), aggregation to the unit-level was justified.

Given our conceptualization of voice behavior as the average amount of voice behavior within the unit, we used an additive approach model of aggregation (Chan, 1998). In previous research, voice behavior at the unit level has been assessed in two ways. Some scholars have assessed it as the perception that a supervisor has on the aggregate level of voice within the unit (Frazier & Bowler, 2015), whereas other scholars have assessed it as the aggregated average amount of individual-level voice within the unit (Lam & Mayer, 2014; McClean et al., 2013). In this research, we followed the second approach and assessed unit-level voice behavior as the aggregate (i.e., average) of individual-level voice behavior within the unit. The literature on research methods provides additional arguments that support our conceptualization and measurement of voice behavior. Bliese et al. (2007) argue that aggregated constructs are frequently assumed to be conceptually identical to the individual-level ones. However, several constructs, such as proactive behaviors, are determined not only by situational or group level characteristics but also by individual differences that may generate different behaviors among group members (Morrison, 2011). One distinction that can help to understand these different types of group-level constructs is the one proposed by Lüdtke and colleagues (Lüdtke et al., 2008). These scholars distinguish between reflective and formative aggregation of individual-level constructs. On the one hand, reflective aggregation is used when multiple individuals within the same group are used to infer a generic group-level construct (i.e., a shared perception or climate). On the other hand, formative aggregation is used when there is an important variation expected among different group members. In this case, both individual- and group-level variables are not assumed to reflect the same construct. Formative aggregation consists on an index of

individual-level measures within each group (Lüdtke et al., 2008). Evidence of high ICC values is not required to aggregate data applying this approach (Bliese, 2000; Lüdtke et al., 2008). Because we expect that different unit members will exhibit different levels of promotive voice behavior, we conceptualized unit-level promotive voice as a formative aggregation of individual-level promotive voice. For this reason, although ICC values for voice (ICC1 = 0.03, ICC2 = 0.14,  $p = n.s.$ ) are beneath the expected threshold for aggregation of shared perceptions (i.e., reflective constructs), we aggregated voice to the unit level.

### 3.6 | Results and discussion

Table 1 displays the correlations, means, and standard deviations for the study variables. We tested our hypotheses employing an ordinary least squares hierarchical regression analyses utilizing Stata 14. We did not assume homoscedasticity of the errors, and therefore, we conducted the regression analyses utilizing robust standard errors (Erceg-Hurn & Mirosevich, 2008). Moreover, to ensure that multicollinearity was not a concern in our analyses, we computed variance inflation factors, after running all regressions. All variance inflation factor values were lower than or equal to 1.45, which is within the recommended threshold of 10 or lower (Cohen, Cohen, West, & Aiken, 2003), indicating that multicollinearity did not pose a serious issue in our study.

According to Table 1, voice is positively correlated with management innovation ( $r = 0.35$ ,  $p < 0.01$ ). In accordance with this correlation, Model 2 of Table 2 shows that promotive voice is significantly related to the managers' ratings of management innovation ( $b = 0.64$ ;  $p < 0.05$ ), and this relationship is significant even after all the control variables were accounted for. Thus, in support of Hypothesis 1, in work units where voice is more frequent, unit members introduce more management innovations.

We used bootstraps to test whether willingness to discuss ideas mediates the relationship tested in Hypothesis 1 (Shrout & Bolger, 2002). Specifically, we used bootstrapping procedures to draw 5,000 random samples with replacement from the full sample to construct a 95% bias-corrected confidence interval (CI) for the indirect effect. Consistent with our predictions, the bootstrap results showed that the CI does not include zero (bootstrap *value* = 0.08 [0.01, 0.26]), which provides support for Hypothesis 2.

To investigate our last two hypotheses, we followed the recommendations by Cohen et al. (2003). We initiated the analysis by standardizing promotive voice and resources, and we subsequently multiplied these two variables to create an interaction term. To investigate Hypothesis 3, we examined whether the interactive effect of voice and resources significantly predicts willingness to discuss ideas. Model 1 of Table 3 shows that the interaction term significantly predicts willingness to discuss ideas ( $b = 0.23$ ;  $p < 0.05$ ). To assess the form of this interaction, we followed Cohen et al.'s (2003) guidelines and plotted the interaction results at high and low levels of each variable (one standard deviation above and below the mean). As presented in Figure 2, the values of willingness to discuss ideas are at their highest when both voice and resources are high. Furthermore, we conducted a simple slope analysis in order to ascertain whether

**TABLE 1** Means, standard deviations, and zero-order correlations in Study 1

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Management innovation	3.52	1.21	(0.85)							
2. Voice	5.42	0.78	0.35**	(0.80)						
3. Resource availability	4.69	1.13	0.34**	0.27*	(0.95)					
4. Willing to discuss ideas	5.15	1.01	0.40**	0.23	0.55**	(0.91)				
5. Leaders' TCB	5.21	0.92	0.14	0.16	0.11	-0.02	(0.91)			
6. Unit average tenure	4.90	4.88	-0.34**	-0.05	-0.33**	-0.37**	-0.01	—		
7. Unit size	6.37	4.03	-0.00	-0.02	-0.05	-0.07	0.11	0.13	—	
8. Gender proportion	0.66	0.35	0.19	0.12	0.08	-0.00	-0.03	0.04	-0.06	—
9. Average education	2.96	0.66	-0.13	0.19	-0.18	0.02	-0.03	-0.20	-0.28*	-0.18

Note.  $n = 62$ ; Coefficient alphas ( $\alpha$ ) appear on the diagonal in parenthesis; TCB = taking charge behavior.

\* $p < 0.05$ . \*\* $p < 0.01$ .

**TABLE 2** Results of mediation analyses for willingness to discuss ideas in Study 1

Variables	Model 1	Model 2	Model 3
	Dependent variables		
	Willingness to discuss ideas	Management Innovation, Step 1	Management Innovation, Step 2
Gender proportion	-0.11 (0.31)	0.36 (0.42)	0.40 (0.42)
Education	-0.19 (0.20)	-0.45* (0.19)	-0.39* (0.17)
Unit size	-0.01 (0.02)	-0.01 (0.04)	-0.00 (0.04)
Unit tenure	-0.07* (0.03)	-0.09** (0.02)	-0.07* (0.03)
Leaders' TCB	-0.06 (0.11)	0.10 (0.10)	0.11 (0.10)
Voice SD	-0.06 (0.20)	0.15 (0.26)	0.17 (0.25)
Voice	0.27 (0.17)	0.64* (0.25)	0.55* (0.23)
Willingness to discuss ideas			0.31* (0.14)
$R^2$	0.20	0.32	0.37
$F$	2.25*	4.81**	4.97**

Note.  $n = 62$ ; Unstandardized coefficients reported; robust standard errors are in parenthesis; TCB = taking charge behavior.

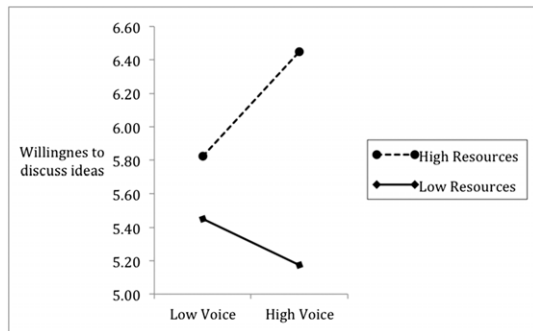
\* $p < 0.05$ . \*\* $p < 0.01$ .

**TABLE 3** Results of moderated regression analyses predicting management innovation in Study 1

Variables	Model 1	Model 2
	Dependent variables	
	Willingness to discuss ideas	Management innovation
Gender proportion	-0.09 (0.27)	0.41 (0.39)
Education	0.07 (0.18)	-0.37* (0.18)
Unit size	0.01 (0.02)	0.00 (0.04)
Unit tenure	-0.04 (0.02)	-0.07* (0.03)
Leaders' TCB	-0.11 (0.09)	0.09 (0.10)
Resource availability	0.41** (0.10)	-0.02 (0.17)
Voice SD	-0.10 (0.17)	0.11 (0.28)
Voice	0.04 (0.13)	0.42* (0.19)
Voice $\times$ Resources	0.23* (0.11)	0.22* (0.17)
Willingness to discuss ideas		0.22 (0.21)
$R^2$	0.43	0.40
$F$	13.98	4.69

Note.  $n = 62$ ; Unstandardized coefficients reported; robust standard errors are in parenthesis; TCB = taking charge behavior.

\* $p < 0.05$ . \*\* $p < 0.01$ .



**FIGURE 2** “Study 1: Interactive effect between promotive voice and resource availability predicting willingness to discuss ideas”

one (or both) of the gradients (i.e., slopes) of the lines depicted in Figure 2 is (are) significantly different from zero. Our results of this analysis revealed that when resources are high, the gradient of this line is positive ( $t = 2.4, p < 0.05$ ), whereas when resources are low, the gradient of this line does not differ significantly from zero ( $t = -0.84, p = n.s.$ ). These results suggest that unit members are more willing to discuss ideas when they have the resources to implement these ideas, providing support for Hypothesis 3.

To investigate Hypothesis 4, we examined whether the indirect effect of voice on management innovation through willingness to discuss ideas was stronger when resources moderated the first stage of this relationship. Model 2 of Table 3 shows that the effect of willingness to discuss ideas on management innovation, after controlling for voice, resources, and their interaction, is not significant ( $b = 0.22; p = n.s.$ ). We repeated this moderated-mediation analysis using bootstrapping procedures, drawing 5,000 random samples with replacement from our data, and the results of this analysis are in line with our previous conclusion. Specifically, the CI includes 0 when the value of the moderator is low (bootstrap value =  $-0.04 [-0.26, 0.02]$ ), medium (bootstrap value =  $0.01 [-0.04, 0.15]$ ), and high (bootstrap value =  $0.06 [-0.03, 0.32]$ ). Thus, our data does not provide support for Hypothesis 4. From a statistical point of view, the lack of significant results may be explained by the low statistical power of our data ( $n = 62$ ). Our lack of significant results could also be explained by suppression effects derived from control variables (Becker, 2005). We explored this possibility by reconducting our analyses without introducing controls. The results of this robustness check reveal that although the relationship between voice and management innovation, the mediating role of willingness to discuss ideas, and the moderating role of resources all remain significant without control variables, we did not find statistical support for Hypothesis 4. To find another possible explanation for this lack of statistical significance, we conducted a dominance analysis (Budescu, 1993). Dominance analysis is an ensemble method that enables researchers to decompose the total predicted variance of a regression model in order to investigate the relative importance of each predictor within that model. We ran an algorithm that allowed us to test for the dominance analysis in the Model 2 of Table 3, and we discovered that the effect of voice behavior and the interaction of voice and resources generally dominate that of willingness to discuss ideas. Simply put, given that the effects of voice and the interaction between voice and resources are very strongly related to management innovation, it is difficult to discover

a significant effect of willingness to discuss ideas when the other variables are taken into account in the model.

We conducted additional analyses to ensure the robustness of the previous results. Specifically, we tested the effects of voice deviance within work units on our mediating and dependent variables. Thus, we repeated our regression analyses using the standard deviation of voice as the main independent variable without controlling for the main effect of voice. After conducting five additional regressions, our results revealed that the coefficient of the standard deviation of voice and the interaction term of the standard deviation of voice and resources were not statistically significant in any of them. Although these results cannot entirely rule out the possibility that voice deviance could affect management innovation, they increase confidence in the robustness of our findings.

## 4 | STUDY 2

Because Study 1 utilized a correlational field design, it could not entirely rule out the threat posed by reverse causality or the fact that a different variable (not included in the study) might have driven our results. Therefore, our purpose for conducting Study 2 was to gain a richer theoretical understanding and an extension of the results of Study 1, by employing a *vignette* study. This type of design would allow us to draw conclusions regarding the causal role that our independent variables have in predicting management innovation, while maintaining a relatively high degree of mundane realism (Burriss, 2012; De Cremer, Mayer, van Dijke, Schouten, & Bardes, 2009). Moreover, because the data from Study 1 was collected in Chile, which may threaten the generalized nature of the study findings (Wang & Kim, 2013), we also wanted to replicate our findings by collecting data from a different country.

### 4.1 | Sample and procedures

Participants of this study comprised 100 adults (67% female, 38.11 years,  $SD = 10.98$  years) who were based in the United States and had experience working in business companies. Among them, 37% of participants currently work as managers or professionals, 20% work in service, 20% are employed in sales, and the remaining 23% have other occupations. In terms of the participants' education, 8% of them did not finish high school, 50% of participants have a college degree, and 14% of them have a master's degree or equivalent. In terms of their ethnicity, 10% were African/African American, 5% were Asian/Asian Americans, 1% were Hispanic/Latino, 80% were White, and the remaining 4% identified themselves with a different ethnicity or with multiple ethnicities.

We recruited participants from [www.clickworker.com](http://www.clickworker.com), which is a crowdsourcing Web platform that brings together individuals supplying and demanding labor. We chose to sample participants with this method, as previous research shows that the quality of data obtained from online freelancers is at least as reliable as that obtained through traditional methods (Buhrmester, Kwang, & Gosling, 2011). Despite the fact that the data quality may present similarities with that of traditional research methods, extant research shows that participants of

experimental studies do not necessarily pay adequate attention to the study instructions (Oppenheimer, Meyvis, & Davidenko, 2009). To overcome this potential attention bias, we included two attention checks (i.e., "please select the option disagree/agree") to ensure that we gathered reliable data quality for our study. Out of the 138 respondents who completed the survey, 38 (28%) failed at least one of our attention checks, and therefore, we excluded them from our analyses, leaving us with a sample of 100 attentive respondents. We compared the responses of the attentive and nonattentive participants and found no significant differences on key demographic variables (i.e., age, gender, and education). All participants (attentive and nonattentive) received a monetary payment upon completing the study.

We randomly assigned participants into the study conditions. We employed a  $2 \times 2$  between-subjects factorial design, in which we varied voice (high vs. low) and resource availability (high vs. low), resulting in four experimental conditions. We asked the participants to adopt the role of a work unit member in a scenario involving a planning meeting in which unit members and their supervisor were discussing strategies and plans to achieve the goals of the unit. The unit, which comprised five unit members and the study participant, was led by a supervisor. We did not specify the supervisor's gender to avoid unintended gender-related prejudices or biases (Eagly & Karau, 2002).

We provided study participants with the information pertaining to the current situation. During the meeting, the participants understood that there was consensus among unit members that some processes and practices within the unit were not functioning optimally. After highlighting the situation, the unit leader asked unit members whether anyone had any input that may help to improve the way in which the unit functioned. At this point, we introduced the manipulations of the key independent variables. In the promotive voice condition, the participants read, "[most/a few] members of your unit spoke up with [several/a few] ideas and suggestions for improving the overall functioning of the unit." Afterwards, the unit's supervisor thanked everyone for their suggestions and mentioned that (s)he had another meeting in 5 min that required his/her presence, but that before leaving, (s)he had something to share with the unit. Here, we introduced the resource manipulation. Participants read that the supervisor said, "Yesterday, the CEO told me that during the next months our unit will have access to a [large amount/a small amount] of resources to implement changes in the way we do our work."

#### 4.2 | Mediator and dependent variable

After the participants finished reading the *vignette*, we assessed the manipulation checks, the mediator, and the dependent variable. To maintain consistency with our first study, we assessed willingness to discuss ideas with the scale that we used in Study 1 (coefficient alpha = 0.95). Similarly, consistent with the definition of management innovation, we asked the participants to assess their unit's ability to introduce changes with regard to management-related processes, practices, or structures. Specifically, we assessed management innovation with the same scale used in Study 1 (1 = *extremely unlikely to change*, 5 = *extremely likely to change*; coefficient alpha = 0.88). Furthermore, to generalize our findings beyond a single measure of

management innovation, we also assessed management innovation with the 6-item scale (1 = *strongly disagree*, 5 = *strongly agree*; coefficient alpha = 0.83) developed by Vaccaro et al. (2012).

#### 4.3 | Manipulation checks

We used two scales to assess the manipulated variables. We presented participants with these questions immediately after they finished reading the vignette and before assessing the mediator and dependent variables. The first manipulation check was designed to ensure the effective manipulation of promotive voice. We assessed this manipulation check with the promotive voice behavior scale by Liang et al. (2012; coefficient alpha = 0.89). The second manipulation check was designed to ensure the effective manipulation of resource availability. We assessed this manipulation check with the scale we employed in Study 1 (coefficient alpha = 0.93).

#### 4.4 | Results and discussion

We employed a  $2 \times 2$  analysis of variance (ANOVA) to examine our manipulations. Regarding the promotive voice manipulation, participants in the high voice condition ( $M = 3.93$ ,  $SD = 0.66$ ) reported more frequently than participants in the low voice condition reported that unit members engaged in promotive voice behavior ( $M = 3.22$ ,  $SD = 0.77$ ),  $F(1, 98) = 25.04$ , and the difference is significant, with  $p < 0.001$ . Given that voice behavior can be distinguished between promotive voice and prohibitive voice (Chamberlin, Newton, & Lepine, 2017; Liang et al., 2012), we also verified whether our manipulation of promotive voice inadvertently manipulated prohibitive voice. An ANOVA test revealed that participants in the high voice condition ( $M = 2.82$ ,  $SD = 0.88$ ) reported that unit members engaged in prohibitive voice behavior with a similar frequency compared to that reported by the participants in the low voice condition ( $M = 2.5$ ,  $SD = 0.94$ ),  $F(1, 98) = 3.12$ , and the difference is not significant. As expected, our manipulation of voice significantly predicts differences in promotive voice but not in prohibitive voice. Regarding the resources manipulation, participants in the high resources condition ( $M = 4.19$ ,  $SD = 0.66$ ) reported more frequently than participants in the low voice condition reported that unit members have access to significantly more resources ( $M = 2.46$ ,  $SD = 0.93$ ),  $F(1, 98) = 112.49$ , and the difference is significant with  $p < 0.001$ .

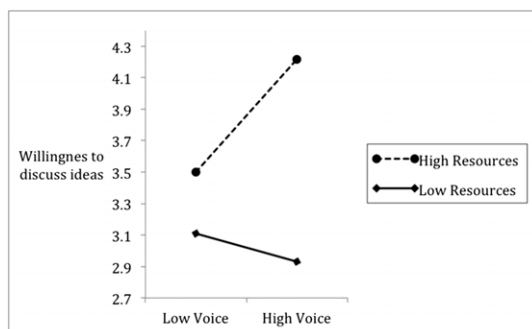
We performed an ANOVA to examine Hypothesis 1. The results of this analysis revealed that the voice manipulation was significantly related to the management innovation measure that was reported in Study 1 ( $F(1, 97) = 4.91$ ,  $p < 0.05$ ) and to the one developed by Vaccaro et al. (2012;  $F(1, 97) = 6.85$ ,  $p < 0.05$ ). These results provide support for Hypothesis 1 and are in line with our results from Study 1.

To examine our mediation prediction (Hypothesis 2), we first explored whether the voice manipulation was related to willingness to discuss ideas, while controlling for the resources manipulation. Subsequently, we tested if willingness to discuss ideas was related to management innovation, while controlling for the effect of both manipulations. An ANOVA test revealed that the voice manipulation by itself was not related to willingness to discuss ideas ( $F(1, 97) = 1.22$ ,  $p = n.s.$ ). A subsequent analysis of variance test,

controlling for the effects of both manipulations, showed that willingness to discuss ideas was significantly related to the management innovation measure from Study 1 ( $F(1, 96) = 6.19, p < 0.001$ ) and to the one proposed by Vaccaro et al. (2012;  $F(1, 96) = 4.89, p < 0.05$ ). We also analyzed this mediation effect using the same bootstrapping procedures that we conducted in Study 1 ( $z = 5,000$ ). The results of this analysis showed that the indirect effect of voice by itself was not related to either measure of management innovation. These results do not provide support for Hypothesis 2.

We conducted an ANOVA on our mediator variable (i.e., willingness to discuss ideas) to test for the interactive effect of promotive voice behavior and available resources. We found support for the expected interactive effect of voice and resources predicting willingness to discuss ideas  $F(1, 96) = 4.27, p < 0.05$ . The specific pattern of the interaction effect (refer to Figure 3) supports Hypothesis 3. The simple slopes analysis of this interaction reveals the same pattern in the results that we obtained in Study 1. Specifically, when resources are high, the gradient of this line is positive ( $t = 2.27, p < 0.05$ ), whereas when resources are low, the gradient of this line is not significantly different from zero ( $t = -1.60, p = n.s.$ ).

To test Hypothesis 4, we conducted the same analyses that we conducted in Study 1. Specifically, we analyzed whether willingness to discuss ideas predicts our dependent variable (i.e., management innovation), while controlling for the independent variables and their interactive effect (Kenny, Kashy, & Bolger, 1998). To test for this prediction, we conducted two analyses of covariance. Our analyses revealed that after controlling for the main effects (i.e., both conditions) and their interaction, willingness to discuss ideas significantly predicts the management innovation measure that was reported in Study 1  $F(1, 95) = 14.96, p < 0.001$  and the one developed by Vaccaro et al. (2012)  $F(1, 95) = 5.48, p < 0.05$ . We repeated this moderated-mediation analysis using bootstrapping procedures. The results using the measure for management innovation proposed in this study showed that the bias-corrected CI excluded zero when the value of the moderator was high (bootstrap  $value = 0.17 [0.04, 0.42]$ ) but included zero when the value of the moderator was medium (bootstrap  $value = 0.06 [-0.03, 0.22]$ ) and low (bootstrap  $value = -0.05 [-0.26, 0.10]$ ). The results were equivalent when we analyzed the data using Vaccaro and colleagues' measure of management innovation (Vaccaro et al., 2012). Specifically, the bias-corrected CI also excluded zero when the value of the moderator was high (bootstrap  $value = 0.11 [0.02, 0.29]$ ) but included zero when it was medium (bootstrap



**FIGURE 3** “Study 2: Interactive effect between promotive voice and resource availability predicting willingness to discuss ideas”

$value = 0.04 [-0.02, 0.15]$ ) and low (bootstrap  $value = -0.03 [-0.18, 0.06]$ ). These findings provide support for Hypothesis 4, utilizing two different operationalizations of the dependent variable.

## 5 | GENERAL DISCUSSION

The present research provides support for a theoretical model relating promotive voice behavior and management innovation, at the unit level. Drawing from COR (Hobfoll, 1989), our manuscript shows that when work units have access to ideas through promotive voice, unit members engage in a collective process of discussion to evaluate and select the ideas that can be implemented in their unit. Additionally, our results reveal that when work units have access to resources, unit members are more likely to discuss ideas coming from voice because it creates a perception that they have the means to implement changes into the unit should they find a suitable one. These findings offer meaningful theoretical contributions and highlight the importance of the interplay between voice behavior, willingness to discuss ideas, and resource availability, in predicting management innovation.

Our research offers five key contributions to the literature. First, by investigating a unit-level process linking promotive voice and management innovation, we were able to empirically examine one mechanism by which unit members utilize the ideas communicated through voice in order to implement management-related changes at work. Our emphasis on identifying and testing a mediating variable presents a relevant extension of existing research on the relationship between voice and innovation (De Dreu, 2002; De Dreu & West, 2001). Our research also responds to recent calls for studying the mechanisms linking unit-level work behaviors, such as voice, and their outcomes (Grant et al., 2011; Podsakoff et al., 2014). Our findings suggest that the phases of idea generation (i.e., voice) and idea implementation (i.e., management innovation) are connected through a collective process of discussion at the unit level, in which unit members exchange information in order to reach a collective decision that seeks to detect the most suitable ideas for implementation. The uncovering of this collective discussion process within the unit complements previous research that suggests that voice influences unit level outcomes when there is formal organizational endorsement (Detert & Burris, 2007; McClean et al., 2013). Our results go one step further by suggesting that not only the organizational endorsement is important (i.e., resource availability), but also the collective engagement of the unit members is critical if the unit seeks to introduce management innovations.

Second, our research addresses calls to study how different types of voice relate to specific outcomes (Morrison, 2011, 2014). Our manipulation of voice behavior in Study 2 was associated with promotive voice, not with prohibitive voice. Therefore, our results suggest that the implementation of management innovations is a function of promotive voice but is not a function of prohibitive voice. This result is in line with previous research on voice, showing that unit-level promotive voice fosters productivity through the implementation of ideas (Li et al., 2017). Given that voice can take varied forms (Burris, 2012; Liang et al., 2012; Maynes & Podsakoff, 2014; Van Dyne et al.,

2003), this contribution is critical because it provides evidence for the different roles that specific types voice may fulfill at work.

Third, by drawing from the COR theory (Hobfoll, 1989), we were able to apply a fresh perspective by studying the consequences of voice at work. Although others have used COR to conceptualize voice (Ng & Feldman, 2012), our study is novel in the sense that it conceptualized voice as a resource in a context of idea generation and idea implementation. Drawing from COR, we propose a mediating mechanism that offers a conceptual rationale on how unit members evaluate, select, and implement ideas gained from voice. We also propose a moderator that influences whether unit members are more likely or less likely to discuss these ideas. Across both studies, we found that resource availability positively moderates the relationship between voice and willingness to discuss ideas. Our results from Study 2 further revealed the critical role that resources played in our conceptual model. Although we did not find support for our simple mediation prediction in Study 2, the effect from voice to management innovation became significant once we included the moderating role of resource availability. This result is important because it suggests that although voice provides a valuable input for work units (Detert & Burris, 2007; Van Dyne & LePine, 1998), this input alone may not be sufficient. Unit members are more likely to engage in the collective discussion process that leads to the evaluation and selection of ideas when they perceive that they have access to resources that will aid the implementation of those ideas. It is important to note that the perception of resources rather than the use of resources is what allows unit members to engage in the collective process of discussion of ideas. This finding is consistent with previous research that suggests that the potential value of voice rests in the perceived endorsement that said voice receives (Burris, 2012; Detert & Burris, 2007; McClean et al., 2013). Thus, in line with extant research, this study shows that resources are critical for fostering employees' willingness to invest time and effort in the discussion and selection of ideas for their potential implementation.

Fourth, our research also contributes to the growing literature on management innovation. Because this is a construct that has recently started to gain attention, little is known about how internal processes affect this type of innovation, particularly on the role of individuals and groups (Volberda, Van Den Bosch, & Heij, 2013; Volberda et al., 2014). Specifically, this research responds to a call for studies investigating how individuals and their interactions foster management innovation (Volberda et al., 2014). Thus, we contribute to this literature by showing how work units that seek to implement management innovations require access not only to ideas through individuals' input but also to resources in order to foster the interactions among unit members that lead to the evaluation and selection of these ideas. Additionally, as a part of our first study, we also developed a new measure for management innovation that focuses on the specific practices, processes, and structures that are changed in work units, complementing the existing measure that focuses on general changes (Vaccaro et al., 2012). In Study 2, we showed that both measures, although looking at management innovation in different ways, provide similar results. This is important because scholars working on management innovation have now more valid alternatives to measure the concept, depending on the specific aspects of

management innovation they want to study. Thus, by addressing antecedents at the work unit level of analysis and by providing a new reliable and valid measure of management innovation, we contribute to the emergent research on this construct.

Last, this research contributes to the broad literature on proactive behaviors by observing the effects of promotive voice, employing multiple methodologies (Parker, Bindl, & Strauss, 2010). Apart from some notable exceptions (Burris, 2012; Weiss & Morrison, 2018; Whiting et al., 2008), a majority of the research investigating the effects of voice behavior has relied on surveys and research questionnaires as the main source of data (Morrison, 2011). Despite the potential benefits of survey-based research (i.e., high external validity), there are other methodological approaches better suited to draw conclusions regarding causality (Antonakis, Bendahan, Jacquart, & Lalive, 2010). Thus, scholars have advocated for the utilization of studies using random assignment to expand the level of confidence in the causal nature of research results (Aguinis & Bradley, 2014). These scholars have also suggested the use of a combination of different methodologies to enable researchers to present findings with high internal and external validity (Aguinis & Bradley, 2014). In Study 1, we observed promotive voice in a real work setting, utilizing multisource data gathered by research surveys (i.e., high external validity) and, in Study 2, examined promotive voice, employing a scenario-based design (i.e., high internal validity).

## 5.1 | Limitations and directions for future research

Despite the meaningful theoretical contributions and desirable methodological features, the present research is not without limitations. The first limitation refers to the degree of objectivity of the dependent variable. Although our results consistently show that promotive voice fosters management innovation, our operationalization of the dependent variable remains in the subjective assessment performed by the unit leaders in Study 1 and by the online participants in Study 2. Although the measure for management innovation in Study 1 is subjective, it reflects the perception of unit leaders pertaining to the actual performance of their unit. In Study 2, participants faced a scenario-based design and were not actually involved in introducing actual innovations. Although measures of subjective performance are frequently observed as outcomes of work behaviors in organizational research (Ng & Feldman, 2012; Podsakoff et al., 2014), future research needs to investigate the relationship between voice and more objective measures of management innovation. Another limitation is in reference to the fact that although we found support for most of our hypothesized predictions (Hypothesis 1–3) in Study 1, we could not find support for Hypothesis 4 in that study. However, because we found evidence for the causal effect of this relationship in our second study, we hope that future research utilizes the opportunity to build upon this result and further explore our moderated-mediation predictions in another field setting.

Another opportunity for future research is related to the conceptualization and measurement of unit-level voice. In this research, we argued that aggregated voice behavior in the work unit is the relevant antecedent of management innovation even if voice is not evenly distributed within units. This argument was supported by the results of

Study 1. However, previous research has shown that voice can be distributed homogeneously within work units (Lam & Mayer, 2014; McClean et al., 2013) raising questions regarding the nature of group-level voice. We believe that scholars should measure group-level voice in a way that is consistent with their theoretical conceptualization of the construct (Bliese et al., 2007) and that this conceptualization should be in line with the relationship between group-level voice and the other constructs of the model. We think that this idea opens interesting possibilities for future research. For instance, scholars will be able to investigate how different ways of conceptualizing and measuring group-level voice relate to different outcomes such as task conflict, idea implementation, and group cohesion, among others.

## 5.2 | Practical implications

This research also offers managerial implications. Our results indicate that administering all managerial efforts into fostering proactive behaviors, such as voice, may not be sufficient when the manager's goal is to introduce changes in management-related practices, processes, or structures. Although our results reflect that voice is positively related to management innovation, managers need to further provide their unit with access to resources in order to foster the discussion that leads to the evaluation and selection of ideas that are suitable for implementation in the unit. Therefore, managers should be adept and focus their efforts not only in fostering proactive behaviors, such as voice, but also in facilitating the access and availability of resources in such a manner that the unit has the tools to implement these ideas.

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**How to cite this article:** Guzman FA, Espejo A. Introducing changes at work: How voice behavior relates to management innovation. *J Organ Behav.* 2018;1-18. <https://doi.org/10.1002/job.2319>