Safety Leadership and Safety Voices: Exploring the Mediation Role of Proactive Motivations

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Abstract

Motivating employees to speak up about safety issues in organizations is a daunting task for both scholars and practitioners. Previous research has shown that safety leadership is one of the most studied predictors because of its wide-reaching effects on safety behaviors. This contribution aims to test whether Parker et al.'s proactive motivational states ("can do," "reason to," and "energized to" motivations) mediate the relationship between transformational, transactional, and passive safety leadership and an expanded set of safety voice behaviors, a form of upwards safety communication. We tested our model using data gathered from a sample (N = 238) of US workers. Our results showed that (1) all three motivational states mediate the relationship between transformative leadership and promotive safety voice; (2) only "reason to" and "energized to" mediate the relationship between transactional leadership and preventive and prohibitive safety voices; and (3) only "can do" motivations mediate the relationship between passive leadership and hostile safety voices. Implications for research and practice are also discussed: these results may be leveraged to improve practitioners' ability to motivate employees to speak up, a notoriously difficult task, by considering the employees' motivational drivers. We found that, in the safety realm, the relationship between a leader's behavior and their followers' safety behavior is partially mediated by employees' belief that they are able to broaden their workplace role, their feeling of ownership, and their engagement.

Keywords: Safety communication; safety leadership; motivational mediators; risk communication; occupational safety

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Introduction

Research on occupational safety is becoming more relevant in the field of industrial and

organizational research due to the high numbers of deaths and serious injuries that occur in the

workplace (Christian et al., 2009). In the U.S. in 2017, 5147 workers lost their lives while on the

job, while there were more than 900,000 injuries that resulted in at least four days away from

work (Bureau of Labor Statistics, 2019). These figures are concerning for workers, employers,

and society because of the enormous costs associated with them, such as physical pain,

healthcare costs, lost wages, worker's compensations, lower productivity, and schedule delays.

Organizations can reduce work-related accidents and injuries by understanding employee voice,

which is valuable for the sustainability and improvement of both teams and organizations. Safety

voice is a change-oriented participative behavior that aims to support workplace safety

management in organizations (Conchie, 2013; Curcuruto et al., 2015; Curcuruto & Griffin, 2016;

Neal & Griffin, 2006). Research has shown that safety voices are predicted by a wide array of

organizational variables, including individual, group, and organizational level constructs (Noort

et al., 2019).

Safety leadership is among the most studied predictors (Clarke, 2013) and different styles

of safety leadership were found to be associated with different types safety voices (Bazzoli et al.,

2020). In addition, Conchie and her colleagues (Conchie, 2013; Conchie et al., 2012) found

empirical support for the mediated moderator role of trust and intrinsic motivation in the

leadership-safety voice relationship. We aim to build on Conchie's (2013) findings by examining

another set of multiple motivational mediators. Specifically, we refer to the proactive

motivational model proposed by Parker et al. (2010), which is currently regarded as a useful

model to explain proactive behavior in several domains, but has not yet been extensively

investigated in occupational safety. In light of these gaps, the present study aim is twofold: first,

we aim to advance the literature on safety voice by proposing a theoretically coherent and

expanded taxonomy of this construct, and second, we aim to test whether three proactive

motivation states (Parker et al., 2010), dubbed "can do," "reason to," and "energized to"

motivations, mediate the relationship between safety leadership styles and safety voices in

different ways.

An Expanded Conceptualization of Safety Voice

Having employees openly talk about their concerns about safety is especially relevant in

high-risk industries because it can prevent injuries and encourage organizational learning

(Hofmann et al., 2003; Kath et al., 2010; Tucker & Turner, 2015). Striving for a more formal

definition and operationalizable construct, Conchie (2013, p. 315) defined employee safety voice

as a behavior that seeks "to improve safety by identifying current limitations and possibilities for

positive change." The extant literature has acknowledged that safety voice can occur in a wide

variety of setting and can include raising safety concerns with a supervisor or union

representative (Baugher & Roberts, 2004), speaking before a safety committee (Eaton &

Nocerino, 2000), reporting dangerous working conditions to public health authorities (Gray,

2002), and teaching newcomers and coworkers safer work techniques/procedures (Andriessen,

1978), that may be directed toward several targets such as supervisor, government agencies, and

unions (Tucker et al., 2008).

It follows that in safety research, the construct of safety voice is understood as a proactive

behavior that tends to go beyond the mere compliance with safety procedures (Curcuruto et al.,

2020) and can be meaningfully annumerated under the umbrella term of safety participation (see e.g., Conchie, 2013, that includes initiating change and whistleblowing in her analysis of safety voice). Additionally, proactively communicating risks and safety concerns (i.e., safety voice) has been linked to lower lost-time occupational injuries, higher recording of near-miss events at the group level (Curcuruto et al., 2015), and implementation of enhanced safety systems assessed at the department level (Curcuruto et al., 2019). However, in spite of the positive outcomes for accident prevention and improvement of safety procedures, in the extant literature, safety voice is often operationalized as an unidimensional construct made up of different behaviors that have only one aspect in common --they are communication behaviors that loosely deal with safety management (see e.g., the substantially different items of the Hofmann et al., 2003, safety voice scale and the safety voice scale proposed by Tucker et al., 2008). This conceptual oversimplification may lead researchers to leave unnoticed that (a) different communication behaviors may have an entirely different impact to different components of the organizational safety management, for instance, the day-to-day prevention of physical risks for employees (e.g., reporting a leak to the company's safety supervisor; blowing the whistle on an infraction of safety procedures) rather than the periodic improvement revision process of the organizational safety systems (e.g., providing suggestions to the supervisor to improve the safety of a work operation; speaking up during a formal "Safety Day" event arranged by the company) in different ways; and (b) given that employees' motivational system is rather complex (Molden et al., 2008), the occurrence of different communication behaviors may be explained by different motivational mechanisms. Below we organize our framework around two dimensions in which safety voice may vary, resulting in four distinct types of safety voice.

Drawing from Bazzoli et al. (2020) and regulatory focus theory (Curcuruto et al., 2020), our first dimension distinguishes safety voice actions that preserve the safety system and procedures (i.e., sustain and ultimately defend the current system) from those that challenge them (i.e., try to correct or question the current system). This dimension is rooted in both theoretical and empirical work: Hirschman (1970) described voice as the verbalization of critical opinions; Gorden (1988) stated that voice can either "correct" or "reaffirm" the status quo; and Van Dyne et al. (2003) distinguished between voice that expresses support and that which challenges, the Liang et al. (2012) and the Maynes and Podsakoff (2014) models also recognize this dimension. The self-regulatory focus framework (Curcuruto et al., 2020) lends further theoretical support to this dimension, which posits that safety behaviors may be driven by either a promotion focus (i.e., by allowing the organization to achieve positive outcomes) or a prevention focus (i.e., by allowing the organization to reduce potential risks).

The second axis deals with time perspective. At the organizational level, attention to future change has been linked to the organization's capacity to establish dynamic routines (Howard-Grenville, 2005), considering that planning activities involves a certain degree of attention to future conditions to better develop the organization's capabilities to address future and unexpected challenges. As Griffin et al. (2017) noted, future orientation is a core feature of dynamic safety capability, defined as a set of future-oriented activities that allow a given organization to make changes to its operations in order to improve safety. Thus, future orientation is not aimed at reducing uncertainty, but focuses on anticipating and adapting to future, uncertain possibilities. We positioned the present-oriented perspective on the other end of this dimension, drawing from the idea of reactive change (Nadler & Tushman, 1989), which describes the kind of reaction that is evident after accidents take place and results in (a)

heightened vigilance and focus on the immediacy of the scenario and (b) short-term and present oriented strategies, such as compliance procedures that ensure stability and predictability. Figure 1 graphically depicts the proposed conceptualization.

Insert Figure 1 about here

Definition of each Type of Safety Voice

Promotive safety voice represents the future-oriented/change quadrant in our model. To be promotive means being constructive and proposing new ways to improve safety procedures, departing from what is currently being done (i.e., challenging the status quo, also found in Gorden, 1988; Liang et al., 2012; Maynes & Podsakoff, 2014; Van Dyne et al., 2003). We define promotive safety voice as the voluntary communication of new ideas or suggestions to functionally improve safety procedures. This includes discussing and proposing new ways to improve safety procedures and proposing how to fix problems in new ways. The overall function of promotive safety voice is to highlight how the organization can achieve in the future by *changing* what it is currently doing. It follows that the target is two-folded: promotive safety voice aims at challenging both the safety system put in place by the organization and the people working in that organization, affecting the social relationships they created.

Preventive safety voice represents the future-oriented/defense quadrant. To prevent means to defend and sustain the current system. We define preventive safety voice as the voluntary communication of safety concerns regarding contingent work situations due to fatigue, mechanical failures, and other events not linked to human intentionality. We define it as future-oriented because we conceptualize protecting the status quo as avoiding a loss in the future. This is based upon Reason's (1997) conceptualization of organizational accidents: human error is not

the root cause of failure, rather it demands a cause, which may lay in error-producing conditions present in the work environment. It entails that progress in safety comes from understanding that human error is intrinsically linked to people's task and operating environment and influencing these connections. Preventive safety voice includes behaviors such informing the supervisor about safety hazards and reminding colleagues to take precautions. As discussed above, the main function is to highlight potential organizational accidents linked to error-producing systems or cognitive failures.

   Prohibitive safety voice represents the present-oriented/defense quadrant. To be prohibitive means to stop someone from doing something and to denounce something, therefore behaviors that fall under this type of safety voice include stopping a colleague that is willingly acting unsafely and reporting intentional violation of safety rules and procedures. Recalling Figure 1, prohibitive safety voice is similar to preventive safety voice as they share the defense goal, i.e. they aim to protect the system, rather than challenge it. However, they target different organizational hazards. As noted elsewhere (Reason, 1997), the overall direction an organization takes is just a tradeoff between different goals that have to be met simultaneously. It follows that safety is not inherent into systems, it is rather one of these goals; and production rate, time constraints, dealing with resource shortages, and general workplace pressures may be other. We define prohibitive safety voice as the voluntary exposure of unsafe working practices due to intentional violations of safety rules/procedures by colleagues. In this sense, it is closely linked to whistleblowing (defined as "the disclosure by organization members of illegitimate practices under the control of their employers," Near & Miceli, 2008, p. 4), but broader, as it includes direct behaviors aimed at stopping the unsafe act. Although prohibitive and preventive actions of safety voice may seem somewhat comparable, the distinction has its roots into different

mechanisms of human failures (Reason, 1991). Our argument is as follows: safety literature has long recognized the distinction between unintentional human errors in the interaction between human operators and technical components of the system (e.g., skills-based errors, rule based-mistakes, knowledge based mistakes) and errors due to frontline employees' procedural violations (routine or situational violations; Reason, 1991). Since effective risk management strategies in any organizations depend imperatively on the organization's capacity to establish a reporting culture, it is paramount to differentiate between the sources of error.

Hostile safety voice represents the present-oriented/change quadrant. Being hostile means being hurtful and extremely critical (i.e., challenging the status quo). We define hostile safety voice as the voluntary expression of opinions and ideas that are derogatory and hurtful with regard to safety procedures. This type of safety voice shares many features with the destructive voice (Gorden, 1988; Maynes & Podsakoff, 2014) as they all stress strong criticism to the status quo. Examples include bad-mouthing organization's safety procedures and making overly critical statements about safety policies. The main goal is expressing dissatisfaction with the organization's procedures, but, although the concern may be legitimate, doing so may be interpreted negatively due to the negative emotions associated with harsh criticism and disparaging expressions. This conceptualization of safety voice challenges the often-unchecked assumption in organizational literature that employee simply agree and internalize management's priorities and perspectives about safety in the workplace (Engemann & Scott, 2020). This proposition is supported by ethnographic studies, which showed that employees may actively resist, ignore, or reframe top-down safety messages (Scott, & Trethewey, 2008).

Motivational Mediators

The question about why different people pursue different proactive goals to achieve their future-oriented outcome may not be answered simply focusing on people's personality traits (Parker et al., 2010). Therefore, it is important to investigate one's motivational state: previous literature focused mainly on "can do" and "reason to" motivations (see e.g., Parker et al., 2006), however, recently a third path, "energized to", has been proposed (Parker et al., 2010).

Three Motivational Mediators

"Can do" motivations include self-efficacy, control appraisals, and the perceived cost of an action. Drawing from expectancy-value theories of motivation (Eccles et al., 1983), it may be argued that the belief that one is highly successful in a given field seems to be important in generating a safety goal because proactivity entails a lot of personal psychological risk. It is evident that individuals need to feel secure that they can initiate a goal and can also deal with the consequences of that goal before actually acting (Morrison & Phelps, 1999; Parker et al., 2010).

Can do motivational theories are important, but do not explain why individuals select or persist in pursuing a given goal. For instance, employees may feel like they are capable of improving a given safety system but have no compelling motivation to do so. In fact, reason to motivation theories are well-recognized in the literature (see e.g., utility judgments in expectancy theory; Vroom, 1964): drawing from self-determination theory (Deci & Ryan, 2000), Parker et al. (2010) argue that proactivity is more likely to be caused by autonomous forms of motivation, such as intrinsic motivation (i.e., interest, perceived challenge, flow, etc.) and identified/integrated motivation (i.e., fulfilling goals, expressing values, perceiving change as important, and creating future identities).

However, when it comes to safety, there are also strong external motivators: compliance is expected and prescribed by an external agent (e.g., safety procedures), but safety initiative and

extra-role safety behaviors are neither expected nor prescribed; thus making it difficult to

recognize a strong external motivator and highlighting the need for an equally strong internal

motivator. Psychological ownership may play a role when someone perceives their identity to be

tightly bound up to their team or organization, giving them the motivation to improve that same

team or organization by setting proactive goals (Gagné & Deci, 2005). Drawing from these

arguments, we propose that psychological ownership will create the "reason to" motivation,

potentially overcoming skepticism and resistance from others (Frese & Fay, 2001).

In contrast to can do and reason to motivational theories, it has been suggested that

positive, affect-related motivational states may have an effect on proactive behavior

(Fredrickson, 1998; Ilies & Judge, 2005; Oettingen et al., 2005; Seo et al., 2004). Bindl and

Parker (2012) further showed that positive affect was especially important in predicting

employees' envisioning of proactive goals while Fritz and Sonnentag (2009) showed that

positive affect promotes charge behaviors. There is also evidence that feeling enthusiastic in the

workplace (i.e., work engagement) is more important in stimulating proactivity than the mere

inactivated positive affect (Bindl & Parker, 2012). For these reasons, work engagement will

create an "energized to" motivation to perform proactive behavior.

Transformational Leadership → Motivational Mediators → Promotive Safety Voice

The belief that one is capable of going above and beyond the prescribed job tasks (role-

breadth self-efficacy; Parker, 1998) may be predicted by the leader's transformational style.

House and Shamir (1993) noted that the primary motivational mechanism through which

transformational leaders influence followers is by enhancing followers' self-efficacy, and the

defining features of transformational leadership appear to mirror the determinants of self-

efficacy. Podsakoff and his colleagues (Podsakoff et al., 1990) suggested that followers

contribute to achieve the leader's vision by expanding their own self-efficacy while others claim that transformational leadership affects self-efficacy through vicarious experiences and social persuasion (Walumbwa et al., 2008). Empirical findings suggest that transformational leaders enhance followers' role-breadth self-efficacy because the leader is an efficient role model (Pillai & Williams, 2004; Salanova et al., 2011). In turn, empirical findings support the claim that role-breadth self-efficacy predicts proactive behaviors such as suggestions for improvement (Axtell et al., 2000) and proactive problem solving (Parker et al., 2006). Additionally, a study compared the influence of general self-efficacy with that of role-breadth self-efficacy and found that only the latter predicted proactive behaviors in the workplace (Ohly & Fritz, 2007).

The effects of transformational leadership may not be limited to "can do" motivations. In fact, a transformational leader may enhance employees' possessive feelings for their organization (i.e., psychological ownership; Park et al., 2013) because individuals come to identify with their leader if their values become aligned (Shamir et al., 1993). As a result, individuals disregard personal gain to put some effort toward the leader's vision (Bass & Riggio, 2006), thus shifting the focus from transaction-based to psychological ownership and self-identity (Avey et al., 2009; Curcuruto & Griffin, 2018). In turn, if someone's identity is strongly linked to one's team or organization, they will feel ownership and responsibility to improve that team or organization (Gagné & Deci, 2005) and thus will be likely to set proactive goals and behave proactively, such as engaging in organizational citizenship behaviors (Park et al., 2013).

The relationship between transformational leadership and employees' work engagement (i.e., energized to motivation) has been investigated by several scholars (Salanova et al., 2011; Zhu et al., 2009). Transformational leaders put emphasis on broadening followers' individual responsibilities and giving them freedom to make increasingly larger contributions to the

organization. Therefore, transformational leadership is expected to predict work engagement

(Zhu et al., 2009). In turn, Bindl and Parker (2010) suggested that work engagement may be

more relevant that positive affect in predicting proactive organizational behavior because a

higher degree of activation increases the amount of effort by increasing the feeling of energy

(Brehm, 1999). Because of the theoretical reasons and empirical findings explained above, we

suggest that:

Hypothesis 1: The relationship between safety-specific transformational leadership and

promotive safety voice will be mediated by (a) role-breadth self-efficacy, (b) psychological

ownership, and (c) work engagement.

Transactional Leadership → Motivational Mediators →Preventive and Prohibitive Safety Voices

Much of the research on safety leadership has focused on transformational leadership.

However, Avolio (1999) argued that "transactions are at the base of transformations" (p. 37),

laying out the so-called augmentation hypothesis (Judge & Piccolo, 2004). Therefore, we would

expect somewhat similar relationships between transactional leadership and three motivational

mediators (Parker et al., 2010). Since transactional leaders work within a given organizational

culture and do not work to change it, they set clear expectations and goals and reward followers

for goal attainment. Notably, in Avolio's words (1999), this kind of leadership is "reasonably

effective." However, the leader's preventive regulatory focus does not prime creative or

expansive behaviors in followers; rather, it primes vigilance and noncreative repetitiveness.

Thus, we would expect that role-breadth self-efficacy would likely not be rewarded or valued by

the leader because it involves going above and beyond one's role, perhaps at the expense of

vigilance, which is not coherent with the social exchange mechanism the leader set up (Blau,

1964). In fact, social exchange theory suggests that when a party supplies a benefit, the receiving one should respond in kind (reciprocity rule; Blau, 1964). On the one hand, the benefit has to be perceived as so by the receiving party for a positive exchange to take place; and on the other hand, this excludes explicit bargaining and instead makes the exchange contingent on each other's behaviors (Molm, 2003). For these reasons, we do not expect any significant relationship between transactional leadership and followers' role-breadth self-efficacy.

Accountability has been defined as a core component of psychological ownership primarily through two mechanisms (Avey et al., 2009): (a) the expected right to hold others accountable (e.g., coworkers) and (b) the expectation to be held accountable (e.g., by the leader). These two dimensions closely mirror and conform to the transactional leader's behavior. Specifically, they fit into the transactional exchange that is taking place in the workplace where the leader is actively monitoring and rewarding followers for acting safety, while followers are reciprocating with safety compliance and high psychological ownership. In turn, these expected rights may justify the link between psychological ownership and preventive and prohibitive safety voices. Given the fact that people that perceive high levels of psychological ownership perceive that they have the right to call others out and hold others accountable, it is reasonable to hypothesize that they would be likely to report a colleague that is voluntarily acting unsafely and also to try stopping them (i.e., prohibitive safety voice). Psychological ownership and the expectation to be held accountable may also provide a justification for followers to communicate safety concerns regarding contingent and immediate work situations due to fatigue, mechanical failures, and other events not linked to human intentionality. This reasoning is in line with Pierce et al. (2003) conceptualization of rights and expectations that come with psychological ownership.

Tims et al. (2011) suggested that transactional leadership is not related to followers' work engagement. Conversely, Breevaart et al. (2013) noted that hypothesizing a link between transactional leadership and followers' work engagement is coherent with leadership literature (Avolio, 1999). In fact, leaders shape their followers' work environment by setting goals to be reached and rewarding accordingly. Meta-analytical findings supported the claim that this contributes to followers' work motivation (Judge & Piccolo, 2004): leaders acknowledge that followers performed well, and this may provide meaning to the work, which is likely to increase followers' work engagement (Breevaart et al., 2013). In turn, theory suggests that high work engagement is positively associated with better performance (Bakker & Demerouti, 2014). This proposition has been empirically validated by Van Wingerden et al. (2018): they found that higher work engagement predicted higher in-role performance. Thus, we expect that engaged employees would be likely to report other colleagues' unsafe behavior and also monitor the systems in place, in order to prevent mechanical failures, mistakes due to fatigue, or any other error not due to human intentionality because these behaviors are expected from them by the transactional leader. Drawing from the theoretical reasons and building on the empirical findings reviewed above, we expect that:

Hypothesis 2: The relationship between safety-specific transactional leadership and preventive safety voice will be mediated by (a) psychological ownership, and (b) work engagement.

Hypothesis 3: The relationship between safety-specific transactional leadership and prohibitive safety voice will be mediated by (a) psychological ownership, and (b) work engagement.

Passive Leadership → Motivational Mediators → Hostile Safety Voice

Traditionally, safety research has found that passive leadership is negatively related to many safety behaviors (lower safety participation, Jiang & Probst, 2016; lower safety

consciousness, Kelloway et al., 2006; and lower safety climate, Smith et al., 2016). Passive

leadership is characterized by a general abdication of responsibilities, decision-making

avoidance, and lack of authority. Furthermore, by role modelling passive/avoidant behaviors,

leaders may encourage carelessness and passive behaviors among employees. Overall, this may

lead to the creation of a confused working situation characterized by unclear and under-specified

expectations about roles and responsibilities concerning the daily management of safety. High-

reliability organizations theory (Weick et al., 2008) may shed some light on a potential

unexplored link between role-breadth self-efficacy and organizational situations characterized by

underspecified role expectations. High-reliability organizations (HROs) are characterized, by

definition, by underspecified role structure (Weick et al., 2008). Such organizations should also

be able to adapt when faced with problems and hazardous circumstances. A context in which (a)

the employees are valued for their practical expertise, rather than the role they have, and (b) there

is a lack of clear leadership input, may thus foster the employees' ability to broaden their

contribution within an organization beyond the formal definition of their role. Passive leaders

arguably resemble that context for a different reason: they are either unaware of safety hazards

until brought to their attention or avoid the responsibility of taking action. This avoidant attitude

by the leader poses a safety risk for the organization and their followers, which may be perceived

as a potential stressor. For this reason, followers may react by feeling stimulated by the

contingencies to broaden their role in the workplace in order to cope with the situation, so that

they are able to prevent the potential occurrence of accidents and injuries. Therefore, in line with

Self-Determination Theory (Gagné & Deci, 2005) external regulations, followers' goals and

values are coherent, giving rise to what has been called integrated regulation. The feeling of

being able to take up a broadened role (i.e. role breath self-efficacy) would mediate the

relationship between a stressful situation and the consequent employee initiative to cope with that specific situation. Thus, we propose that role-breadth self-efficacy may be conceptualized as a predictor of hostile safety voice if we consider this typology of voice as a coping response to a stressful situation (Sonnentag & Spychala, 2012), in this case caused by a passive leadership style in relation to the daily management of workplace safety. Arguably, stressful situations may cause conflict and the expression of opinions that are derogatory with regard to an organization's safety procedures because said safety procedures are not able to prevent a possible safety hazard, represented by the leader's passiveness.

Scholars have identified a negative link between passive leadership and psychological ownership in family-led businesses (Bernhard & O'Driscoll, 2011). Since passive leaders fail to provide motivation and do not act as role models, this is likely to lead to a lower level of perceived psychological ownership. However, a competing explanation cannot be ruled out, given that employees in HROs may find other sources of psychological ownership that could possibly intervene in the passive leadership-psychological ownership relationship.

Similarly, research has shown consistent links between leadership and followers' work engagement (Leary et al., 2013). Specifically, scholars noted that passive and avoidant leaders lower followers' work engagement (Leary et al., 2013), based on the explanation that leaders shape the followers' work environment; therefore, dysfunctional leadership leads to negative outcomes, although research is inconclusive on the nature of this link. Based on the theoretical reasoning and empirical findings that were outlined above, we advance the following hypothesis.

Hypothesis 4: The relationship between safety-specific passive leadership and hostile safety voice will be mediated by role-breadth self-efficacy.

Figure 2 depicts the conceptual model that will be tested in this contribution.

Insert Figure 2 about here

Method

Participants and Procedure

Following ethics approval granted by Leeds Beckett University, the authors administered an online survey to 241 working adults based throughout the U.S. using ResearchCloud, an online recruitment service. We screened participants at the beginning of the survey in order to ensure that they were employed by an organization in which safety is a relevant, day-to-day concern. Participants were paid for survey completion based on the pro-rated U.S. federal minimum wage, calculated on the estimated time needed to complete the survey. Three participants failed two out of four attention checks embedded within the survey and were therefore excluded from any further analysis. The final sample (N = 238) was predominantly male (68%). The average age of respondents was 32.3 years (SD = 13.72) and participants worked on average 37.03 hours per week (SD = 13.72). The vast majority (91%) worked for an organization with more than 50 employees, and more than half the participants (58%) had been with their current employer between two and five years. Fifteen percent of participants were employed by organizations active in the manufacturing industry; 17% of them were working in the construction industry, and 20% of respondents were employed in the transportation industry.

Measures

Supervisor's safety leadership. A safety-specific version of the MLQ-5x (Bass & Avolio, 1995) was used to measure participants' ratings of their supervisor's safety leadership. This scale is made up of three dimensions, transformational safety leadership (7 items, Cronbach's alpha = .89), transactional safety leadership (7 items, Cronbach's alpha = .87), and passive safety

leadership (3 items, Cronbach's alpha = .69). Participants responded on a 7-point Likert scale, so that higher scores reflected higher safety leadership.

Work engagement was measured using the ultra-short version of the Utrecht Work Engagement Scale (Schaufeli et al., 2019). The Cronbach's alpha was .76. This construct is in line with Parker et al. (2010) "energized to" motivational mediator. Participants were asked to rate their own work engagement on a 7-point Likert scale so that higher scores reflected higher work engagement.

Role-breadth self-efficacy was measured by the 5-item scale developed by Parker and her colleagues (Parker, 1998; Parker et al., 2006). The Cronbach's alpha was .82. This construct is in line with Parker et al. (2010) "can do" motivational mediator. Participants were asked to rate their own role-breadth self-efficacy on a 7-point Likert scale so that higher scores reflected higher role-breadth self-efficacy.

Psychological ownership was measured with the scale developed by Van Dyne and Pierce (2004). The Cronbach's alpha was .87. This construct is in line with Parker et al. (2010) "reason to" motivational mediator. Participants were asked to rate their own psychological ownership on a 7-point Likert scale so that higher scores reflected higher psychological ownership.

Safety voices were measured with the scale introduced by Bazzoli et al. (2020). This scale is made up of four dimensions: promotive safety voice (4 items, Cronbach's alpha was .82), preventive safety voice (4 items, Cronbach's alpha was .88), prohibitive safety voice (4 items, Cronbach's alpha was .84), and hostile safety voice (4 items, Cronbach's alpha was .90). Participants were asked to rate safety voices on a 7-point Likert scale so that higher scores reflected higher temporal occurrence of safety voice behaviors.

Results

The authors conducted several preliminary checks before fitting the path analytical model. Normality checks were conducted by means of calculating skewness (range: -1.21, 0.71) and kurtosis (range: -0.10, 1.96) for each item to be used in the model: none of the items approached 3.0 and 10.0 respectively, supporting normality assumptions (Brown, 2015). To test the overall measurement model, we estimated a confirmatory factor analysis (CFA) with all manifest indicators loading on their theoretically assigned latent construct. The measurement model fitted the data acceptably (χ^2 (900) = 1649.11, CFI = .90, RMSEA = .06, SRMR = .06) and all manifest indicators were significantly different from zero. Two competing models were also estimated: the first one was similar to the measurement model, but all safety voices manifest indicators were forced to load onto a single latent factor. This model fitted the data worse than our measurement model ($\Delta\chi^2$ (24) = 275.08, p < .001). The second competing model was also similar to the measurement model, but all motivational mediators' manifest indicators were forced to load onto a single latent factor. This model fitted the data worse than our measurement model ($\Delta\chi^2$ (17) = 64.15, p < .001). Therefore, the measurement model was retained. All of the following structural equation models have been estimated using MPlus 8.4 (Muthen & Muthen, 1998-2017) with the full-information maximum likelihood estimator. Zero-order correlations of the study variables are shown in Table 1.

Insert Table 1 about here

Table 2 provides the parameter estimates, standard errors, p-values, and 95% confidence interval for the structural relationships depicted in Figure 2. The model fitted the data satisfactorily (χ^2 (18) = 36.32, CFI = .91, RMSEA = .07, SRMR = .05). First, we hypothesized

that the relationship between the supervisor's transformational safety leadership style and employees' promotive safety voice may be mediated by three motivational variables. Table 2 illustrates the structural paths from transformational leadership to the mediators are all statistically significant, as are the paths from the mediators to employees' promotive safety voice. The indirect effects of transformational safety leadership on promotive safety voice via work engagement (indirect effect = 0.03; 95% CI [0.01, 0.07]), psychological ownership (indirect effect = 0.04; 95% CI [0.01, 0.07]), and role-breadth self-efficacy (indirect effect = 0.03; 95% CI [0.002, 0.06]) were all significantly different from zero.

Second, we hypothesized that the relationship between the supervisor's transactional safety leadership style and employees' preventive safety voice may be mediated by three motivational variables. Table 2 illustrates that two out of three structural paths from transactional leadership to the mediators are statistically significant. The indirect effects of transactional safety leadership on preventive safety voice via work engagement (indirect effect = 0.03; 95% CI [0.001, .06]) and psychological ownership (indirect effect = 0.05; 95% CI [0.01, 0.08]) were both significantly different from zero.

Third, we hypothesized that the relationship between the supervisor's transactional safety leadership style and employees' prohibitive safety voice may be mediated by two motivational variables. Table 2 illustrates the structural paths from transactional leadership the mediators are statistically significant. The indirect effects of transformational safety leadership on prohibitive safety voice via work engagement (indirect effect = 0.03; 95% CI [0.003, 0.06]) and psychological ownership (indirect effect = 0.04; 95% CI [0.01, 0.07]) were both significantly different from zero.

Last, we hypothesized that the relationship between the supervisor's passive safety leadership style and employees' hostile safety voice may be mediated by role-breadth self-efficacy. The indirect effect of passive safety leadership on hostile safety voice (indirect effect = 0.04; 95% CI [0.001, 0.07]) was significantly different from zero. Table 3 visually summarizes each of the mediation analyses that were statistically significant.

Insert Table 2 about here

Discussion

This contribution aimed to test the Parker et al. (2010) proactive motivation model in the safety realm; specifically, we hypothesized that different motivational mediators would play a role in four different leadership style-safety voice relationships. Our findings provided empirical evidence for (a) the mediation effect of role-breadth self-efficacy, psychological ownership, and work engagement in the transformational leadership-promotive safety voice relationship; (b) the mediation effect of psychological ownership and work engagement in the transactional leadership-preventive safety voice; (c) the mediation effect of psychological ownership and work engagement in the transactional leadership-prohibitive safety voice; and (d) the mediation effect of role-breadth self-efficacy in the passive leadership-hostile safety voice relationship (see Table 3).

Insert Table 3 about here

These differential relationships may be explained by recalling the different motivational theories that underlie these theoretical models. Leaders that enact transformational behaviors focus on the followers' ability to change, make individual progress, and promote an attractive vision of the

future (Bass & Riggio, 2006; Judge & Piccolo, 2004) to examine current issues from a fresh

perspective. This type of leadership encourages followers to focus on their own

personal development to reach an "ideal self." Our findings support this theoretical proposition

and earlier experimental findings (Bazzoli et al., 2020). Additionally, the present study found

that the direct relationship between transformational leadership and promotive safety voice is

partially mediated by three proactive motivations held by followers. In line with House and

Shamir's (1993) conceptualization of transformational leadership and several empirical findings

(Pillai & Williams, 2004; Salanova et al., 2011), we found that transformational leaders enhance

followers' role-breadth self-efficacy because the leader is an efficient role model for their

followers. In turn, the feeling of being able to carry a broader work role motivates followers to

enact change-oriented proactive behaviors. Likewise, transformational leaders enhance

employees' possessive feelings for their organization (i.e., psychological ownership; Park et al.,

2013) because individuals identify themselves with their leader if their values become aligned

(Shamir et al., 1993). In turn, if an employee's identity is strongly bound to their team or

organization, they will feel ownership to improve that team or organization (Gagné & Deci,

2005) and will enact proactive behaviors, such as engaging in organizational citizenship

behaviors (Park et al., 2013) or change-oriented communication acts. Last, transformational

leaders emphasize the broadening of followers' individual responsibilities and giving them the

freedom to make increasingly larger contributions to the organization; thus, transformational

leadership predicted work engagement because greater autonomy in the workplace is a job

resource (Salanova et al., 2011; Zhu et al., 2009). In turn, work engagement predicted a higher

degree of change-oriented proactive behavior because of an increased feeling of energy (Bindl &

Parker, 2010; Brehm, 1999).

Arguably, transactional leaders lack the charisma typical of transformational leaders (Avolio, 1999), but nonetheless they are able to motivate followers by setting up clear expectations and obligations, monitoring followers, and rewarding them accordingly. This formal method of influence, compared against transformational leaders' charisma, enables followers to develop some forms of proactive motivations but not others. Since following rules and regulations is the way to receive positive reinforcement or to avoid negative consequences, proactive motivations such as "can do" motivations (i.e., role-breadth self-efficacy), which focus on broadening employee's role, do not fit into the relational transaction that the leader set up. Another explanation, drawing from self-regulatory theory (Kark & Van Dijk, 2007; Kark et al., 2018), suggests that the leader's preventive focus may not be completely coherent with the self-regulatory focus that underlies role-breadth self-efficacy, thus resulting in this behavior being discouraged. Conversely, "reason to" and "energized to" motivations are linked to followers' own feeling of accountability and the meaning they are able to see in their work (Avey et al., 2009; Breevaart et al., 2013). Specifically, the feeling and expectation of being held accountable may adequately explain the mediation role of psychological ownership in the transactional leadership-preventive safety voice relationship because followers are motivated to raise concerns about unsafe conditions not due to human intentionality, but because of the expectation that if they did not do so, they would be held accountable by the leader. Likewise, the expectation to hold others accountable motivates the willingness to report colleagues that are voluntarily violating safety standards by taking a calculated risk in the work, or colleagues who are omitting a safety procedure due to contingent production pressures. Additionally, transactional leaders, by rewarding and recognizing followers that meet expectations, provide a meaning to their job, likely driving their engagement up. This, in turn, motivates followers to report safety hazards or

blow the whistle on unsafe colleagues because they may feel they are helping the leader in their monitoring effort.

Previous research has shown that passive leaders have a negative effect on several safety outcomes, both at the individual and organizational level (Jiang & Probst, 2016; Kelloway et al., 2006; Smith et al., 2016). The link between passive leadership and employees' safety behaviors has not received much scholarly attention, and the safety literature seems to suggest that the link should be either negative or nonsignificant (Kelloway et al., 2006). Our findings showed that the link between passive leadership and hostile safety voice is fully mediated by followers' role-breadth self-efficacy. Although this may appear to be a counterintuitive result, in fact, when leaders passively wait for errors and deviations from the norm to happen, they are creating a stressful environment for their followers due to the creation of a lower perceived safety climate, an higher ambiguity about which safety behaviors are actually expected, and the diffusion of a general perception of vulnerability towards the risk of accident occurrence (Grill et al., 2017). Consistent with job design theory, stressful work environments motivate followers to take on broader role orientations and personal capability beliefs, including a higher role-breath self-efficacy (Sonnentag & Spychala, 2012), which in turn motivates proactive behaviors (Parker et al., 2006). Specifically, we found that hostile safety voice (e.g., bad-mouthing one's organizational safety procedures) is predicted through the mediation of role breadth self-efficacy. we interpreted this finding considering a potential coping function associated with hostile safety voice: given that a stressful work environment bear conflicts in the work unit, people may be motivated to express their dissatisfaction toward the current situation by enacting hostile voice behaviors, which might be the only wat they have to express their discontent to the organization, given the passive safety attitude displayed by their frontline supervisors. Finally, and in line with

previous research, we found that passive leadership is negatively related to followers'

psychological ownership (Bernhard & O'Driscoll, 2011) and work engagement (Leary et al.,

2013), but both mediation mechanisms were not statistically significant.

Theoretical Value

Findings from this study provide useful theoretical implications. We contributed to the

literature by testing a model of proactive motivation in the safety realm. Although researchers

have long recognized that proactive motivation is an antecedent of proactive behavior (Parker et

al., 2010), it has been quite uncommon for researchers to incorporate such motivational

constructs in their models (Ng et al., 2019) and even less common in safety research (Curcuruto

et al., 2019). We contribute to safety voice research by measuring and testing the three main

types of proactive motivations, namely "can do" (captured by role-breadth self-efficacy), "reason

to" (captured by psychological ownership), and "energized to" motivations (captured by work

engagement). The finding that different leadership styles affect these three motivations

differently is noteworthy for scholars and practitioners alike. By including three safety-specific

leadership styles as predictors, we were able to show that transformational leadership seems to

enhance all three mediators, while transactional leaders seem to only affect psychological

ownership and work engagement, and passive leaders only enhance followers' role-breadth self-

efficacy. These findings shed some light on the effects of leadership on proximal psychological

mechanisms that precede safety voices.

Furthermore, we advanced a more nuanced conceptualization of safety voice,

distinguishing between four types of behaviors and adequately taking into account the

differences between communicative acts that in the extant literature are often grouped together

under the umbrella term of safety voice. Our findings support such multidimensional

conceptualization on two different grounds. First, the correlations between safety voices are well below the multicollinearity threshold, suggesting that these may indeed be different constructs; and second, we uncovered differential motivational mechanisms behind such safety voices, as suggested by the results of our mediational analyses. By offering such conceptualization, we hope that scholars may be able to investigate in a more nuanced fashion the differential impact of diverse communicative acts on safety management and further investigate the motivational states that underlie differential communicative acts (e.g., promotive vs. preventive communications).

Additionally, we found that safety voices are affected differently by each type of proactive motivation. Building on empirical findings and a theoretical rationale that justifies why affiliative and change-oriented actions have differential predictors (Curcuruto et al., 2015, 2019; Curcuruto & Griffin, 2018), our results provide an additional contribution pointing out the fact that different change-oriented behaviors are predicted by differential motivations as well, further refining the nomological network of proactive safety behaviors. Overall, our findings speak to the robustness of the idea of measuring multiple motivational drivers when addressing research questions on proactive behavior in the field of occupational safety.

Practical Implications

Our findings also have important, useful practical implications. First, our findings lend empirical support to the relationship between different safety leadership styles and different safety voices. Our results may be leveraged to improve practitioners' ability to motivate employees to speak up, a notoriously difficult task (Matsunaga, 2015), by considering the employees' motivational drivers. we found that, in the safety realm, the relationship between a leader's behavior and their followers' safety behavior is partially mediated by employees' belief that they are able to broaden their workplace role, their feeling of ownership, and their

engagement. All of these motivational processes are relevant for organizations that aim to foster

a <mark>proactive approach to safety management</mark>: it has been suggested elsewhere (Bazzoli et al.,

2020; Clarke, 2013; Griffin & Hu, 2013) that organizations should focus on a broader set of

leadership styles and implement safety-specific leadership training. Here, we add that

organizations should also implement specific initiatives aimed to foster followers' own

professional development, as this is shown to lead to higher rates of change-oriented proactive

safety behavior (i.e., safety voices), from which organizations may greatly benefit. As an

example, a constructive suggestion (promotive safety voice) to improve safety procedures may

enable a company to significatively improve its productivity rates, thanks to the consequent

innovation of the work procedures, and the enhanced reliability of work processes, whereas

expressing or reporting a potential hazard (preventive safety voice) might be crucial to prevent

the negative consequences of a potential workplace accident, that otherwise would remain

unnoticed until its actual occurrence has produced damages to people, work-teams, and the

company itself.

Limitations and Future Research

Although this contribution makes a number of significant contributions to leadership and

safety voice literatures, some limitations should be acknowledged. First, we used a cross-

sectional design, which does not allow us to make any claim about causality in the mediation

paths we investigated. It should be noted, however, that we hypothesized the direction of the

relationship based on experimental data that have been presented elsewhere (Bazzoli et al.,

2020). Second, the use of self-report measures may lead to a number of biases, such as inflated

covariance among the study variables. To partially control for common method bias, we

estimated our measurement model by means of CFA and compared it against two alternative

measurement models, which fitted the data worse than our original measurement model. Last, our sample was rather small and heterogeneous, representing several industrial sectors in which safety is a relevant concern. Given that different industrial sectors may be relying on different regulatory systems, and be characterized by different managerial and safety cultures (Reason, 1991), future research should take an industry-specific focus and investigate whether a differential prevalence of safety voices may be a function of the industrial sector one's organization belongs to. Likewise, motivational paths may be affected by other macro-level variables, such as one's industry sector.

There are several ways in which future research could build on our findings. First, although we tested several possible mediation paths, we did not include any individual-level variables such as proactive personality disposition, which may arguably play a role in the leadership-safety voice relationship. Second, due to our sampling strategy and the independent nature of our data, we were not able to include any group-level variable. Scholars should investigate whether variables such as trust in work unit colleagues have a multilevel effect on the relationships we investigated only at one level. This strategy will lead to nested data, allowing researchers to avoid relying completely on self-report data, as they will be able to obtain followers' evaluations of the leader's style, as well as the leader's evaluation of followers' safety voices. Last, longitudinal designs will allow researchers to further investigate the causal link between safety leadership and safety voices and empirically test reverse causality hypotheses: although experimental data seems to indicate that safety leadership affects safety voice, there are theoretical reasons to believe that a certain group climate (e.g., climate for innovation) may force leaders to modify their behavior and become more transformational. Conversely, in a work unit in which followers consistently show proactive behaviors, such as broadening their role beyond

their job description, the leader may be driven towards a more passive leadership style as a

response to the work unit climate. Undoubtedly, occupational safety scholars and practitioners

will benefit from addressing the issues we just raised.

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Table 1

Zero-Order Correlations

	1	2	3	4	5	6	7	8	9
1. Transformational safety leadership	---								
2. Transactional safety leadership	.08	---							
3. Passive safety leadership	-.11	-.14*	---						
4. Promotive safety voice	.30***	.12	-.02	---					
5. Preventive safety voice	.19**	.19**	-.05	.25***	---				
6. Prohibitive safety voice	.18**	.17*	-.09	.26***	.26***	---			
7. Hostile safety voice	-.17**	-.03	.15*	-.19**	-.03	.10	---		
8. Psychological ownership	.20**	.21**	-.12	.24***	.22***	.21***	.07	---	
9. Role-breadth self-efficacy	.12*	.07	.16*	.22***	-.10	-.03	.19**	-.07	---
10. Work engagement	.21**	.15*	-.10	.25***	.20**	.24***	.01	.14*	.05

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2

Parameter Estimates

Variables	Parameter	SE	95% CI	
			LL	UL
Outcome: Role-Breadth Self-Efficacy				
Transformational Leadership	0.11*	0.06	0.01	0.20
Passive Leadership	0.14*	0.06	0.05	0.23
R^2	.04			
Outcome: Psychological Ownership				
Transformational Leadership	0.20**	0.07	0.09	0.32
Transactional Leadership	0.25**	0.08	0.12	0.38
R^2	.08			
Outcome: Work Engagement				
Transformational Leadership	0.20**	0.06	0.10	0.30
Transactional Leadership	0.15*	0.07	0.04	0.27
R^2	.06			
Outcome: Promotive Safety Voice				
Transformational Leadership	0.10*	0.06	0.01	0.20
Role-Breadth Self-Efficacy	0.27***	0.07	0.17	0.39
Psychological Ownership	0.21***	0.05	0.13	0.30
Work Engagement	0.19**	0.06	0.09	0.29
Indirect Effect (Transformational Leadership – RBSE)	0.03*	0.02	0.002	0.06
Indirect Effect (Transformational Leadership - PO)	0.04*	0.02	0.01	0.07
Indirect Effect (Transformational Leadership - WE)	0.03*	0.02	0.01	0.07
R^2	.19			
Outcome: Preventive Safety Voice				
Transactional Leadership	0.17*	0.08	0.03	0.30
Psychological Ownership	0.18**	0.06	0.07	0.29
Work Engagement	0.18*	0.07	0.06	0.30
Indirect Effect (Transactional Leadership - PO)	0.05*	0.02	0.01	0.08
Indirect Effect (Transactional Leadership - WE)	0.03*	0.02	0.001	0.06
R^2	.09			

Outcome: Prohibitive Safety Voice

Transactional Leadership	0.13*	0.07	0.01	0.26
Psychological Ownership	0.15*	0.06	0.05	0.25
Work Engagement	0.22**	0.07	0.11	0.33
Indirect Effect (Transactional Leadership - PO)	0.04*	0.02	0.01	0.07
Indirect Effect (Transactional Leadership - WE)	0.03*	0.02	0.003	0.06
R^2	.09			
Outcome: Hostile Safety Voice				
Passive Leadership	0.16*	0.08	0.03	0.29
Role-Breadth Self-Efficacy	0.25*	0.09	0.10	0.40
Indirect Effect (Passive Leadership - RBSE)	0.04*	0.02	0.001	0.07
R^2	.05			

Note. Parameter estimates are unstandardized. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

Summary of the Significant Mediation Analyses

Model	"Can do"	"Reason to"	"Energized to"
	Role-Breadth Self-Efficacy	Psychological Ownership	Work Engagement
Transformational leadership to promotive safety voice	X	X	X
Transactional leadership to preventive safety voice		X	X
Transactional leadership to prohibitive safety voice		X	X
Passive leadership to hostile safety voice	X		

Figure 1
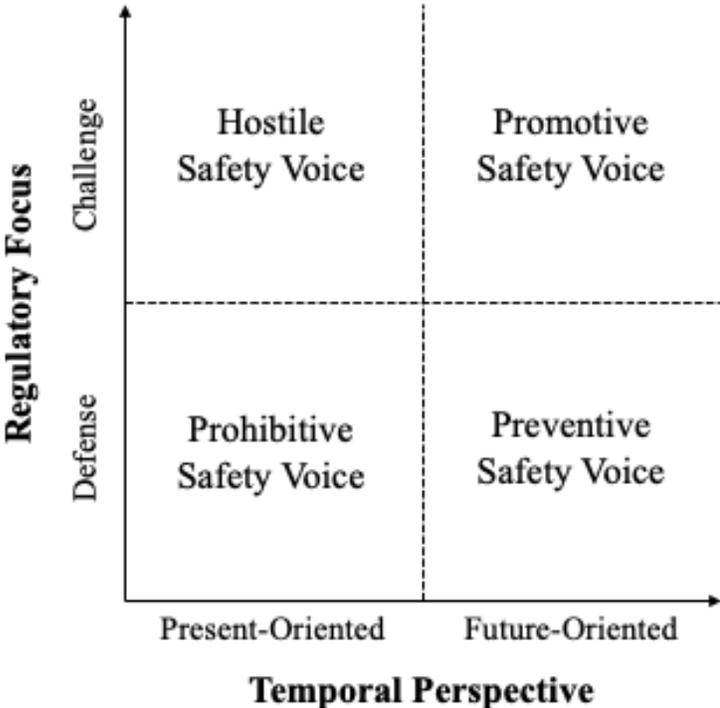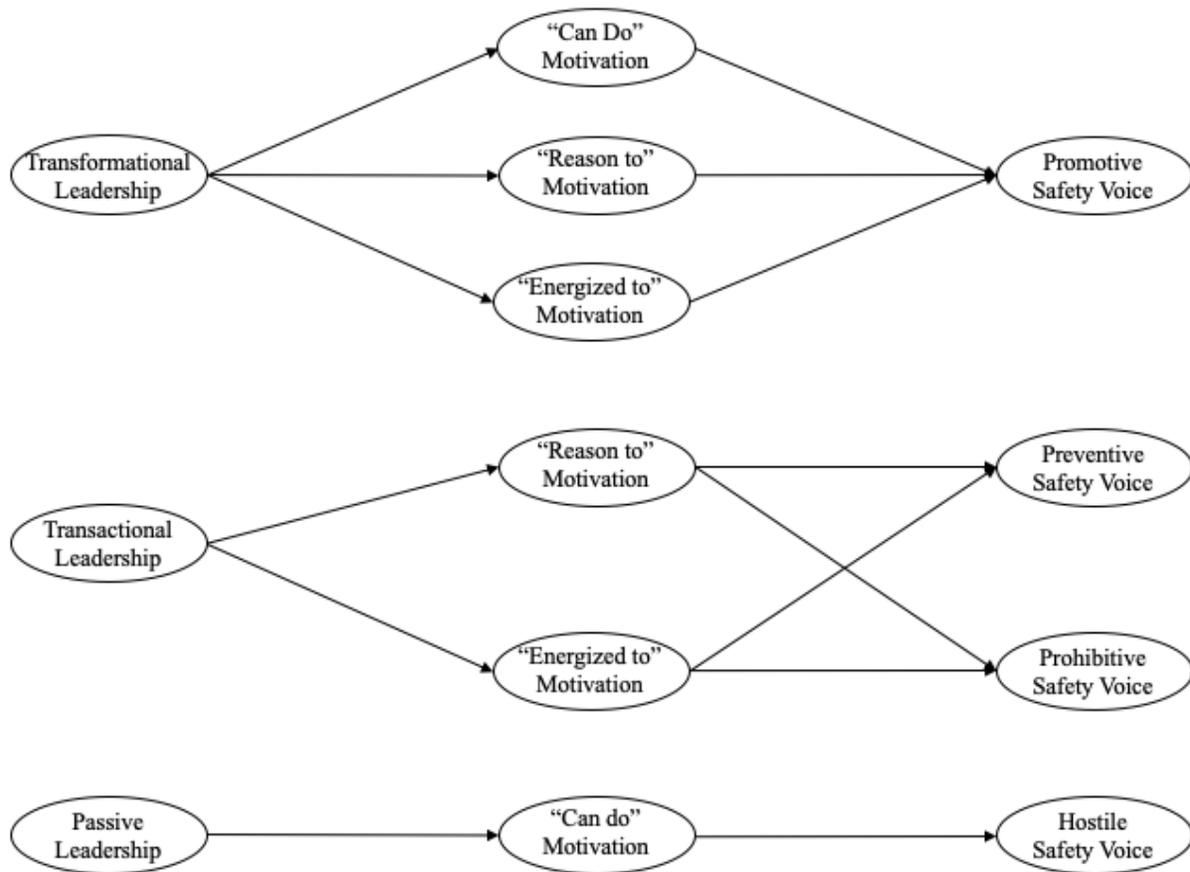
Expanded Conceptualization of Safety Voice

Figure 2

Conceptual Model

Note. Consistently with the extant literature on work proactivity, we operationalized can do motivation as role-breadth self-efficacy, reason to motivation as psychological ownership, and energized to as work engagement.