A multi-level approach to direct and indirect relationships between organizational voice climate, team manager openness, implicit voice theories, and silence

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Abstract

Employee silence impedes sustainable organizational development, and it can conceal harm for internal and external stakeholders. Established approaches to overcoming silence in organizations draw on the assumption that employees withhold their views based on deliberate elaborations on the effectiveness and risks they associate with voice. Our research aims at complementing these approaches. Applying an information processing approach to culture and using implicit voice theories (IVTs; i.e., taken-for-granted beliefs about when and why speaking up at work is risky or inappropriate) as an example, we introduce a model proposing ways through which shared implicit knowledge structures emerge in teams and organizations, and how they affect motives to remain silent. We examine parts of the model with a sample of 696 employees nested in 129 teams and 67 organizations. Our findings show that IVTs can be shared at the team- and organizational level, that shared IVTs explain variance in silence motives above and beyond perceptions of organizational climate and manager openness at the team- and organization level, and that IVTs functioned as a mediator between team manager openness and silence motives. In sum, our findings point at shared IVTs as a way to conceptualize underlying basic assumptions of cultures of silence.

Dual-process models of human judgment and behavior (Baumeister & Bargh, 2014; Deutsch & Strack, 2006; Smith & DeCoster, 2000) suggest that behavior is determined by deliberate/conscious and associative/automatic information processing. Deliberate information processing is based on the intentional application of knowledge structures (i.e., distributed mental representations of information and their connecting arcs; Hayes-Roth, 1977). Similar to research on organizational behavior in general (see Pratt & Crosina, 2016), research on voice and silence in organizations - that is whether employees express or withhold their views, ideas, questions, and concerns from others who are capable of affecting change or redress (Pinder & Harlos, 2001; van Dyne, Cummings, & McLean Parks, 1995) - focused almost exclusively on employees' processing of explicit knowledge structures (Morrison, 2014). This focus on deliberate elaborations of the costs and benefits of voice and elaborated assumptions about the potential risks of speaking up neglects that human behavior often draws upon automatic information processing. Automatic processing is based on well-learned associations of external stimuli with knowledge structures. In this mode, knowledge structures such as schemas, scripts, and implicit theories replace or bypass deliberate decision-making and guide employees' behavioral responses to situational cues while employees lack awareness of their impact (Bargh & Ferguson, 2000; Epitropaki, Sy, Martin, Tram-Quon & Topakas, 2013). Moreover, as the majority of attempts to overcome silence focuses on employees' explicit knowledge, they may not reach more "subtle and insidious causes of employee silence" (Detert & Edmondson, 2011, p.462; Kish-Gephart, Detert, Trevino, & Edmondson, 2009). We aim at complementing established approaches by developing a framework and providing preliminary evidence for a model that considers the influence of both implicit and explicit knowledge structures on individual and collective employee silence in organizations.

So far, the potential role of implicit knowledge structures for the occurrence of

employee silence has been examined at the individual level, and it has been proposed that these implicit knowledge structures have their roots in early socialization. In the only study on the subject, Detert and Edmondson (2011) showed that individual employees' implicit voice theories (IVTs; i.e., taken-for-granted beliefs about when and why speaking up at work is risky or inappropriate) explain unique variance in silence above and beyond established predictors (i.e., traits, attitudes, and context factors). We propose that treating IVTs as fixed and formed outside of an individual's current organization unnecessarily neglects - at least - two opportunities IVTs offer for understanding the potential role of implicit cognitive structures as antecedents of silence at work. Given that socialization does not stop when individuals enter adulthood (Chao, 2012) and implicit cognitive structures are malleable to some extent (Lord, Epitropaki, Foti, & Hansbrough, 2020; Rousseau, 2001), one such opportunity is that employees' IVTs can be influenced by current workplace experiences. A second opportunity can be derived from descriptions of so-called cultures of silence (e.g., Sheriff, 2000) which suggest the existence of collectives in which it is taken for granted that members should withhold rather than express their views. Given that shared implicit beliefs and taken-for-granted assumptions constitute the basic layer of cultures (Hanges, Lord, & Dickson, 2000; Schein, 1990), shared IVTs might be an example for the shared implicit structures that constitute the basic layer of cultures of silence eventually determining groups' perceptions, thought processes, feelings, and behavior.

In the current article, we develop a model that allows for considering these two opportunities (i.e., that employees adjust their IVTs to their current context and that IVTs can be shared among group members) and thus contributes to a more comprehensive approach to antecedents of silence in organizations. We start out by explaining how IVTs (Detert & Edmondson, 2011) complement traditional antecedents of voice and silence in organizations as they are presented in recent meta-analyses and review articles (Chamberlin, Newton, &

LePine, 2017; Morrison, 2014). Drawing upon research on implicit theories in other domains (e.g., intelligence, relationships, leadership; Beckmann, Wood, Minbashian, & Tabernero, 2012; Blackwell, Trzesniewski, & Dweck, 2007; Knee, 1998; Lord et al., 2020) and organizational culture (Hanges et al., 2000; Schein, 1990), we then argue in favour of a revision of current conceptualizations of IVTs. As summarized in Figure 1, we suggest that IVTs affect motives to remain silent not only at the individual, but *also* at the collective level, and that employees' IVTs are not only influenced by early socialization, but *also* by experiences within their current work context.

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In the second part of the article, we report results from a multi-level study that provides first evidence for selected propositions of the model. Our data from 696 employees nested in 129 teams[1] and 67 organizations did not allow testing the whole model, particularly its development over time. That is why we focused on providing first evidence for the possibility of collectively-held IVTs and enrich silence research by examining whether IVTs are shared within groups (i.e., teams, organizations) and whether shared IVTs explain unique variance in motives for remaining silent above and beyond established predictors at the team- and organizational level. We furthermore examine the possibility that IVTs are a hitherto neglected mediator between perceptions of context conditions and silence at collective levels. We close by discussing the implications of our model and study findings for theories and research on silence in organizations, the IVT concept and its measurement, and their practical application.

Theoretical Background

Over the span of a month, a week, or even a day, many employees withhold work-

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[1]Some authors distinguish between teams and work groups. While this distinction can be valuable (Kozlowski & Ilgen, 2006), for purposes of this article, we will use the two terms interchangeably. We use the term groups in a general way to refer to definable collectives with a learning history (including organizations and teams).

related ideas, questions, and concerns (Barry, 2007; Maxfield, 2016). Due to its detrimental effects on individual and collective learning and decision making, and the early detection of errors, inefficacies, and unethical behaviours in organizations, silence has been introduced as a discrete concept in organization research (Morrison & Milliken, 2000; Morrison, 2014; Pinder & Harlos, 2001). Attempts to understand silence in organizations draw upon communication research (Kurzon, 2007), social and clinical psychology (Larson & Chastain, 1990; Rosen & Tesser, 1970), and research on factors that inhibit employee voice (i.e., the expression of work-related ideas and concerns with the attempt to challenge the status quo; van Dyne et al., 1995). While voice and silence appear as opposing poles of a continuum, silence is more than the absence of voice (for detailed elaborations on the conceptual relationship between silence and voice, see Knoll, Wegge, Unterrainer, Silva, & Jønsson, 2016; Nechanska, Hughes, & Dundon, 2018). For instance, the absence of voice can have manifold meanings including that someone has nothing to say or that someone is actively withholding her or his views (Tannen, 1985; van Dyne et al., 2003). Silence research focuses on the latter case and explores the reasons employees have for withholding their views – information which would not be available if silence is treated as the mere absence of voice.

Another distinguishing feature of silence research is that while "research on employee voice, issue selling, and whistle-blowing has been focused on an individual employee's decision on whether or not to speak up" (Morrison & Milliken, 2000, p.707), early silence researchers emphasized looking at "collective-level dynamics" (p.707) of silence. This focus seems plausible as it takes one person to break the silence (by speaking up) in a group or organization, but when a group or organization is characterized by silence, this is a collective phenomenon which is more likely to be driven by "forces within the organization - and forces stemming from management - that systematically reinforce silence" (p.708). Indeed, a range of studies and recent reviews suggest that the most important reasons for employees to

withhold their views are the experience of vulnerability (e.g., caused by prior experiences of their manager's negative responses to voice-related situations) and the perceived futility of voice (e.g., a lack of managerial openness and organizational voice opportunities; Carnevale Huang, Crede, Harms, & Uhl-Bien, 2017; Detert & Burris, 2007; Morrison, 2014; Peirce, Smolinski, & Rosen, 1998; Pinder & Harlos, 2001).

Due to the proposed relevance of collective dynamics for the occurrence of silence, and the prominent role of team managers and organizational context as antecedents of silence (e.g., Avery & Quiñones, 2002; Chamberlin et al., 2017; Morrison & Milliken, 2000), we focus here on the team- and organizational level and on team manager openness for voice and an organizational climate that either facilitates or inhibits speaking up.

Implicit Knowledge Structures as Antecedents of Silence Motives

While managerial openness and a voice-friendly climate have been shown to limit silence, there are cases in which employees reported that voice is futile or that they are too afraid to speak up although they had voice opportunities available to them (e.g., Gollan, Kaufman, Taras, & Wilkinson, 2014; Harlos, 2016). When trying to explain such seemingly irrational cases in a company they were working with, Detert and Edmondson (2011) used qualitative data to develop the idea that employees have implicit theories about the appropriateness and adequacy of speaking up to authority, and that these implicit theories subtly guide employees towards silence.

Implicit theories are knowledge structures that help people to orient themselves within their physical and social environment, to explain and predict their own behaviour and that of others, and that influence people's actions (Dweck, Chiu, & Hong, 1995; Ross, 1989). Specifically, implicit theories combine (in an 'if-then' fashion) perceptual schemas of a person or role (e.g., what constitutes a person in authority) with behavioral scripts (i.e., schemas that describe events or behaviors or sequences of events or behaviors) appropriate for a particular

context (Anderson & Lindsey, 1998; Gioia & Poole, 1984). The term implicit denotes that,

once individuals acquired them, they are not deliberately tested anymore (like formal theories

are; Levy, Stroesser, & Dweck, 1998). While implicit theories allow quick and relatively

effortless responses in social situations, these benefits come with a price: At times,

individuals tend to rely on implicit theories and show the reaction their implicit theories

"suggest" even when a new evaluation of the situation or situational cues would be more

appropriate (Dweck et al., 1995; Gioia, 1992).

Applying knowledge on implicit theories to employees' decisions to withhold their

views, Detert and Edmondson (2011) showed for the first time that so-called implicit voice

theories (IVTs; i.e., automatically evoked beliefs regarding the appropriateness of voice)

explain variance in employee silence above and beyond traditional antecedents. In exploratory

interview studies, the authors identified five IVTs including the belief that one should not

raise an issue without proof or having clear solutions, and the belief that managers feel

ownership of current practices and thus see challenging comments about products, processes,

or strategy as threatening or offending (see Table 1 for the complete list). Detert and

Edmondson combined the five IVTs into a single higher-order latent construct, because they

share the self-protective core assumption that speaking up to authority figures is risky or will

be perceived as inappropriate.

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Note that implicit theories are not per se 'unconscious'. Employees can elaborate on

their implicit theories and thus become aware that they have implicit theories about a

particular content (e.g., leadership, the appropriateness of challenging authorities). While

employees usually do not elaborate on them, it is not a lack of content awareness that makes

IVTs an insidious cause of employee silence, but a *lack of impact awareness*: Employees are

not aware that the activation of specific knowledge structures affects their action tendencies

(Epitropaki et al., 2013; for a detailed discussion on the distinction between source, content, and impact awareness, see Bargh, 1994; Gawronski, Hofmann, & Wilbur, 2006).

Shared Implicit Voice Theories and their Origins

Implicit theories are malleable

Detert and Edmondson (2011) proposed that IVTs are learned during ordinary life experiences, for example, at home and in hierarchical institutions such as schools and sports teams when responding to authorities such as parents, teachers, and coaches. Early socialization has been proposed to lay the ground for adults' failure to challenge authority before (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Milgram, 1974), and it is considered a major source for other implicit theories - for instance, implicit theories of relationships (i.e., whether individuals believe in romantic destiny or in relationship growth; Knee, Patrick, & Lonsbary, 2003) and intelligence (i.e., whether individuals believe that intelligence is malleable or a fixed trait; Dweck & Leggett, 1988). However, while no longitudinal study on IVTs exists, research on implicit theories of relationships and intelligence showed that implicit theories can change: Knee (1998) found lower test-retest reliability in destiny beliefs for participants who experienced a stressful relationship event within the period he studied, and Blackwell et al. (2007) showed that an intervention (here: workshops about how learning changes the brain) can increase participants' endorsement of incremental theories (i.e., believe that intelligence is malleable).

Evidence for implicit theories' malleability suggests that an incremental view (i.e., employees revise their IVTs under specific conditions) might better represent the nature of IVTs than an entity view (i.e., implicit theories are formed during early socialization, stored in memory, and then merely retrieved when individuals enter relevant situations at work). Recent approaches to processing of implicit knowledge structures (see Lord, 2018) provide an explanation for the incremental view. Specifically, neural network approaches (Hanges et al.,

2000; Strauss & Quinn, 1997) suggest that the human brain stores information not as a fixed pattern but in networks of neurons that pass activation and inhibition among connected nodes. Patterns of activation and inhibition (e.g., links between manager and voice or silence) become more likely as the number of encounters with a particular pattern increases. Over time, these patterns "are so efficient that they are automatically activated (i.e., chronically accessible) even when encountering input stimuli that do not exactly match the input stimuli originally learned" (Hanges et al., 2000, p. 137). Following this logic, knowledge structures that guide perception and behavior such as IVTs should evoke temporally as patterns of neural activation (and inhibition), and that their emergence draws upon individuals' and – as will be described in the following – collectives' learning history.

Acquisition and adjustment of shared implicit voice theories

Change in employees' knowledge structures, be it acquisition of new patterns or adjustment of existing ones, includes intentional and unintentional elements – as research on shared/higher-level constructs and the emergence of organizational culture suggest (Cannon-Bowers & Salas, 2001; Crocker, Fiske, & Taylor, 1984; Kozlowski & Klein, 2000; Schein, 1990). When entering organizations or teams, individuals initially use knowledge structures they established during prior socialization to make sense of situations or events. If, for instance, individuals enter an organization with the IVT that challenging the status quo (e.g., by raising concerns or making suggestions) is followed by negative consequences they are likely to withhold their views when asked for suggestions in a general assembly or team meeting. However, entering a new setting is an ambivalent and potentially threatening situation for newcomers (Chao, 2012). They can reduce tensions associated with unfamiliar situations by learning what is appropriate in this new setting (van Maanen & Schein, 1979). In this highly contingent and contextual adjustment process, newcomers may adopt scripts, values, and beliefs that are very different from those held before entering the setting (for an

example, see Gioia, 1992).

Many experiences relevant for employees' learning on what is appropriate in a specific setting (e.g., the appropriateness and risks of challenging the status quo) are social events or are discussed among team and organization members. Research on shared cognition (Healey, Vuori, & Hodgkinson, 2015) and culture (Hanges et al., 2000; Leung & Morris, 2015) suggests that the knowledge structures of group (e.g., organization or team) members who were present at particular events (e.g., in a general assembly or team meeting) are likely to converge, because they shared the same experience and may talk about it, for example, during lunch breaks. Joined experience with content-relevant people, events, or situations (e.g., observing how a manager responds to a challenging remark in a meeting), vicarious learning (e.g., thinking about how one would act while observing a colleague arguing with her supervisor), and collective elaboration (e.g., during lunch breaks) reduces variability in organization and team members' attitudes and, eventually, their behavior. If an organization or team member came up with a suggestion for improvement at a subsequent opportunity (e.g., another team-meeting or general assembly), and if the response has been adequate (e.g., solved a problem, did not cause tensions), a new knowledge structure will develop among team and organization members, and the same choice will be made more frequently and consistently in similar circumstances.

Drawing on research on shared cognition and information processing approaches to culture, we argue that what once started as explicit knowledge and subject of overt communication becomes implicit: the conscious sensemaking and discussions among team members drop out of team and organization members' mental sequence to the extent they are no longer needed or wanted (Bargh & Chartrand, 1999; Sheriff, 2000). It is this *shift* from explicit to implicit collective knowledge which is at the heart of the basic level of cultures, namely, taken-for-granted basic assumptions (Schein, 1990). If certain beliefs repeatedly

helped the group solve problems of internal regulation (e.g., the theory that withholding their views towards their supervisor preserves a positive climate within their team), this makes them become taken-for-granted and manifested in the group members' shared knowledge structure, subtly but powerfully guiding group members' subsequent thinking and behavior. Using IVTs as an example for shared implicit knowledge structures, we expect:

Hypothesis 1: Implicit voice theories are shared at the team (H1a) and organizational level (H1b).

The role of managerial openness and organizational climate for the emergence of shared implicit voice theories

In organizations, the acquisition and application of behavior-relevant knowledge are social processes that draw upon current situational cues and existing knowledge structures which have been learned by organization and team members (Salancik & Pfeffer, 1978; Weick & Roberts, 1993). Socio-cultural events such as interpersonal behaviors and interactions but also organizational policies and practices activate a particular cultural meaning system within employees' neural network which suggests a specific mental or behavioural response to this event (Hanges et al., 2000; Schneider, 1987). Morrison and Milliken (2000) proposed that the central socio-cultural events relevant for the occurrence of collective silence in organizations are organizational voice opportunities (i.e., policies, procedures, and structures that create an environment in which employees feel comfortable speaking up about certain issues) and managerial behaviour (i.e., managers' openness and responsiveness to employee voice). An environment that encourages voice (i.e., organizational voice climate) signals – just like the feedback in the experiments on implicit theories of learning and relationships by Knee (1998) and Blackwell et al. (2007) – to what extent individually-held implicit theories (here: IVTs) are appropriate or need to change. Moreover, organizational policies and practices provide orientation towards what proper

beliefs, values, and actions look like in this setting and thus influence the establishment of collectively held beliefs regarding to whether voice is appropriate and welcome within the respective organization.

While an organizational voice climate is influential, managers are even more important for shaping collective sensemaking (Edmondson, 1999; Dionne, Sayama, Hao, & Bush, 2010; Kozlowski & Doherty, 1989; Schein, 2017). Managers have their specific ways to interpret and implement organizational policies, and they shape team members' cognitions by encouraging them to show voice (e.g., by verbal persuasion), by functioning as role-models when they speak out themselves, and by providing mastery experience (e.g., by rewarding adequate and sanctioning inadequate behavior. These aspects of social learning (Bandura, 1977) create an interpretive frame within which information is processed by team members (Dragoni, 2005; Johnson, King, Lin, Scott, Jackson Walker, & Wang, 2017). That is, the way managers deal with voice and issues of dissent and learning more generally influences how collectively held IVTs emerge and potentially change over time.

In sum, we propose that team and organization members' joint experience with content-relevant people (i.e., their direct supervisor) and organizational policies, structures, events, or situations make their knowledge structures converge; and that over time, what once started as explicit knowledge of the appropriateness of voice and silence in these teams and organizations develops into shared implicit knowledge structures. Thus, we expect:

> *Hypothesis 2a:* Team manager openness for voice is negatively related to implicit voice theories at the team-level.

> *Hypothesis 2b:* Organizational climate for voice is negatively related to implicit voice theories at the organizational level.

Shared Implicit Voice Theories as a Mediator between Context and Silence Motives

A number of context factors can guide the adjustment of employees' knowledge

structures (Edmondson, 1999; Labianca, Gray, & Brass, 2000; Leith, Ward, Giacomin, Landau, Ehrlinger, & Wilson, 2014). As explained above, shared perceptions of organizational policies and practices related to voice (i.e., organizational voice climate), and experiences of managerial responsiveness to voice deem particularly relevant for the emergence and adjustment of shared IVTs. These perceptions frame how voice and silence behaviors are treated within teams and organizations eventually establishing taken-for-granted beliefs about the appropriateness and risks of speaking up (Morrison & Milliken, 2000; Morrison, 2014). The collective 'shift' (McComb, Kennedy, Perryman, Warner, & Letsky, 2010; Dutton, 1993) from conscious discussions and active iterating on context conditions related to voice and silence to *implicitly applying* converged mental models has specific effects on collective outcomes (here: silence).

If group members share the characteristic of high IVTs, not only do they refrain from elaborating on the appropriateness and risks of speaking up, but they *also* stop explicitly addressing or exchanging issues related to voice and silence in the group (Schein, 2017; Sheriff, 2000). In that, the collective shift explains why shared IVTs affect silence beyond individually-held IVTs. Similar to the individual level, collectively shared taken-for-granted beliefs and theories implicitly define for organizational members or members of groups within an organization what to pay attention to, what things, words, gestures and the like mean, and how to react to certain events. As there is a mutual adjustment in sensemaking processes in groups (Salancik & Pfeffer, 1978 Weick & Roberts, 1993), shared IVTs should have an additional effect above individually-held IVTs. At the collective level, shared implicit beliefs and theories do not only affect individual elaboration, but also inter-individual processes such as communication and interaction (Dragoni, 2005). Research on shared cognitions in teams and organizations (Cannon-Bowers, & Salas, 2001; Healey et al., 2015) showed that these inter-individual processes are responsible for the indirect effect of shared

cognitions on performance. Similarly, we assume that shared IVTs will affect communication and interaction processes (e.g., discussion regarding to whether voice is appropriate or not) eventually leading to more silence in the respective teams and organizations. The following example may illustrate this point.

If taken-for-granted beliefs such as not to embarrass the boss in public are shared among team or organization members, specific options (e.g., preparing for expressing challenging remarks when the CEO visits a team meeting) will not be openly communicated within a team anymore, because that is not the way to think, feel, and do 'things around here'. That is, group members' shared beliefs will decrease a collective discussion around challenges to the status quo that ultimately stifle voice within this group. Like it is the case for individually-held IVTs, group members who have shared IVTs are not aware of the impact IVTs have on their collective withholding of questions, ideas, and concerns (Healey et al., 2015; Schein, 2017). It is likely that group members do not even remember the decision to omit discussing critical issues that laid the foundation for the current implicit theories and the subsequent behaviour (Bargh & Chartrand, 1999).

In sum, we propose that an organizational voice climate and perceptions of manager openness for voice become taken-for-granted within teams and organizations as 'visible' in shared IVTs among team and organization members. These shared IVTs, in turn, prompt (or inhibit) specific behavioral responses in critical situations which functions as role modelling in groups, and they limit interactions that would facilitate responses other than the ones suggested by IVTs. Considering this reasoning, shared IVTs are proposed to be (at least in part) responsible for the link between context and motives to remain silent at the team- and organizational level. As in H2a and 2b, we argue that there are separate processes for team manager openness which affect team level silence motives and organizational climate which more broadly affect silence motives at an organizational level. We expect:

Hypothesis 3a: Implicit voice theories partially mediate the relationship between team-manager openness for voice and employee silence motives at the team-level.

Hypothesis 3b: Implicit voice theories partially mediate the relationship between organizational voice climate and employee silence motives at the organizational level.

In sum, our model (see Figure 1) uses IVTs to show how implicit knowledge structures may complement (but not replace) traditional approaches to understanding the occurrence of silence motives in organizations and teams. We aim to emphasize that IVTs – similar to other employee characteristics – are in part idiosyncratic and thus shaped during early socialization, and in part shaped by the context employees work in. We propose that similarities in IVTs can emerge in teams and organizations in a similar way as teams develop shared mental models but that, like shared basic assumptions in organizational cultures, drop out of deliberate elaboration and communication. Note that our model also acknowledges that convergence is not the only way groups develop similarity in their members' IVTs. Similarity may also result from attraction (i.e., individuals with particular IVT-levels are attracted to the same organization), selection (e.g., a leader selects a certain type of followers), or attrition (i.e., former members with diverging IVTs left the group; Schneider, 1987). Research on shared cognition (e.g., Rentsch & Klimoski, 2001) also suggest group size, composition, and group membership acquisition mode to influence the degree to which IVTs are shared. We consider these possibilities in Figure 1.

Study

We conducted a multi-level study to provide first evidence for selected relationships of our model. To further extend knowledge on IVTs, we examine the possibility that IVTs are shared among group members (Hypothesis 1), whether these shared IVTs are related to context conditions (Hypothesis 2), and whether they explain unique variance in motives to remain silent and thus function as a partial mediator between context and silence motives at

the team and organizational level (Hypothesis 3).

Method

Sample and Sampling Procedure

Our original sample consisted of 770 employees working in 176 teams from 67

organizations from a variety of industries in Portugal, such as hospitality, finance, and health.

Our research assistants first contacted individuals with managerial responsibilities to ask if

their organization would be willing to participate in our study. If they agreed, then the

research assistants would ask how many individuals they could invite and then directly

contact those employees and respective supervisors. If both agreed to participate, research

assistants would then hand out the respective survey and collect it personally (or receive it in

a sealed envelope) once it was completed. We received an average of 11.49 responses per

organization, $SD = 12.47$, min = 3, max = 40, and an average of 4.45 responses per team, SD

$= 2.80$, min = 1, max = 16. To increase measurement accuracy at the team level (Maloney,

Johnson, & Zellmer-Bruhn, 2010; Nezlek, 2011), the final sample only contains teams with at

least three members. Thus, our final sample consisted of 696 employees working in 129 teams

from 67 organizations. Employees were on average 36.27 years old, $SD = 10.22$, and 395

were female. Their average tenure in the organization was 8.59 years, while tenure in the

workgroup was slightly lower, 4.88 years.

Measures

All items were in Portuguese. We used the translation-back-translation procedure

outlined by Brislin (1980) to translate the scales from English to Portuguese. Unless stated

otherwise, item range was from 1 (do not at all agree) to 7 (completely agree). As scientists

are encouraged to use Omega Total instead of Cronbach's alpha for estimating scale

reliabilities (McNeish, 2017; Peters, 2014), we quantified all scale reliabilities with the

Omega coefficient, see Table 2. As members of the examined groups (here: teams and

organizations) rated the same target (i.e., their team manager and organizational climate, respectively), scores of these group's members are aggregated to a group-(i.e., team and organization) level measure (Schneider & Reichers, 1983), if the criteria for aggregation are met (Bliese, 2016). Whenever we did aggregate and thus used measures as higher-level constructs, we quantified respective ICC scores (see Table 2).

Team manager openness for voice was measured with eight items of the management's responsiveness for voice measure by Spencer (1986). We chose this measure because it assesses a broad picture of employees' perceptions regarding voice opportunity, but changed the referent to focus on direct supervisors (Chan, 1998). It includes items assessing whether the supervisor is open to voice related problems (e.g., "My supervisor encourages employees to voice their problems") and items to assess aversion to voice (e.g., "My supervisor views grievances as a challenge to their authority").

Organizational voice climate was measured with a three-item measure that builds on Morrison et al.'s (2011) conceptualization of group voice climate. As our reference was the organization, the wording of the items was adapted (Chan, 1998). The items were: "In this organization people feel free to express their views.", "In this organization people are open to new ideas and suggestions.", and "In this organization employees' opinions seem to count."

Implicit voice theories (IVTs) were measured with a shortened 10-item version of Detert and Edmondson's (2011) 20-item scale. Similar to Detert and Edmondson's goal "to examine the predictive utility of implicit voice theories as an explanatory category" (p. 476) and not to focus on singular IVTs, we used the latent construct instead of the single IVTs. Due to space restrictions in the survey, we selected two (out of four) items to represent each of the five IVTs in the comprehensive measure (see Table 1). As Detert and Edmondson did not report factor loadings and item-scale correlations, our selection was based on the results of a pilot study. Using a sample of 2518 employees of organizations operating in Germany,

we conducted an exploratory factor analyses with a forced five-factor solution and selected the two items with the highest loadings on their respective factors. The reliability for this measure in our sample was .76. We re-visit the internal consistency in the section on the confirmatory factor analysis below. Detailed results of the pilot study, which is part of a separate project on IVT measurement, are available from the first author upon request.

Note that while Detert and Edmondson's (2011) scale is the only available IVT measure yet, and implicit theories are typically assessed with similar direct measures (e.g., Kelly, 1955; Knee, 1998; Levy et al., 1998; Offermann, Kennedy, & Wirtz, 1994), there is some argument regarding to measuring implicit theories with self-report scales (e.g., Epitropaki et al., 2013; Gawronski et al., 2006). We discuss these concerns and potential alternatives for measuring IVTs in the limitations and directions for future research section.

Employee silence motives. Employees first received instructions explaining what was meant by problematic situations at work and questions were asked to gauge whether they remained silent in such situations during the past six weeks, and why they withheld their views. Specifically, respondents first read the following short paragraph:

> From time to time, employees face problematic situations at work. For example, they think that colleagues or supervisors act in a wrong, inefficient, immoral or otherwise problematic way. People deal differently with such situations, that is, some voice their concerns and try to change the situation, whereas others remain silent.

Because fear and resignation are supposed to be the two most important motives for employee silence (e.g., Morrison, 2014), we used the quiescent silence (i.e., silence that is based on fear) and acquiescent silence (i.e., silence that is based on resignation) subscales of Knoll and van Dick's (2013) employee silence scale to assess motives for remaining silent. Each motive was represented by three statements to complete the following item root: "I remained silent at work…". Sample items were "…because of a fear of negative consequences" (quiescent silence) and "…because nothing will change, anyway."

(acquiescent silence). Participants responded to all items using a 7-point Likert scale from 1 (does apply to me not at all) to 7 (does apply to me entirely). We report results for both motives, however, we have no specific hypotheses regarding to whether effects differ corresponding to the underlying motive for silence.

Analytic Procedure

Multilevel confirmatory factor analysis. To corroborate our measurement approach, we conducted a multilevel confirmatory factor analysis (ML-CFA, e.g., Skrondal & Rabe-Hesketh, 2004) for the above-mentioned scales[2]. For a parsimonious model, we parcelled the eight items for team manager openness for voice into four item parcels (e.g., Bandalos, 2002) that comprised the latent factor. The latent variable representing IVTs loaded on its five subscales, which we obtained by averaging the respective two items (see Table 1).

We specified all factors as shared and configural constructs (Hox, Moerbeek, & van de Schoot, 2010) such that factors are meaningful both within and between levels. We fitted the model with Version 0.6-2 of the lavaan package (e.g., Rosseel, 2012) using Maximum Likelihood estimation. Against the backdrop of the difficulties associated with fitting shared-and-configural ML-SEMs (Hox et al., 2010), we interpret the resulting fit indices, $\chi^2_{(270)} =$ 1133.17, RMSEA = 0.068, 95% CI = [0.064; 0.073], $SRMR_w$ = 0.083, $SRMR_b$ = 0.328, as acceptable (see also Hsu, Kwok, Lin, & Acosta, 2015, on the issues surrounding ML-CFAs with shared and configural constructs). On the within-team level, the model revealed substantial loadings of the measurement variables on their corresponding construct, except for the IVT factor: Here, only three of its proposed five sub-facets exhibited substantial standardized loadings on the within-level (NCC: γ = 0.610, PTI: γ = 0.456, and DBB, γ =

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[2] Because our sample contained only 67 organizations, sample size on level 3 was below the thresholds that are typically recommended for confirmatory factor analyses (e.g., Schreiber et al., 2006). For this reason, we fitted the ML-SEM as a two-level model with individuals nested in teams, which still takes participants' immediate social context – their team – into account.

0.439). On the between-level all sub-facets loading above gamma = 0.505. We re-visit this issue in the discussion.

Aggregation to higher-level scores and individual-level deviation scores. As our hypotheses pertain to three levels – the individual or within-team level, the (between-) team-level, and the (between-) organization level – we employed mixed models (i.e., random-coefficient or multilevel models) for testing the hypotheses. This was also warranted by significant levels of non-independence of organizational voice climate, team manager openness for voice, acquiescent silence, quiescent silence, and IVTs at the team level and at the organizational level (see Table 2 for ICC1 and ICC2 values). To distinguish between effects at different levels, we aggregated individual ratings of team manager openness for voice to the team level and aggregated organizational voice climate to the organizational level. For team-level team manager openness for voice, this aggregation was justified by an average r_{wg} of 0.85, $SD = 0.21$, min = 0, max = 0.99, with 86% of teams reaching an r_{wg} value of .80 or above. We also investigated each team's average deviation around its mean with the ADM measure of interrater agreement (Burke et al., 1999; Dunlap et al., 2003). Average ADM of team-level team manager openness for voice was 0.90, $SD = 0.31$, with 85% of the teams below the maximum threshold of 1.667 that applies to scales with seven response options (Bliese, 2016). For organizational voice climate, average r_{wg} on the organization level was 0.78, $SD = 0.19$, *min* = 0, *max* = 0.99, with 55% of organizations exhibiting an r_{wg} of .80 or above. Average ADM of organization-level voice climate was 0.86, $SD = 0.34$ with 81% of the organizations below the threshold of 1.667, indicating sufficient levels of agreement.

Model adequacy. We determined the structure of the random effects of the models empirically (Bliese, 2016), using acquiescent and quiescent silence as dependent variables and the focal predictor IVTs as independent variable. For both dependent variables, a model with three levels and correlated random intercepts and slopes for IVTs on levels two and three

fitted the data best; the detailed results of this analysis are available from the first author on request.

Results

Means, standard deviations, estimates of internal consistency, intra-class correlations (ICC), and bivariate correlations for all study variables are shown in Table 2. To replicate prior findings on the relationship between context and silence within a joint multi-level design, and to stepwise build our model from existing knowledge, we first regressed both acquiescent and quiescent silence on organizational-level organizational voice climate and team-level team manager openness for voice while controlling for sex, team- and organizational tenure, and for team and organization size. Indeed, team-level team manager openness for voice was negatively related to acquiescent silence, γ = -0.75, SE = 0.07, p < .001, and to quiescent silence, γ = -0.49, SE = 0.08, p < .001. Organizational-level organizational voice climate was negatively related to acquiescent silence, γ = -0.19, SE = 0.08, p = .04, but not to quiescent silence, γ = -0.12, SE = 0.11, p = .25, see Table 3. In line with our theoretical model (see Figure 1), these models revealed that higher-level aggregates affect silence motives as visible in the amount of additionally explained variance of acquiescent and quiescent silence of the null model (pseudo-ΔR^2).

------------ Please insert Tables 2 and 3 about here ------------

Our research draws upon the proposition that implicit voice theories (IVTs) may also form a higher-level construct. Specifically, Hypothesis 1 stated that IVTs are shared at the team and organizational level. As visible in Table 2, IVTs were significantly dependent on team membership, ICC(1) = 0.23, p < .001, and within-team perceptions of IVTs were also relatively homogeneous, ICC(2) = 0.61. The same was true on the organizational level, ICC(1) = 0.20, p < .001, ICC(2) = 0.72. Therefore, the data supported Hypothesis 1.

To enrich understanding of the circumstances that facilitate shared IVTs, Hypothesis 2

postulated that (a) team manager openness for voice and (b) organizational voice climate affect employees' IVTs. To test H2, we regressed IVTs on team level manager openness for voice and organization-level organizational voice climate while controlling for the same variables as in the previous models. As can be seen in Model 3 in Table 3, team manager openness for voice was significantly related to IVTs, γ = -0.21, SE = 0.06, p < .001, but organizational voice climate was not, γ = -0.03, SE = 0.09, p = .69. The data thus supported Hypothesis 2a, but not Hypothesis 2b. In comparison to a null model that only regressed IVTs on control variables, the model that included team manager openness for voice explained 30.2% of the remaining between-organization variance of the null model (pseudo-ΔR^2), amounting to a total variance explanation of 4.1%.

Hypothesis 3 positioned IVTs as a mediator for the effects of (a) team manager openness for voice and (b) organizational voice climate on differentially-motivated silence. We tested H3 with multilevel mediation (Imai, Keele, & Tingley, 2010) with the mediation package in R (Tingley, Yamamoto, Hirose, Imai, & Keele, 2014). We tested the mediation twice, once for acquiescent silence and once for quiescent silence as DV.

Before extracting the indirect effects from the analysis, we investigated the models regressing silence motives on IVT for team-level and organization-level effects of IVTs on silence motives. A random slope model regressing acquiescent silence on team-mean centered IVTs, team-mean IVTs, and organization-mean IVTs while controlling for all other variables revealed a significant effect of team-level IVTs, γ = 0.35, SE = 0.16, p < .05, but not of organization-mean IVTs, γ = -0.02, SE = 0.19, p > .90. The effect of team-level IVTs on acquiescent silence was found on top of an effect of individual-level effect of team-mean-centred IVTs, γ = 0.43, SE = 0.06, p < .001. For quiescent silence, the corresponding model revealed a significant effect of organization-mean IVTs on quiescent silence, γ = 0.63, SE = 0.20, p < .01, but not of team-mean IVTs, γ = 0.11, SE = 0.16, p > .10. Again, team-mean

centered individual IVTs also affected quiescent silence, $\gamma = 0.55$, $SE = 0.06$, $p < .001$. These results show that unit-level IVTs can affect silence motives in teams and organizations.

When testing the mediation effects, bootstrapping of the indirect effect of team-level manager openness for voice on acquiescent silence via IVTs with 10000 draws revealed an indirect effect $ab = -0.112$, 95% CI = [-0.175; -0.060]. For quiescent silence, the indirect effect also turned out to be significant, $ab = -0.153$, 95% CI = [-0.233; -0.080]. The data therefore supported Hypothesis 3a. Hypothesis 3b proposed that IVTs mediate the relationship between organizational voice climate and motives for remaining silent. This mediation analysis tested whether organization-level organizational voice climate covaries with IVTs and silence motives. For both dependent variables, the confidence interval included 0: Indirect effects for acquiescent silence were $ab = -0.016$, 95% CI = [-0.086; 0.050], and for quiescent silence $ab = -0.022$, 95% CI = [-0.115; 0.070]). Thus, we rejected Hypothesis 3b.

Discussion

Given that implicit information processing influences human behavior to a large extent (Bargh & Ferguson, 2000), it needs to be considered in models explaining employees' decisions regarding to whether to express or withhold their views. Our research further establishes implicit voice theories (IVTs; Detert & Edmondson, 2011) – a specific form of implicit knowledge structures that are proposed to subtly guide employee behaviour while employees are not aware of their impact - as a hitherto neglected antecedent of employee silence. Drawing on an information processing approach to culture (Hanges et al., 2000), we showed that IVTs can be shared at the team and organizational level, explain variance in employees' motives to remain silent above and beyond established predictors at the team and organizational level, and function as a mediator between employees' perceptions of context (i.e., team manager openness for voice) and their tendencies to withhold their views. Aiming at opening rather than closing a discussion on the role of IVTs as antecedents of silence, our

model and study address questions regarding the nature of IVTs and their development. In the remainder of the article, we discuss implications of our theorizing and findings and discuss limitations as well as directions for future research - with a particular focus on IVT change and measurement issues.

Theoretical and Research Implications

Showing that IVTs are shared at the team- and organizational level and that shared IVTs affect silence motives at the team- and organization level are probably the most important implications of our research. One of the central reasons for introducing silence as a discrete construct was that "the dominant choice within many organizations is for employees to withhold their opinions and concerns about organizational problems" (Morrison & Milliken, 2000, p.707). Our study suggests that besides shared perceptions of manager openness and organizational context factors (e.g., Morrison et al., 2011; Wang & Hsieh, 2013), team and organization members also share taken-for-granted beliefs (about the appropriateness of speaking up in their specific context). Providing evidence for the possibility of shared IVTs is an important step to understand the basic layer (i.e., its underlying taken-for-granted assumptions; Schein, 1990) of cultures of silence that are proposed to immunize communities and groups against rational arguments, and that cause their members to withhold information and views even in the absence of coercion (Sheriff, 2000). While at the individual level, IVTs bypass deliberate decision making by 'suggesting' employees the proper way to respond to external stimuli, at the collective level, IVTs' are proposed to limit exchange about voice opportunities or constraints within groups which, in turn, influences group decisions and collectively withholding actions that may overcome silence.

The existence of shared IVTs provokes questions regarding their origin and opportunities for change. Our model intends to promote additional theory development on

these points by proposing that employees' IVTs are in part the result of an individual's idiosyncratic socialization (as previous research proposed) but also influenced by workplace factors. We applied recent developments in models of information processing, more specifically, the neural network approach (Hanges et al., 2000; Lord, 2018), to explain why our assumptions (and findings) do not contradict (but extend) prior findings. Instead of treating them as fixed entities, we conceptualize IVTs as malleable knowledge structures that have been imprinted in employees' cognitive processing through learning. These structures are likely to be evoked later on – a reason why employees are likely to cling to the IVTs they learned before entering their current organization or team. In contrast to prior conceptualizations, our approach suggests that these patterns can change or new patterns can emerge. Thus, understanding the origins of IVTs needs considering both IVTs that employees developed in early socialization (which could include idiosyncratic but also cultural influences; Ayman-Nolley & Ayman, 2005; Rousseau, 2001) and IVT-shaping experiences that individuals and groups made within their current work context (Gioia, 1992).

Our differentiated findings regarding IVTs' antecedents and mediation effects at team and organization levels support claims that teams "tend to be more powerful in socializing individuals and shaping their beliefs than are broader organizational forces" (Cannon & Edmondson, 2001, pp. 166; see also Levine & Moreland, 1999). For the development of similar IVT levels, the team-context that is characterized by frequent contact among team members, close interaction, and a proximity in experience seems to be more important than the more distal influences that all members of an organization share.

Finally, our model and study findings address questions regarding the relationship between implicit/automatic and explicit/ deliberate causes for silence. Linking information processing research with organizational culture theory (Hanges et al., 2000; Schein, 1990), we propose a sequence through which explicit knowledge develops into shared taken-for-granted

beliefs. Our finding that shared IVTs mediate between explicit knowledge (i.e., estimations of the openness of their current team manager) and motives for remaining silent at the team level suggests that IVTs do not only bypass individual elaboration (by making individuals jump from external stimuli to behaviour without elaborating on external stimuli), but also facilitate a collective shift from openly discussing an issue in groups to automatic interpretation and even perception (McComb et al., 2010; Schein, 1990). We hope our research inspires future studies examining the processes we propose to link shared IVTs and collective silence, namely a reduction in collective elaboration.

Practical Implications

Our findings have implications for those concerned with overcoming silence in organizations and for managers' perceptions of followers. As individual and shared IVTs are basic assumptions that operate implicitly, interventions focusing on employees' conscious elaborations on the costs and benefits of speaking up need to be complemented by interventions drawing on research on implicit theories and shared cognitions (e.g., Argyris, 1976; Schein, 1990; Schyns, Kiefer, Kerschreiter, & Tymon, 2011). As individuals often lack awareness (Gawronski et al., 2006) that their implicit theories guide their behaviour, one first needs to make them aware of their implicit and explicit theories and any inconsistencies between the two. Argyris' (1976) research on discovering inconsistencies between employees' "theories-in-use" and "theories espoused" can provide valuable advice on this stage. Using creative tasks such as drawing might be another, as Schyns et al. (2011) have shown for teaching the effects of implicit leadership theories. Given that IVTs are likely to be shared among team members, such exercises should be conducted in teams so that members can become aware of their collectively-held implicit assumptions and how they may bias their collective perception, elaboration, and subsequent behavior. As Schein (1990) mentioned, if culture emerges as a collective phenomenon, change attempts need to include collective

strategies. Once employees are aware of their IVTs, change attempts need to promote discovering, practicing, and establishing alternatives as research on change in organizational schemas suggests (Labianca et al., 2000). As implicit knowledge structures are well-learned, they do not change by proclamation, but require repeated, consistent, and visible actions that are discrepant to the existing schemas.

Our findings furthermore offer managers an explanation for some employees' supposedly irrational reluctance to speak up. While prior conceptualizations suggested that IVTs are learned early in life, our findings regarding shared IVTs and their relation to manager openness suggest that employees' basic assumptions may not be beyond the manager's reach – an assumption that is in line with research on team cognitions, shared mental models, and shared beliefs (Cannon & Edmondson, 2001; Dionne et al., 2010; Dragoni, 2005; Schein, 2017). Thus, managers need to find out whether such assumptions exist in their teams and apply strategies to change existing collective schemas regarding the appropriateness of voice. Such strategies may be informed by research on how managers shape team members' sensemaking processes, influence group culture, and establish shared cognitions (Cannon-Bowers, 2007; Dragoni, 2005; Schein, 2017; Weick & Roberts, 1993). Note that our team-level effects may also point at peers as important exchange partners when it comes to evaluating a situation and revealing fears and concerns (Salancik & Pfeffer, 1978). Our theoretical model considers this aspect, and we suggest that attempts to initiate IVT change provide room for group members to negotiate assumingly inconsistent actions or demands (see also Argyris, 1976). Attempts to change individual and collective IVTs will take time to manifest as schemas and implicit theories change slowly and reluctantly – an issue that we did not examine but will discuss in the limitations section.

Limitations and Directions for Future Research

Three types of limitations of the current manuscript need to be mentioned: limitations

in our study design, unexamined elements of our model, and issues regarding the conceptualization and measurement of IVTs.

Our study is sufficient to assess a snapshot in time and therefore we think it is justified to say that IVTs explain unique variance in employees' motives to remain silent, that IVTs are shared by organization and team-members, and that team-level perceptions of manager openness relate to IVTs. However, the cross-sectional nature of our data clearly limits our ability to explain how this state evolved, and our mediation hypotheses need further support. Merely collecting longitudinal data, however, might not suffice as IVTs are likely to be stable in the absence of challenging events (Knee, 1998; Labianca et al., 2000). This might be a reason for why Detert and Edmondson (2011) found only a small time-lagged effect of memories of IVT-specific leader behaviors on individual-level IVTs and no mediation effect for a leadership openness-IVT-silence link. Examining causal relationships between antecedents and individual cognitive structures and collectively shared beliefs needs to combine the strengths of our multi-level design with designs that consider the role of events and intervention as triggers of change in implicit theories (see Blackwell et al., 2007; Knee, 1998; Kam, Risavy, Perunovic, & Plant, 2014). Accompanying teams over a period of time (ideally from their onset) will provide insight into processes not covered in our study, namely selection, attraction, attrition (Schneider, 1987), and relevant events (e.g., changes in leadership, performance crises) that are likely to influence the emergence and adjustment of shared IVTs. In addition, we focused on employees' estimation of their own motives to remain silent. It could be interesting to also examine employees' estimation of collective silence within their teams and organizations (i.e., change the referent; Chan, 1998), and collective behaviors within teams (such as a lack of discussion of existing issues in the team or organization) as a mediator between shared believes and collective silence behaviors (e.g., not raising issues to supervisors) in teams and organizations.

While we did not find evidence for our assumption that the organizational context factor voice climate affects IVTs or that organizational-level IVTs mediate between organizational voice climate and silence, it would be premature to state that organizational factors are not relevant for the occurrence of IVTs. Firstly, ICC scores indicated that organization membership explained variance in all of the aggregated measures (i.e., organizational voice climate, IVTs, and silence). Secondly, our data collection was based on coupling team-managers with subordinates which limited the number of organization members represented in the sample weakening the validity of conclusions regarding organizational influences (Rogelberg & Stanton, 2007). Besides using more representative samples of the studied organizations, future studies could seek to clarify whether team-level effects originate from factors at the team-level (e.g., peers, the team manager), or whether team-level effects themselves are determined by organizational conditions (e.g., who is appointed as leader and what kind of group work flourishes in a particular organization; Hanges et al., 2000; Schein, 1990). More detailed research on organizational conditions will enrich our understanding of the occurrence and effects of IVTs at every level.

Measurement and construct validity of IVTs is a third limitation that could be addressed in two ways – by improving the current measure and by developing alternatives. We followed Detert and Edmondson's (2011) direct approach of measuring implicit theories via self-report scales (see also Dweck & Leggett, 1988; Kelly, 1955; Offerman et al., 1994). Unfortunately, Detert and Edmondson did not report data on factor structure and reported reliability indices for the complete scale, only. As we did use a shortened 10-item version of the scale, it is not justified to judge the quality of the overall scale. Our shortened scale exhibited an acceptable internal consistency of Omega = .76 and, when forcing a five-factor solution in an EFA, all but one item loaded on their respective factors. Including the five subscales of IVTs in a multilevel CFA, however, revealed a less-than-optimal fit. Further

research is needed to substantiate the reliability of the measure, for example, its factor structure. Such research could also consider conceptualizing IVTs as a formative instead of a reflective indicator (Diamantopoulos & Siguaw, 2006), because it does not seem necessary that employees score high on all of the five IVTs to remain silent. Another potential limitation of the current IVT measure is that it identifies managers as the source of fear or feelings of futility (see item wording in Table 1). While this perspective is in line with most of silence and voice research, non-authority figures such as peers are also a source of pressure and thus may cause silence (Barker, 1993; Chiaburu & Harrison, 2008; Liu, Nauta, Yang, & Spector, 2018). Thus, more comprehensive conceptualizations and measures could consider that employees hold IVTs that include colleagues as those who do not appreciate peers who question the status quo (see, for example, Liang, Huang, & Chen's, 2013, harmony beliefs).

While improving established measures seems to be a reasonable next step in developing the IVT concept, we do not want to conceal that there are more basic concerns regarding the validity of using self-report scales to assess processes that are proposed to function implicitly (for discussions, see Epitropaki et al., 2013; Gawronski et al., 2006). With respect to these concerns it is important to distinguish between implicit knowledge structures (e.g., implicit theories) on the one hand and implicit/indirect measures on the other (for a detailed discussion, see Petty, Fazio, & Briñol, 2008). A widespread assumption is that implicit processes and structures (e.g., implicit attitudes) are best assessed with implicit/ indirect measures (e.g., the IAT), because implicit knowledge is supposed to be not accessibly for the participant, participants are assumed to strategically control their responding if explicit measures are used, and/or because deliberation inhibits the true expression of implicit content. Research has shown, however, that the dictum to measure implicit content with indirect measures and explicit knowledge (e.g., explicit attitudes) with explicit measures (e.g., self-report scales) does not do justice to the complex nature of implicit information processing

(e.g., De Houwer & Moors, 2012; Gawronski et al., 2006). We do not go into detail here as this research has been recently explained elsewhere (e.g., Gawronski & Hahn, 2019). Our stance is that indirect measures can potentially help developing content validity of the IVT construct and scale, however, their application needs to be justified by clear alignment with the processes that they aim to explain. For example, IVTs are proposed to have a spontaneous effect on silence behaviour in the immediate situation when voice is an option (e.g., speaking up or remaining silent in a meeting). To assess this implicit impact of IVTs, indirect measures that assess spontaneous behaviour (e.g., response-time measures) are a promising alternative to the Detert and Edmondson (2011) measure. However, IVTs are also proposed to influence decision making when employees are not required to challenge the status quo immediately but have time to elaborate (e.g., when deciding to address or conceal a critical issue in a report; Kish-Gephardt et al., 2009). To examine this facet of IVT impact, using measures that assess how implicit processes bias deliberate decision making would be more useful than response-time measures (for examples, see Vargas, Sekaquaptewa, & van Hippel, 2007).

In sum, further development of the IVT concept should make use of more sophisticated designs and the most recent developments in the measurement of implicit structures. New measures will be most useful if they are specific regarding to which facet of IVTs they aim to assess, to what extent they are able to assess the nature and effects of cognitive mental structures (and not merely positive or negative associations with authority figures), and whether they are likely to be of use in applied research. We used the measures available yet, but are excited to see further developments in this field resulting in alternative measures or opportunities to further validate the existing construct (e.g., with indirect measures).

Conclusion

To understand cases of individual and collective silence on common organizational

problems but also on ethical transgressions in the business context (Gioia, 1992), law enforcement (Rothwell & Baldwin, 2007), pedagogical institutions (Warwick Middleton et al., 2014), and sports (King et al., 2014), we need to discover neglected influences on silence and integrate these into the existing frameworks at the level at which they appear (Kozlowski & Klein, 2000). In this article, we developed a model that considers IVTs as an antecedent of silence that may bypass conscious elaboration, that seems to operate at the individual and collective level, and that at least in part, may originate outside of the current work context. Our study is the first to show that IVTs have distinct effects on motives for remaining silent beyond established predictors at the team- and organizational level when they were considered simultaneously. Moreover, our study is the first to indicate that IVTs can be shared among members of organizations and teams, a finding that may contribute to attempts to develop theories on cultures of silence. We also started to explore potential antecedents of shared implicit beliefs and hope that future research picks up this challenge using even more comprehensive designs and advanced measures. Finally, we emphasized that research on IVTs is still at a nascent stage (Edmondson & McManus, 2007) and suggested paths to proceed. Taking these paths deem worthwhile as individual and shared implicit theories may be one reason for why employees remain silent even when voice opportunities are available and in absence of explicit coercion.

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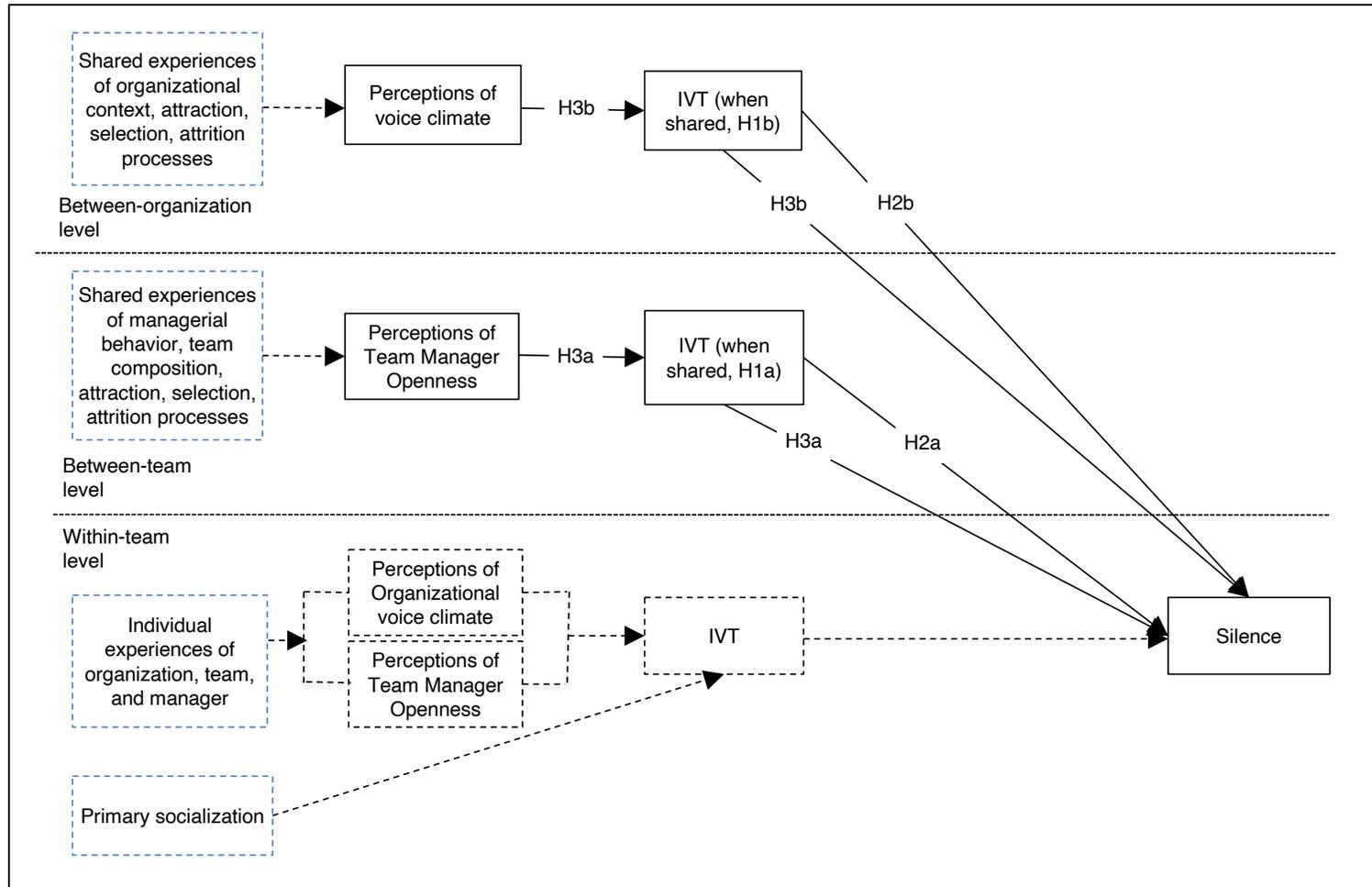
Figure 1. Theoretical model of factors affecting the link between individual and shared implicit voice theories (IVTs) and employee silence. Dotted lines signify model assumptions, solid lines signify relationships examined in the current study. Direct effects of voice climate and team manager openness on silence are omitted for reasons of clarity. Individual-level relationships between IVTs and employee silence are reported in tables 2 and 3 but were not central to the current study.

Table 1. *Implicit Voice Theories (IVTs). Description and sample items.*

Implicit Voice Theory	Brief description	Selected items from Detert & Edmondson (2011) that were used to asses this IVT in our study
Presumed Target Identification	belief that one should not raise an issue without proof or having clear solutions	Someone who helps create a process or routine is likely to be offended when others suggest changes.
		Speaking up to suggest a better way of doing something is likely to offend the person(s) currently in charge of the process or product you're speaking about.
Need Solid Data or Solutions (to Speak Up)	belief that managers feel ownership of current practices and thus see challenging comments about products, processes, or strategy as threatening or offending	Presenting underdeveloped, under-researched ideas to your group is never a good idea.
		To look good when speaking up with an idea or suggestion you have to be able to answer every question you get asked.
Don't Bypass the Boss Upward	belief that challenging or exposing one's boss in front of his/her superiors will be seen as disloyal and is thus unacceptable	Questions that you're not sure if your boss can answer should not be asked in front of your boss's boss.
		When you speak up about problems or areas for improvement to your boss in front of people who are even higher in the organization, you make your boss look bad.
Don't Embarrass the Boss in Public	belief that managers prefer to speak about critical issues in private first and that hearing bad news, or being challenged, in front of others is not wanted	You should always pass your ideas by the boss in private first, before you speak up publicly at work.
		It is important to give your boss time to prepare to discuss a problem or suggestion you have prior to bringing it up in front of a group.
Negative Career Consequences of Voice	belief that challenging the status quo is followed by negative career repercussions caused by managerial retaliation	Pointing out problems, errors, or inefficiencies might very well result in lowered job evaluations.
		If you want advancement opportunities in today's world, you have to be careful about pointing out needs for improvement to those in charge.

Table 2. *Descriptive statistics and correlations between study variables*

	Within-team level (i.e., individual employee level)[1]	Mean	SD	ICC1	ICC2	1	2	3	4	5	6	7	8
1	Gender[4]	1.56	0.52										
2	Tenure (Organization)	8.59	8.00			.02							
3	Tenure (Team)	4.88	5.04			-.04	.55***						
4	Organization. Voice Climate	0.00	1.10			-.02	-.05	-.07†	.90				
5	Team Manager Openness	0.00	0.80			.01	.03	.01	.50***	.80			
6	Implicit Voice Theories	0.00	0.70			-.02	-.02	.00	-.23***	-.19***	.76		
7	Acquiescent Silence	2.56	1.35			.08*	.11**	.05	-.39***	-.42***	.23***	.74	
8	Quiescent Silence	2.51	1.32			.03	-.01	.03	-.30***	-.32***	.30***	.66***	.71
	Between-team level[2]	Mean	SD			1	2	3	4	5			
1	Team Size	8.73	6.54										
2	Team Manager Openness	5.31	0.86	0.39***	0.77	-.33***							
3	Implicit Voice Theories	4.21	0.58	0.23***	0.61	.07	-.40***						
4	Acquiescent Silence	2.60	0.91	0.25***	0.65	.23**	-.78***	.52***					
5	Quiescent Silence	2.55	0.84	0.17***	0.53	.00	-.53***	.55***	.69***				
	Between-organizational level[3]	Mean	SD			1	2	3	4	5			
1	Organization Size	1089.98	2405.75										
2	Organization. Voice Climate	4.96	0.86	0.24***	0.76	.03							
3	Implicit Voice Theories	4.36	0.59	0.20***	0.72	-.09	-.19						
4	Acquiescent Silence	2.75	0.88	0.19***	0.71	-.04	-.64***	.50***					
5	Quiescent Silence	2.78	0.89	0.16***	0.67	.07	-.43***	.68***	.72***				

Note. Within-team level $N = 696$, between team level $N = 129$, between-organization level $N = 67$; Omega total for individual-level scale variables are shown in the diagonal.
[1]Employee ratings team-mean centered. [2]Employee ratings, aggregated to team-level mean, [3]Employee ratings, aggregated to organizational-level mean. [4]Male = 1, female = 2.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. *Mixed models regressing Silence and mediating variables on the predictors and control variables*

	Null model, DV Acquiescent Silence γ (SE)	Null model, DV Quiescent Silence γ (SE)	Model 1a, DV Acquiescent Silence γ (SE)	Model 1b, DV Quiescent Silence γ (SE)	Model 2a, DV Acquiescent Silence γ (SE)[a]	Model 2b, DV Quiescent Silence γ (SE)	Model 3, DV Implicit Voice Theories (IVT) γ (SE)
Individual within-team level							
Intercept	2.51 (0.21)	2.46 (0.20)	7.58 (0.46)	5.82 (0.56)	5.21 (0.57)	2.43 (0.58)	5.81 (0.45)
Gender	0.08 (0.10)	0.13 (0.10)	0.03 (0.09)	0.06 (0.10)	0.09 (0.09)	0.14 (0.09)	-0.10 (0.07)
Org. tenure	0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	-0.02 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Team tenure	0.01 (0.01)	0.02 (0.01)	0.00 (0.01)	0.02 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)
Implicit voice theories					0.42 (0.07)***	0.59 (0.07)***	
Between-team level							
Team size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.02 (0.0)	0.00 (0.01)	0.01 (0.0)	0.00 (0.00)
Team manager openness for voice (team-level aggregate mean)			-0.75 (0.07)***	-0.49 (0.08)***	-0.69 (0.07)***	-0.40 (0.07)***	-0.21 (0.06)***
Between-organization level							
Org. size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)	0.00 (0.01)	0.00 (0.00)
Organizational voice climate (organization-level aggregate mean)			-0.19 (0.08)*	-0.12 (0.11)	-0.17 (0.08)*	-0.08 (0.08)	-0.03 (0.09)
$\sigma^2_{b01 \text{ (Organization)}}$	0.338	8.312	0.038	0.163	1.458	1.168	0.060
$\sigma^2_{b01 \text{ (Team)}}$	0.171	0.199	0.000	0.000	0.454	0.354	0.041
$\sigma^2_{b01 \text{ (Residual)}}$	1.345	1.172	1.310	1.417	1.122	1.155	0.042
AIC	2290.00	2299.88	2150.11	2262.90	2127.70	2155.60	1735.29
BIC	2330.62	2340.50	2217.81	2312.55	2199.91	2227.82	1784.94
Pseudo-R^2	0.00	0.01	0.25	0.12	0.34	0.27	0.04
Pseudo-delta-R^2			0.17	0.07	0.20	0.22	

Note. Within-team level $N = 696$, Between team level, $N = 129$, Between-organization level $N = 67$. † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. We estimated pseudo-R^2 with the marginal pseudo-R-squared for generalized mixed-effect models (Nakagawa & Schielzeth, 2013). [a]To resolve convergence issues, this model was fitted with uncorrelated random effects