Do HR systems and relational climates affect knowledge hiding? An experiment and two-source multi-level study

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ABSTRACT

Various factors can hinder the competitive advantage of an organization, one of them being knowledge hiding. We draw on social exchange, norms of reciprocity, and contextual theories to propose that the negative relationship between perceived co-worker support and knowledge hiding happens in particular contexts. We expand previous studies in delineating that the organizational context can be both designed (human resource systems in place) or emerging (relational climates) and that aligning both contexts can further influence the main relationship. An experimental study of 178 HR students and a field study of 155 individuals nested in 30 teams provide partial support for our key hypotheses that a three-way interaction between commitment and compliance HR systems as well as communal sharing and market pricing climates can impact the negative relationship between co-worker support and knowledge hiding. Future knowledge hiding studies therefore need to investigate both designed and emerging contexts together rather than separately.

1. Introduction

In the last few decades, organizational performance has been a key debate in the management field. As far back as the 1980s, authors suggested that firm performance can be achieved by knowledge and its dissemination, also referred to as knowledge sharing (Barney, 1991; Boon, Eckardt, Lepak, & Bosolie, 2017; Delery & Rountree, 2017). Previous studies have indeed found evidence that knowledge sharing positively impacts various organizational outcomes, including work performance, product innovation, and creativity (Perry-Smith & Shalley, 2003; Singh, 2019; Wang & Noe, 2010). While this body of research shows the importance of knowledge sharing, knowledge hiding – defined as an intentional attempt to conceal or withhold knowledge that others have requested – is increasingly seen as an important threat to various beneficial organizational outcomes (Connelly, Zweig, Webster, & Trougakos, 2012). Connelly et al. (2012) argue that knowledge hiding is different from a mere lack of knowledge sharing, as it also incorporates an intent to withhold knowledge that someone else has requested and could thus hinder individual, unit, and/or organizational performance as well, resulting in lower competitive advantage of the organization. Researchers also show and argue that knowledge hoarding and knowledge sharing are constructs different from knowledge hiding and that the latter overlaps only to a small extent with counterproductive working behavior and aggression (cf. Connelly et al., 2012), thus making knowledge hiding a distinct construct.

To date, however, it remains mostly unknown how antecedents and processes of knowledge hiding work within a specific situation (Connelly et al., 2012; Losada-Otalora, Peña-García, & Sánchez, 2020; Mangold, 2017). Especially, it is not known how knowledge hiding can be affected by the organizational context in place (Johns, 2006; Xiong, Chang, Scuotto, Shi, & Paolini, 2019) – defined as situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables. Moreover, it is not clear how organizational or individual support may affect knowledge hiding (Behnke, 2010; Swift & Virick, 2013). Drawing on social exchange theory (Blau, 1964), the norm of reciprocity theory (Gouldner, 1960), and contextual theory (Cable & Edwards, 2004; Johns, 2006) we posit two key arguments in the current paper.

First, we explore the notion that perceived co-worker support might decrease the extent to which employees hide their knowledge. Most individuals work with others on a day-to-day basis and co-workers can both support and antagonize their colleagues. We know that co-worker support may affect knowledge hiding (Behnke, 2010; Swift & Virick, 2013) and that the latter overlaps only to a small extent with counterproductive working behavior and aggression (cf. Connelly et al., 2012), thus making knowledge hiding a distinct construct.

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hiding (cf. Connelly et al., 2019; Connelly et al., 2012) and occurs between individuals, emphasizing relational dynamics (Connelly & Kevin, 2003), it seems viable to expect that the perception of co-worker support received, seen as a resource, can decrease the extent of knowledge hiding, as employees will tend to respond in kind to such action (Chiaburu & Harrison, 2008). In other words, when co-workers engage in behaviors that signal that they care about each other, employees develop positive perceptions of their co-workers and are likely to develop an overall feeling of obligation or desire to reciprocate their co-workers’ behaviors (Swift & Virick, 2013). We believe this will result in a likely manifestation of the reciprocity loop (cf. Cerne, Nerstad, Dysvik, & Skerlavaj, 2014) and a quid pro quo relationship (Blau, 1964), thus resulting in less knowledge hiding. Moreover, we also do not fully understand how supportive action of individuals happens in various environmental configurations; that is, in contexts characterized by different positive and negative influences stemming from one’s organization (Chiaburu & Harrison, 2008).

Second, we posit that the interpersonal relationships that lead to co-worker support and knowledge hiding happen in a particular organizational context (Connelly, Cerne, Dysvik, & Skerlavaj, 2019; Sáiz-Bárcena, Díez, Manzanedo, & del Olmo, 2018). The context provides a situational opportunity and stimuli that potentially activate certain human behaviors. As noted by Johns (2006), if we do not explore the situation that provides such stimuli we cannot really understand person—situation interactions. Especially the discrete context (Johns, 2017), which comprises task, social, and physical stimuli is important in organizations. For example, performance climate, which can be seen as a contextual variable providing task, social, and physical stimuli, has been found to moderate the relationship between knowledge hiding and creativity (Cerne et al., 2014). We extend contextual theory lenses and propose that the organizational context can be seen from two perspectives. On the one hand, there is a formally designed context represented as a human resource (HR) system (Kianto, Säenz, & Aramburu, 2017). HR systems can be thought of as an intended feature of the organizational context – a distinctive system of HR practices for obtaining, retaining, and developing employees, created to support strategic goals of the organization (Lepak & Snell, 2002). On the other hand, equally important is the emerging context – shared behaviors and beliefs emerging from individual interactions in a context, which can be seen as organizational climates (Johns, 2006). We specifically turn to relational climates (Fiske, 1992), which further emphasize the relational aspect of the organization. Relational climates enhance shared employee perceptions and appraisals of policies, practices, and behaviors affecting interpersonal relationships in a given context (Mosholder, Richardson, & Settoon, 2011) and match the relational definition of knowledge hiding (cf. Connelly et al., 2019; Connelly & Kevin, 2003; Skerlavaj, Cerne, & Dysvik, 2014).

Even though each of the abovementioned contexts can be seen as relevant on their own (Banagou, Battistic, Do, and Poell, 2021), for example, explored the role of the emerging context in knowledge hiding, we argue that the above findings (Moshholder et al., 2011) that the most salient scenarios happen when we look at the combination of both. We believe that literature that on the alignment between context and individual (e.g., Cable & Edwards, 2004) can be further expanded by looking at both contexts simultaneously — the designed one and the emerging one. Examining the interplay between a designed and an emergent element of an organizational context provides us with a more holistic understanding of how the broader organizational context affects knowledge hiding behaviors, providing further evidence to the scant literature on how HR systems as a context might relate to knowledge hiding (cf. Xiao & Cooke, 2019). Such a combination and its relationship in influencing individual behaviors have already received some preliminary support (Battistic, Cerne, Kase, & Zupic, 2016). This is especially relevant as the designed context, HR systems, can be changed more easily to match the climate, potentially resulting in greater benefits for the organization.

Our study intends to provide theoretical and empirical findings that offer a significant contribution to the knowledge management and organizational context literatures. First, we aim to answer calls to expand our understanding of possible antecedents of knowledge hiding (Cerne et al., 2014) by specifically looking at co-worker support. The very act of knowledge hiding is a relational phenomenon, therefore exploring how “relational support” plays a role in it seems salient (Swift & Virick, 2013). Support can be seen as the individual receiving resources, which might lower the intention to show negative behaviors such as knowledge hiding (Ain et al., 2021). Second, the organizational context is believed to be important for knowledge hiding (Cerne et al., 2014; Connelly et al., 2019; Connelly et al., 2012). We therefore aim to explore also how an aligned combination of HR systems and relational climates, as the context in which various relations occur, may influence the relationship between perceived co-worker support and knowledge hiding. This can provide a more holistic understanding of how both contexts can supplement each other to provide conditions under which knowledge hiding occurs (cf. Connelly et al., 2019; Silva de Garcia, Oliveira, & Brohman, 2020), and thus of how knowledge hiding might be reduced by the organization through designed HR systems (Xiao & Cooke, 2019). In organizational practice, our research might help explain when and in which contexts knowledge hiding is less likely to happen, which can provide valuable information for management as well (as advocated by Butt & Ahmad, 2020, among others).

This paper presents two empirical studies in order to make the above-mentioned contributions. After developing four hypotheses in the Theory section, these two empirical studies (first an experimental study of 178 HR students and, second, a field study of 155 individuals nested in 30 teams) will test our key idea that a three-way interaction between commitment and compliance HR systems as well as communal sharing and market pricing climates can impact the negative relationship between co-worker support and knowledge hiding.

2. Literature review and development of hypotheses

2.1. The relationship between co-worker support and knowledge hiding

According to social exchange theory (Blau, 1964), individuals engage in social interaction expecting some form of social rewards (e.g., respect, status, approval) in return. We argue, however, that interactions with co-workers are equally important, if not more so, compared to interactions with supervisors. First, the relationships between co-workers are guided by reciprocation. Second, since co-workers are more present in the work environment compared to leaders, employees are likely to interact more often with their co-workers, thus drawing more emotional and behavioral resources compared to their relationship with leaders (Chiaburu & Harrison, 2008; Ferris & Mitchell, 1987).

As Halbesleben and Wheeler (2015) have stated, employees develop so-called reciprocal resource-gain cycles; helping others raises the perception of co-worker support – the extent to which employees believe their co-workers are willing to provide them with work-related assistance to aid in the execution of their service-based duties (Susskind, Eacmar, & Borchgrevink, 2003, p. 181), which leads to higher trust that employees will show helping behaviors in return. They also found that most support that employees receive (32%) is from their co-workers, rather than from other sources. This is supported by studies showing that co-worker support can relate to lower negative individual behavior in general (Chiaburu & Harrison, 2008). Moreover, reciprocal gain can lead to various beneficial organizational or individual outcomes.
Conversely, studies also explored negative reciprocity or homophily in organizational contexts, for example, when a person receives negative behaviors or misbehaviors from another person (Vardi & Weitz, 2016), such as support non-reciprocation. If distrust is built between two persons, this could therefore lead to reciprocated negative behavior (Gouldner, 1960).

Overall, we believe that co-worker support might be negatively related to knowledge hiding based on two important notions: norms of reciprocity and the quid pro quo logic that dominates weak-tie social relationships (sporadic interactions between parties), which seems to fit the description of many co-worker relationships. Focal employees will likely respond in kind to received co-worker support (Chiaburu & Harrison, 2008); therefore, if individuals receive more support we expect focal employees to engage in less knowledge hiding. Building on this premise, Cerne et al. (2014) introduced and found the so-called reciprocal distrust loop, triggered by employees hiding knowledge in response to co-workers who refuse to share knowledge. Moreover, Connelly et al. (2012) suggest that the reciprocity history between colleagues may influence the likelihood of someone engaging in knowledge hiding behaviors. Therefore, employees who perceive less co-worker support are expected to report more knowledge hiding to reinstate their perceived justice when situational norms or rules are violated (Lerner, 1980).

Hypothesis 1: Perceived co-worker support is negatively related to knowledge hiding.

2.2. The moderating effects of HR system and relational climate

The organizational context entails situational, environmental restrictions and opportunities that can influence the occurrence of organizational behavior (cf. Johns, 2017). The role of organizational context is not new and has been successfully applied in various management research domains to explain how certain behaviors, such as knowledge hiding, can be activated (Chatterjee, Chaudhuri, Thassou, & Vrontis, 2021; Tett & Burnett, 2003). Specifically, the context is relevant to a behavior if thematically connected by the provision of situational cues and stimuli (Tett & Burnett, 2003). Connelly et al. (2012, p. 80) argue that employees might take “into account situational and contextual cues when reacting to coworkers’ requests for knowledge”. For example, situations characterized by joint intentions or heavy cost-benefit social exchanges might be relevant for knowledge hiding, because individuals might conform to such a context by hiding less (or more) knowledge (Banagou et al., 2021; Cegarra-Navarro, Wensley, Batistic, Evans, & Par, 2021; Chatterjee et al., 2021); however, they can also interact with co-worker support (Chiaburu & Harrison, 2008; Mossholder et al., 2011).

We take this notion further and in line with Batistic et al. (2016), we draw on both HR and relational climate literatures to investigate the role played by context in organizations. Where the formal HR system can be viewed as a context specifically designed to be in place for (among others) knowledge sharing purposes, the relational climate in an organization can be thought of as an informally emerging context that impacts employee behaviors and exchanges. Both the formal HR context and the emerging organizational climate based on work relationships are expected to affect the relationship between employees’ perceived co-worker support and their knowledge hiding behaviors (Connelly et al., 2012).

HR system as moderator. HR systems can be defined as mutually interdependent elements of an organizational context that, when examined together, can exhibit (positive and negative) synergistic effects on various attitudes and behaviors of employees (Mossholder et al., 2011). Commitment-based HR systems place an emphasis on trust, personal development, flexibility, autonomy, safety, and well-being (Lepak & Snell, 1999). In contrast, compliance-based HR systems focus on low costs and employee compliance, through enforcing preset rules and regulations, and low investment in employee training (Lepak & Snell, 2002). Organizations adopting this system believe that employees are externally motivated and therefore have to be extensively monitored and controlled to achieve desired organizational outcomes (Boxall & Macky, 2009).

HR systems as a contextual variable can influence or change employees’ behaviors (Jackson, Schuler, & Rivero, 1989) as a configuration or bundle of stimuli in place (e.g., Batistic et al., 2016; Bowen & Ostroff, 2004; Johns, 2006). For example, out-group members might focus more on short-term discrete payback (Kuvaas, Buch, Dysvik, & Haerem, 2012), thus attempting to hide knowledge in circumstances when satisfactory incentives are absent (Xiao & Cooke, 2019). Similarly, plant maintenance workers have the capability to implement technological changes to improve the performance of production equipment; however, they might choose not to report such improvisations because efficiency gains might trigger a reduction of the future maintenance budget, leading to a climate of continuous pressure (Cooke, 2002). Examples like these reflect the ongoing challenge of organizations to codify tacit knowledge if HR systems are not conductive in preventing knowledge hiding.

In commitment-based HR systems, incentives promote social behaviors like knowledge sharing, peer support, and helping (Mossholder et al., 2011), but they also increase individuals’ interconnectedness and require them to learn interpersonal and teamwork skills, which inspire social norms for helping (Ng & Van Dyne, 2005). Thus, employee sensemaking leads to a feeling of encouragement to engage in long-lasting relationships that support goal striving, at the same time elevating the status of those with whom the goal is accomplished (Lepak & Snell, 1999). The negative behavior is perceived as riskier (a position of dependence on the help-giver; Bamberger, 2009), and thus less likely to manifest itself. Reasoning from social exchange theory (Blau, 1964), employees will want to reciprocate how they feel their organization and others individuals are treating them. In this vein, Nishii and Wright (2008) showed that if employees feel that HR systems are intended to bring them beneficial outcomes, they are likely to respond with positive behaviors as well (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Kuvaas & Dysvik, 2010), such as sharing rather than hiding knowledge. Thus it seems plausible to expect that the negative relationship between co-worker support and knowledge hiding will be even more negative under the positive context provided by the commitment-based HR systems, as the message of the system amplifies collective rather than individual efforts.

On the other hand, a compliance-based HR system favors a more individualistic job design (Mossholder et al., 2011). Such jobs are heavily characterized by less task interdependence, resulting in a context that lessens cooperation behavior (Wageman & Baker, 1997). Individual incentives and rewards further generate a competition context, probably resulting in undesired behaviors of individuals prioritizing their own agendas over the group’s (Wang, Han, Xiang, & Hampson, 2019). This will result in a very individual sensemaking lens, as stipulated goals can be achieved on one’s own, without the group. Based on the above social exchange logic, individuals will be conforms to the context even if they have some prosocial motivation to help others, as such support will not be reciprocated by other co-workers in the long run (cf. Chiaburu, Marinova, & Lim, 2007; Foss, Pedersen, Reinhold Fosgaard, & Stea, 2015). Ultimately, such a competitive environment will make the focal relationship between co-worker support and knowledge hiding less negative. In view of the enhancing effect of the commitment HR system and the buffering effect of the compliance HR system, we propose the following:

Hypothesis 2a. A commitment HR system moderates the relationship between perceived co-worker support and knowledge hiding. The higher the commitment HR system, the more negative the relationship.

Hypothesis 2b. A compliance HR system moderates the relationship between perceived co-worker support and knowledge hiding. The higher the
compliance HR system, the less negative the relationship.

Relational climate as moderator. Besides the formal HR system, also the relational climate that is prevalent in the organization can play a moderating role in the relationship between co-worker support and knowledge hiding behavior. Both co-worker support and knowledge hiding are based on mutual relationships among employees (in the latter case, knowledge seekers and knowledge hiders). As Batistic et al. (2016) have shown, the relational climate that employees experience can affect their individual attitudes and behaviors, through shared norms and interactions among co-workers. In line with this, relational climate has indeed been found to impact employees’ behaviors and attitudes, such as proactivity (Batistic et al., 2016) or social cynicism (Tumansjan & Strobel, 2012). In the present study, we look specifically at communal sharing vs. market pricing relational climates (Fiske, 1992).

Key aspects of a communal sharing relational climate are altruism, community interest, helping others, group identification, and collectivism (Haslam & Fiske, 1999). It views a group of people as equivalent (Fiske, 1992), and knowledge is perceived in this group as a common good belonging to everyone. Hence, members will exchange knowledge voluntarily, for the group rather than personal interests (Faraj & Wasko, 2001). In contrast, a market pricing relational climate is characterized by rationally calculating cost-benefit analyses, cognitively comparing expected gains and losses, focusing on short-term exchanges and events (Fiske, 1992). Knowledge would be shared in such a climate only if a person is certain that there will be some form of personal return (reward, compensation, gifts) (Boer, Berends, & van Baalen, 2011). Further, scholars have proposed that employees would feel more satisfied and committed if their behavior would match the characteristics of an organizational climate in place (Ostroff, 1995), which alludes to the reciprocity loop (Gouldner, 1960). Employees will try to match contextual characteristics, as this will not only protect them but also enhance their sense of justice (Lerner, 1980), which will in their eyes ensure a sense of stability of the social system (Gouldner, 1960). Mangold (2017, p. 34) concluded that “an organizational climate that emphasizes competition instead of cooperation implies a win-lose situation for the involved parties (...), which will likely reduce employees’ willingness to share their knowledge with colleagues”. Thus, we argue that under communal sharing climate individuals are more likely to behave positively (cf. Shao, Resick, & Hargis, 2011), making the relationship between support and knowledge hiding more negative. In contrast to this, in organizational contexts where knowledge is seen as an individual asset to be ‘traded’ only if there is some form of personal reward, low levels of co-worker support will exacerbate already high levels of knowledge hiding, as the social norm will be to ‘sell’ knowledge at a ‘profit’ rather than share it with one’s co-workers freely (Connelly et al., 2012; Gouldner, 1960; Zhu, Chen, Wang, Jin, & Wang, 2019). This suggests that, under this condition, perceived co-worker support will also start to decrease, slowly aligning with the negative message implied by the climate (cf. Pereira & Mohiya, 2021). Hence, the following two hypotheses are formulated.

Hypothesis 3a. A perceived communal sharing climate moderates the relationship between perceived co-worker support and knowledge hiding. The higher the perceived communal sharing climate, the more negative the relationship.

Hypothesis 3b. A perceived market pricing climate moderates the relationship between perceived co-worker support and knowledge hiding. The higher the perceived market pricing climate, the less negative the relationship.

2.3. The three-way moderating effects of HR system and relational climate

Like the congruence between individual behaviors and context (e.g., individual behaviors and climate Ostroff, 1993) or between HR systems and behaviors (e.g., individual behaviors and perception of HR practicesNishii & Wright, 2008), we expect a match also between various contexts – relational climates and HR systems specifically. Similar to Batistic et al. (2016) we see relational climates as an emerging context in the organization, while HR systems can be seen as a designed context. The social rules that facilitate and constrain individual behavior emerge spontaneously through interactions with other people and co-evolve with other contextual elements, such as HR systems, which are more intended to elicit desired behavior in achieving strategic organizational goals. The two contexts need to be aligned for the best results (Dutton & Dukerich, 1991), as not having a congruence could cause dissatisfaction in individuals, leading to undesired outcomes (Cable & Edwards, 2004), such as job dissatisfaction. Based on this premise we explore two three-way interactions below and we argue that there needs to be a match between the HR system and relational climate in place.

Commitment HR system and communal sharing climate. As Batistic et al. (2016) have shown, relational climates can be thought of as forming spontaneously via shared norms and employee interactions while co-evolving with more formal contextual elements, such as HR systems. This also implies that relational climates and HR systems together can have multiplier effects on the relationship between, in our study, co-worker support and employee knowledge hiding behaviors. Based on the reasoning underlying H2a and H3a, where a commitment HR system and a communal sharing climate, respectively, were both stipulated as buffering the negative effects of low co-worker support (which, based on the alignment with the context, will continue to be high) on employee knowledge hiding, this assumed multiplier effect leads to the following three-way interaction hypothesis.

Hypothesis 4a. Perceived co-worker support, commitment HR system, and communal sharing climate interact to relate to knowledge hiding in such a way that perceived co-worker support will have the most negative relationship with knowledge hiding when both commitment HR system and communal sharing climate are high.

Compliance HR system and market pricing climate. Based on the reasoning underlying H2b and H3b and the match between HR system and relational climate leading to the most desired or undesired outcomes (Cable & Edwards, 2004), we argue that the relationship between co-worker support and knowledge hiding would be the most negative under a condition of high compliance HR system and high market pricing climate. In this scenario, at the outset we would still expect a high level of perceived co-worker support. In the long run, however, the level of support will likely match the negative message implied by the climate, leading to a scenario of low co-worker support (Cable & Edwards, 2004; Xiao & Cooke, 2019). The latter will provide the best synergistic effects for knowledge hiding (Pereira & Mohiya, 2021). This leads to the following three-way interaction hypothesis.

Hypothesis 4b. Perceived co-worker support, compliance HR system, and market pricing climate interact to relate to knowledge hiding in such a way that perceived co-worker support will have the least negative relationship with knowledge hiding when both compliance HR system and market pricing climate are high.

We offer two different scenarios for how these three predictors can interplay, which are presented in Fig. 1 – a conceptual matrix of different conditions leading to knowledge hiding. To test our conceptual model (see Fig. 2), we conducted two consecutive studies: an experiment and a field study. The aim of the experiment was to explore the interplay between the designed organizational context (HR systems) and the emerging context (relational climates) in their effect on knowledge hiding. In the ensuing field study, we replicated the same research design, adding perceived co-worker support as an antecedent of knowledge hiding.

3. Methodology and results of study 1

The main goal of Study 1 was to explore the interaction between the
two key contexts that this study looks at – HR systems and relational climates. This can provide preliminary evidence of whether the two contexts are (inter)related to knowledge hiding. In line with recent calls by, for example, Banagou et al. (2021), Hernaus, Cerne, Connelly, Poloski Vokic, and Skerlavaj (2019) and Wang et al. (2019) to perform experimental studies, an experiment was conducted, in which
participants were faced with different scenarios. We independently manipulated relational climates as well as HR systems to alleviate the possible effect of knowledge hiding underreporting.

3.1. Sample, design, and procedure

An experiment with 178 Master’s, Premaster’s and Bachelor’s students within a Human Resource program at a Western European university was conducted. The average age of the participants was 22.88 (s. d. = 3.41). Approximately 80 percent were female and on average students had 51.22 months of working experience (s.d. = 39.21). The experiment used a two-by-two (commitment/compliance HR system × communal sharing/market pricing climate) between-persons factorial design. The participants in the experiment were randomly assigned to four conditions. The study was introduced by stating that participants’ opinion was looked for as they worked for a fictitious organization that had certain characteristics – described in the manipulations. The experiment was designed and carried out in three steps. First, the manipulation for the HR systems was carried out, followed by the manipulation of the relational climates. Finally, a section with questions regarding knowledge hiding and some demographic characteristics followed.

**HR systems manipulation.** We begin the experiment with the manipulation of compliance and commitment to HR systems. The manipulation consisted of two sets of descriptions based on HR systems characteristics proposed by Lepak and Snell (2002), and started with the following text: “You know that the HR systems in this organization...” For commitment HR system, the vignette read:

... focus on internal development and long-term employee commitment for their employees. Moreover, HR practices are oriented toward training, education, and other skill-enhancing activities. In general, the firm uses an employment mode that is structured around the skills and competencies of employees rather than the execution of programmed tasks and job routines.

And for the compliance system:

... seek short-term contractual arrangements for the performance of tasks with limited scope, purpose, or duration. HR practices related to training, education, and other skill-enhancing activities are kept at a minimum. In general, the firm uses a job-based employment mode, in which contractual arrangements simply focus on the economic aspects of the contract (hourly paid) and strive to ensure worker compliance with pre-set rules, regulations, and procedures, rather than building a long-lasting commitment relationship.

After the manipulation, participants needed to assess the HR systems based on the Nishii, Lepak, and Schneider (2008) measurement instrument (α = 0.88 for commitment HR system and 0.78 for compliance HR system). We chose to use the attributions scale as we believe they capture more prominently the aim of this research, for two key reasons. First, employees’ behaviors and attitudes towards HR practices are based on the attributions they make about management’s purpose in implementing the actual HR practices (Nishii et al., 2008). Second, people can attach different meanings to social stimuli (context), and based on the way they process these stimuli, their attitudinal and behavioral responses may change (Fiske & Taylor, 1991).

**Relational climate manipulation.** The HR manipulation was followed by the manipulation of relational climates. The manipulation was introduced by an introductory text that refers to a general situation in the company. The text was modeled on similar writing used in the van Baalen, van Dalen, and van Malsen (2013) study:

You recently helped one of your fellow team members, Pete, with a large problem at work. Even though Pete is a teammate, you have the feeling that you know him quite well and you consider him as one of your friends. For this reason, you feel it is your duty to help him when a problem arises for which Pete needs your expertise regardless of the time or effort it will take; it goes without saying. All of a sudden one of your own projects is facing serious problems. You do not know how to solve it as it requires very specific knowledge; nevertheless, you know that your teammate Pete has the knowledge and experience to help you solve this problem. You ask Pete to help you.

The specific manipulation was carried out based on the theoretical framing of Haslam and Fiske (1999). For the communal sharing climate, it was:

Typical for how your team interacts and works, your teammate Pete says that he will be happy to help you solve this problem. Even though it will cost him some time and effort, it would affect the overall company when the project fails. Therefore, Pete is willing to put his own work aside to help you.

For the market pricing climate, the manipulation was:

Typical for how your team interacts and works, your teammate Pete says that solving this problem costs him too much time and effort and even though it would affect the overall company when the project fails, Pete is not just willing to put his own work aside; this is not what he is paid for. Unless ..., you have a good offer for him.

After the manipulation, participants answered questions related to relational climates based on the Haslam and Fiske (1999) instrument (communal sharing climate, α = 0.91; market pricing climate, α = 0.81). This section was followed by questions regarding knowledge hiding, which was measured using the 12-item instrument by Connelly et al. (2012) (α = 0.84) and some general demographic characteristics, such as age, gender, and work experience. Measures will be discussed in Study 2; all measure anchors are the same in Study 1 as in Study 2.

3.2. Results

Means and standard deviations for each condition are presented in Table 1. First we looked at the manipulation checks with a univariate analysis of variance (ANOVA), which showed the expected primary effects of the HR systems manipulation on participants’ perception of commitment HR (F[1,179] = 57.64, p < .001) and compliance HR (F[1,179] = 31.70, p < .001). When looking at the manipulation check for the climate we can see a similar picture; it was significant for communal sharing (F[1,179] = 57.64, p < .001) and market pricing climate (F[1,179] = 28.60, p < .001).

Next, we focused on the interplay of the two climates and ran an additional ANOVA with HR systems and climates, controlling for perceived organizational support (same scale as in Study 2, α = 0.96) with knowledge hiding as the outcome. Results showed that knowledge hiding means in differential HR systems conditions were significant, F(1,175) = 4.83, p < .05. T-test differences revealed that the mean for knowledge hiding in commitment HR (3.57, s.d. = 0.94) was significantly different from the mean for knowledge hiding in compliance HR (3.23, s.d. = 1.04); t = 2.31, p < .05. Neither relational climates nor the interactions between relational climates and HR systems were significantly related to knowledge hiding (F[1,175] = 0.09, n.s., for climates, and F[1,175] = 0.098, n.s., for the interaction), thus providing no support for the interplay of the two climates, but highlighting the direct effect of HR systems on knowledge hiding.

4. Methodology and results of study 2

4.1. Sample and procedure

We conducted Study 2 to further strengthen the key argument around the role of context, to rule out alternative explanations, and to address some limitations in Study 1 (e.g., student sample). The goal of Study 2 was to further elaborate the results we found in Study 1 using an
alternative method and sample. Most importantly, we wanted to focus further on the contextual variables as the explanatory mechanisms for knowledge hiding. Data was collected from 155 employees and 30 direct supervisors in 30 European organizations in 2017. To alleviate problems with common method bias data was collected using two distinct questionnaires—one for the employees and one for their supervisors, who evaluated the HR systems in place. Thus we opted to have procedural remedies for the common method bias, which in the opinion of Podsakoff, MacKenzie, Lee, and Podsakoff (2003) can minimize, if not totally eliminate, common method bias concerns. A translation-back translation procedure (Brislin, 1986) was used for the scales (from English to Dutch and then back to English). It should be noted that all the organizations participating in the survey needed to have at least 50 employees. We supposed that in such a case the organization would have a formal HR system in place (Batisti et al., 2016; Teo, Le Clerc, & Galang, 2011). We did not limit the sample to specific industries; however, most of the sample in both countries comes from knowledge-intensive industries where knowledge exchange is at the core of the business, such as banking, insurance, audit, data solutions, universities, consultancy, smart industries, et cetera. The average number of employees per workgroup was 5.16, and the number of employees per workgroup ranged from 3 to 11. About 60 percent of the employees were female, and the employees were on average 37.25 years old (s.d. = 11.82). The average organization tenure was 10.29 years (s.d. = 12.03), while the average workgroup tenure was 5.68 years (s.d. = 5.19).

4.2. Measures

We used the same measurement instruments as in Study 1, specifically:

Knowledge hiding. Knowledge hiding was self-reported and measured using a 12-item scale developed by Connelly et al. (2012) (α = 0.93). The use of a self-reported measure was justified by Berry, Carpenter, and Barratt (2012) meta-analysis, which found that self-reported counter-productive work behaviors, which share some similarities with knowledge hiding, capture a broader subset of this behavior than is the case with other-reported behaviors. The scale opens with the following statement: “In a specific episode in which a particular co-worker requested knowledge from you and you declined, you...” and a sample item is “...agreed to help him/her but never really intended to”. The response scale ranged from 1 (“not at all”) to 7 (“to a very great extent”).

Perceived relational climate. Perceived relational climate (communal sharing and market pricing; α = 0.85 and α = 0.71 respectively) was measured using a 16-item (8 items for each climate) instrument developed by Haslam and Fiske (1999). The scale asks employees to rate how they perceived relationships in the workgroup and it was introduced by the following text: “Please rate the relationships between you and your colleagues in your team”. An example of a communal sharing item is “You make decisions together by consensus” and for market pricing “You expect to get the same rate of return on your effort and investment that other people get”. The response scale ranged from 1 (“very untrue of these relationships”) to 7 (“very true of these relationships”).

Communal sharing and market pricing climate ratings from the subordinates who belonged to the same workgroup were aggregated at the group level and averaged to obtain a single score for each group. To validate the aggregation of individual-level measures of both climates on the group level, we calculated the intra-class correlations (ICCs) and the multi-item within-group agreement statistics (rwg(j)). For communal sharing climate, rgw(j) ranged from 0.70 to 0.94 (when plotted, taking a slightly skewed shape), and the average rgw(j) was 0.92, whereas ICC1 was 0.37 and ICC2 was 0.75 (F = 4.01, p < .001). For market pricing climate, the range of rgw(j) was between 0.68 and 0.92 (similarly, slightly skewed) and the average was 0.89, with ICC1 at 0.14 and ICC2 at 0.46. (F = 1.85, p < .05). Yet, no well-accepted guidelines exist for determining acceptable values (cf. LeBreton & Senter, 2008). As James (1982) noted, ICC1 generally ranges from 0 to 0.50 with a median of 0.12. The values we obtained with our aggregation are above this median and indicate significant between-group variances in perceived relational climates. The traditional heuristic cut-off recommended for aggregation (rgw(j)) is 0.70 (Lance, Butts, & Michels, 2006). Given our research questions and efforts to aggregate measures regarding the relational climates in a group as perceived by the employees, we aggregated the measures of perceived communal sharing and market pricing climates. As noted by Connelly et al. (2012) and Jiang, Takeuchi, and Lepak (2013), group climates usually reflect employees’ shared perceptions. Thus we believe that an aggregated measure for our climates may be the best way to proceed with our analysis.

HR systems. Commitment and compliance HR systems (α = 0.74 and α = 0.89 respectively) were measured using 10 items each from an instrument developed by Nishii et al. (2008). The scale was completed by the supervisor. We chose to focus on the supervisor as the most probable enactor of HR practices (e.g., Purcell & Hutchinson, 2007). The scale asked specific questions about business/strategic goals underlying HR (e.g., service quality vs. cost reduction) and employee-orientated philosophy (e.g., well-being vs. exploitation) in various HR practices such as training, hiring, rewards, et cetera. Each HR practice started with the question initial statement: “[Company name] provides employees the training that it does...”, then the sample item for commitment was “...in order to help employees deliver quality service to customers” and the sample item for compliance was “...to try to keep costs down”. The response scale ranged from 1 (“very inaccurate”) to 7 (“very accurate”).

Perceived co-worker support. Perceived co-worker support was measured using a 4-item scale developed by van Veldhoven (1994) (α = 0.92). The scale was designed to take a broader view of the social support dimension. An item example is: “If necessary, can you ask your colleagues for help?”. The response scale ranged from 1 (“never”) to 7 (“always”).

Control variables. We controlled for perceived organizational support

| Table 1 |
|---|---|---|---|---|
| Experiment condition | Commitment HR system | Compliance HR system | Communal sharing climate | Market pricing climate |
| Commitment HR system, communal sharing climate (n = 44) | 4.88 (0.91) | 4.21 (0.75) | 5.03 (0.78) | 3.49 (0.84) |
| Commitment HR system, market pricing climate (n = 42) | 4.91 (0.78) | 4.35 (0.72) | 3.89 (1.29) | 4.35 (1.05) |
| Compliance HR system, communal sharing climate (n = 46) | 3.61 (1.09) | 5.24 (0.98) | 5.02 (0.91) | 3.62 (0.83) |
| Compliance HR system, market pricing climate (n = 49) | 3.90 (1.14) | 4.74 (0.80) | 3.73 (1.22) | 4.27 (1.04) |

Note. Standard deviations are in parentheses.
(POS) and task interdependence. In the first case, we supposed that the socioemotional needs playing out in POS (Eisenberger et al., 1986), whether reciprocated or not, could have a relationship with knowledge hiding. POS was measured using 4 items from Eisenberger et al. (1986) (α = 0.91). Task interdependence can lead to the formation of stronger bonds between individuals and might, therefore, be related to the probability of knowledge hiding (Gagne et al., 2019; Staples & Webster, 2008). Task interdependence was measured using 4 items from van der Vegt, Emans, and Vliert (2001) (α = 0.82).

4.3. Results: descriptive statistics, validity, and reliability

Table 2 provides descriptive statistics for all variables analyzed in this study. We started our analysis by observing the factor structure of the key variables. We conducted a confirmatory factor analysis (CFA) using Mplus 7.2 (Muthén & Muthén, 1998–2012) with the maximum-likelihood estimation procedures for the individual-level variables (knowledge hiding, perceived co-worker support, perceived communal sharing climate, and perceived market pricing climate), which showed an adequate fit with the data (χ²(415) = 662.568, CFI = 0.92, SRMR = 0.09) (Hu, 1999). The standardized factor loadings ranged from 0.52 to 0.85 for knowledge hiding items, 0.81 to 0.91 for co-worker support items, 0.18 to 0.72 for market pricing climate and 0.43 to 0.82 for the communal sharing climate. All loadings were significant except item 6 (“One of you often pays the other to do something”) (p < .10) in the market pricing scale. To maintain intact the market pricing scale meaning and due to the acceptable fit indices, which showed good overall construct validity, we decided to retain item 6 in the market pricing climate scale.

4.4. Multilevel analysis results

The data set consisted of two hierarchically nested levels: 155 employees (level 1) nested within 30 workgroups (level 2), each of which had one group supervisor. As this violates the assumption of data independence, we used hierarchical linear modeling (random coefficient modeling) to test the following aspect of our multilevel model: (1) the existence of a multilevel structure, (2) the level-1 relationship between employee perceived co-worker support and employee knowledge hiding, (3) the cross-level effects of relational climates and HR systems on knowledge hiding, and (4) the interaction effects between co-worker support, relational climates and HR systems towards knowledge hiding. As a consequence, to test our hypotheses we followed the suggestions proposed by Hox (2010) and developed a set of multilevel models based on theoretical predictions using the incremental improvement procedure. The predictor variables were grand-mean centred to reduce unnecessary multicollinearity between the linear terms and interaction terms (interaction estimate and test are unaffected but lower-order terms are, e.g. “main effects” of the predictors involved in the interaction) (Aiken, West, & Reno, 1991). The fixed effects with robust standard errors for all models are presented in Table 3.

Our first model (model 1) is the intercept-only model, which uses individual knowledge hiding as the dependent variable. In our next step, we added perceived co-worker support as a level-1 predictor of knowledge hiding. Results show that perceived co-worker support is negatively and significantly related to knowledge hiding (model 2: γ = -0.16, s.e. = 0.08, t = -1.93, p < .10), which supports Hypothesis 1. Snijders and Bosker (2012) pseudo R² for each model was reported. This R² is estimated on the proportion of reduction of level-1 and level-2 errors due to estimates in the model. Finally, deviance for all models was also reported.

To test the cross-level main effects of HR systems and relational climates, we added both commitment HR system and communal sharing climate in Model 3a. Model 3b used the same procedure, but in this case, we included compliance HR system and market pricing climate. Results show no cross-level direct relationships. Model 4a deals with the interaction effects of commitment HR systems and communal sharing climate on knowledge hiding. As it can be seen from Model 4a, neither moderation hypotheses were accepted, thus commitment HR system did not moderate the relationship between perceived co-worker support and knowledge hiding (Hypothesis 2a: γ = 0.12, s.e. = 0.07, t = 1.56, n.s.), nor was the moderation with communal sharing climate supported (Hypothesis 3a: γ = 0.00, s.e. = 0.09, t = 0.02, n.s.). Model 4b looked at the moderation Hypotheses 2b and 3b, which suggested that compliance HR system and market pricing climate, respectively, moderate the relationship between perceived co-worker support and knowledge hiding. The results revealed a significant positive interaction between perceived co-worker support and compliance HR system towards knowledge hiding (model 4b: γ = 0.11, s.e. = 0.05, t = 2.02, p < .05)

These effects are shown in Fig. 3 (it depicts the whole range of values for knowledge hiding and the 25th and 75th percentile for compliance HR systems). It demonstrates that the relationship between perceived co-worker support and knowledge hiding is always negative but is far more so for employees under a low compliance HR system than for those under high compliance HR system. To test this assumption, we compared both lines slope to zero (Preacher, Curran, & Bauer, 2006). Perceived co-worker support predicted lower levels of knowledge hiding when the compliance HR system was low (ω = -0.79, s.e. = 0.40, t = 1.97, p < .05), and also when compliance HR systems were high (ω = -0.17, s.e. = 0.08, t = 1.97, p < .05), thus supporting Hypothesis 2b. Moreover, the relationship between perceived co-worker support and market pricing climate towards knowledge hiding was partially significant (model 4b: γ = -0.15, s.e. = 0.09, t = -1.62n.s.), yet our Hypothesis 3b was not supported.

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 (individual level)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Perceived organizational support</td>
<td>4.91</td>
<td>1.11</td>
<td>(0.91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Perceived co-worker support</td>
<td>5.97</td>
<td>0.95</td>
<td>0.52**</td>
<td>(0.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Task interdependence</td>
<td>4.21</td>
<td>0.83</td>
<td>0.19*</td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Perception of communal sharing climate</td>
<td>5.12</td>
<td>0.66</td>
<td>0.41**</td>
<td>0.59**</td>
<td>0.16*</td>
<td>(0.85)</td>
<td></td>
</tr>
<tr>
<td>5 Perception of market pricing climate</td>
<td>4.32</td>
<td>0.50</td>
<td>0.24**</td>
<td>0.10</td>
<td>0.09</td>
<td>0.26**</td>
<td>(0.71)</td>
</tr>
<tr>
<td>6 Knowledge hiding</td>
<td>1.54</td>
<td>0.88</td>
<td>-0.18*</td>
<td>-0.25**</td>
<td>0.05</td>
<td>-0.17*</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

**Level 2 (team level)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Commitment HR system</td>
<td>5.48</td>
<td>0.55</td>
<td>(0.74)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Compliance HR system</td>
<td>3.58</td>
<td>1.10</td>
<td>-0.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Communal sharing climate</td>
<td>5.11</td>
<td>0.65</td>
<td>0.07</td>
<td>-0.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Market pricing climate</td>
<td>4.29</td>
<td>0.53</td>
<td>0.24</td>
<td>0.16</td>
<td>0.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes. n (level 1) = 155, n (level 2) = 30. Coefficient alphas are on the diagonal in parentheses. **p < .01, *p < .05, †p < .10. Relational climates at level 1 denote employee perceptions, whereas at level 2 they denote aggregated scores at the company level.
Table 3
Multilevel analysis results for knowledge hiding as the dependent variable.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3a</th>
<th>Model 3b</th>
<th>Model 4a</th>
<th>Model 4b</th>
<th>Model 5a</th>
<th>Model 5b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.55** (0.08)</td>
<td>1.54** (0.08)</td>
<td>1.55** (0.08)</td>
<td>1.54** (0.08)</td>
<td>1.57** (0.08)</td>
<td>1.54** (0.09)</td>
<td>1.58** (0.08)</td>
<td></td>
</tr>
<tr>
<td>Perceived organizational support (POS)</td>
<td>-0.08 (0.09)</td>
<td>-0.08 (0.10)</td>
<td>-0.08 (0.10)</td>
<td>-0.09 (0.10)</td>
<td>-0.05 (0.09)</td>
<td>-0.09 (0.19)</td>
<td>-0.04 (0.19)</td>
<td></td>
</tr>
<tr>
<td>Perceived co-worker support (PCS)</td>
<td>-0.16* (0.08)</td>
<td>-0.14† (0.08)</td>
<td>-0.15† (0.08)</td>
<td>-0.12 (0.08)</td>
<td>-0.16† (0.08)</td>
<td>-0.12 (0.09)</td>
<td>-0.14† (0.09)</td>
<td></td>
</tr>
<tr>
<td>Task interdependence</td>
<td>0.13 (0.08)</td>
<td>0.14† (0.07)</td>
<td>0.14† (0.08)</td>
<td>0.15† (0.08)</td>
<td>0.12 (0.08)</td>
<td>0.16* (0.08)</td>
<td>0.14 (0.09)</td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment HR system</td>
<td>0.04 (0.19)</td>
<td>0.06 (0.10)</td>
<td>0.02 (0.05)</td>
<td>0.02 (0.05)</td>
<td>0.02 (0.05)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance HR system</td>
<td>-0.04 (0.23)</td>
<td>-0.06 (0.28)</td>
<td>-0.06 (0.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communal sharing climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market pricing climate</td>
<td>0.02 (0.13)</td>
<td>-0.00 (0.12)</td>
<td>-0.03 (0.16)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Cross level and Level 2 Interaction effects (interplays)

<table>
<thead>
<tr>
<th></th>
<th>PCS × Commitment HR system</th>
<th>PCS × Communal sharing climate</th>
<th>PCS × Compliance HR system</th>
<th>PCS × Market pricing climate</th>
<th>PCS × Commitment HR system × communal sharing climate</th>
<th>PCS × Compliance HR system × market pricing climate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.12 (0.07)</td>
<td>0.00 (0.09)</td>
<td>0.11* (0.05)</td>
<td>-0.15* (0.09)</td>
<td>0.19* (0.09)</td>
<td>-0.19** (0.07)</td>
</tr>
<tr>
<td></td>
<td>0.11 (0.07)</td>
<td>-0.02 (0.06)</td>
<td>0.12** (0.04)</td>
<td>-0.26* (0.11)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Pseudo R-square | 401.67 | 398.75 | 402.50 | 403.57 | 406.75 | 405.86 | 407.61 | 408.08 |
| Deviance | 16.8 | 16.6 | 16.5 | 16.4 | 16.3 | 16.2 | 16.1 | 16.0 |

Notes. Entries are estimations of fixed effects with robust standard errors. **p < .01, *p < .05, †p < .10. n (level 1) = 155; n (level 2) = 30 in all models. Results were substantively unchanged when analyses accounted for other control variables: age, gender, and team tenure.

Fig. 3. Moderating effect of compliance HR system on the perceived co-worker support/knowledge-hiding relationship.
Lastly, we focused on a possible three-way interaction between perceived co-worker support, HR systems and relational climates towards knowledge hiding. First, in Model 5a we explored the possibility of a three-way interaction between commitment HR system and communal sharing climate towards the relationship between perceived co-worker support and knowledge hiding, which was found to be significant \( (\gamma = 0.19, \text{s.e.} = 0.08, t = 2.19 \ p < .05) \). We plotted the interaction effects in Fig. 4. We conducted also a simple slope test to see if the slopes of the lines differ from zero (Preacher et al., 2006). All four conditions – combinations between high or low commitment HR system and communal sharing, were not different from zero. The results are presented in Table 4. We can conclude that our hypothesis 4a was supported.

The three-way interaction in Model 5b, which shows the results for the moderation between compliance HR systems and market sharing climate towards knowledge hiding, is significant \( (\gamma = -0.19, \text{s.e.} = 0.07, t = -2.64, p < .01) \). We plotted these effects in Fig. 5. The figure shows that we have a positive relationship under the condition of high compliance HR system and low market pricing climate, whereas other combinations provide a negative relationship between the moderators, perceived co-worker support and knowledge hiding. The relationship is the least negative under the condition of high compliance HR system and high market pricing climate. Overall, the results show that Hypothesis 4b was supported. To further explore the results, we used the simple slope test to see if the slopes differ from zero (Preacher et al., 2006). There were no significant differences between any combination of two pairs between compliance HR systems (low, high) and market pricing (low, high) (see Table 4). An overview of all hypotheses as supported or rejected is presented in Table 5.

5. General discussion

Using social exchange theory (Blau, 1964), norm of reciprocity theory (Gouldner, 1960), and contextual theory in their alignment or misalignment (Cable & Edwards, 2004; Johns, 2006) we have argued that in organizational settings we can look at the role of HR systems and relational climates simultaneously to explore how they impact the relationship between perceived co-worker support and knowledge hiding. The alignment between a positive (commitment-based) HR system and a positive (communal sharing) relational climate should have a detrimental effect on knowledge hiding, whereas this effect would be positive in the case of a negative match (compliance HR and market pricing climate). We can conclude that our experimental study provides support for differentiation between HR systems towards knowledge hiding, but not for the two-way interactions. Furthermore, we can conclude that the results from our field study support our notion that the alignment between HR systems and relational climates moderates the relationship between perceived co-worker support and knowledge hiding, which was itself found to be negative. Especially, our results suggest that individuals hide more knowledge under a high compliance HR system and a high market pricing climate, and hide less knowledge under a high commitment HR system and a high communal sharing climate.

5.1. Theoretical implications

Theoretical and empirical findings emphasize the importance of knowledge as one of the key drivers of organizational competitive advantage (Barney, 1991; Perry-Smith & Shalley, 2003; Wang & Noe, 2010); however, less is known about what can happen if knowledge is withheld instead of being shared. To date, limited support and understanding are present regarding what antecedents can predict knowledge hiding (Connelly et al., 2012; Xiao & Cooke, 2019). As a consequence, our first theoretical contribution to the knowledge hiding literature is showing preliminary support for the existence of a relationship between co-worker support and knowledge hiding. We have shown in field Study 2 that the more co-worker support individuals perceive, the less prone

![Fig. 4. The three-way moderating effect of commitment HR system and communal sharing climate on the perceived co-worker support/knowledge-hiding relationship.](image-url)
they are to knowledge hiding. This further emphasizes the importance of exploring work relationships from a more dyadic perspective (Ferris, Liden, Munyon, Summers, Basik, & Buckley, 2009), which takes into consideration various norms of exchange and reciprocity (Blau, 1964; Gouldner, 1960); this, in turn, can lead to undesirable behaviors of employees such as, in our case, knowledge hiding. In doing so we highlight the importance of co-worker support and general co-worker relationships, which go beyond the relationship individuals have with the leader and can explain knowledge hiding, showing new untapped variance (e.g., individuals interact more daily with their co-workers than with the supervisors; Chiaburu & Harrison, 2008). Unfortunately, such results were not replicated in our experimental Study 1.

Our second contribution lies in an enhanced understanding of the role of the organizational context that is in place. In exploring a designed context in organizations, namely HR systems, and an emerging context in the form of relational climates, we did not only expand our understanding about the role of context in the knowledge literature (Connelly et al., 2019; Connelly et al., 2012; Xiao & Cooke, 2019) but also enrich the context literature (Gonzalez & de Melo, 2018; Johns, 2006). By introducing such contexts as relevant moderators, we suggest to look beyond only personal characteristics, instead taking into account a more complex interaction between designed and emerging situations in a particular context (Johns, 2006) in predicting knowledge hiding (Xiao & Cooke, 2019). As far as we could find, no previous knowledge hiding studies have applied this combined (designed/emerging) context perspective; therefore our study adds new insights to contextual theory as well.

Our results in Study 2 show some preliminary evidence that high compliance HR systems might make the relationship between perceived co-worker support and knowledge hiding less negative. The interaction of the co-worker support and commitment HR system was not related to knowledge hiding. One possible explanation for the latter could be that in such a positive context, individuals are offset in showing negative behaviors, with the positive message of the HR system being just too strong for those individual behaviors to emerge (Cable & Edwards, 2004). Strong situational clues might lead to self-adjustment of individuals more often, thus affecting their attitudes and behaviors (Yao, Luo, & Zhang, 2020), and this is especially true for HR systems (Jackson et al., 1989). The lack of evidence in our study for the relational climate interactions could be attributed to the notion that such emerging contexts are generally less strong, and the clues provided by relational climates work more indirectly, compared to HR systems (cf. Bowen & Ostroff, 2004; Li, Frenkel, & Sanders, 2011). Another (more speculative) explanation for this could be that our sample contained few line managers with a strong motivation, who could have enhanced and delivered the message implied by the climate (Schneider, Gonzalez-Roma, Ostroff, & West, 2017). Overall, when looking at both contexts separately, it seems that in our study the HR systems in place are more important than the relational climates are, which is relevant because organizations can shape HR systems more easily compared to climates.

More interestingly in Study 2, we found a three-way interaction under high commitment HR and high communal sharing climate leading to less knowledge hiding, and a three-way interaction where higher compliance HR systems matched by higher market pricing climate related to more knowledge hiding. This interaction effect adds to the previous finding where a negative emerging context was found to be

Fig. 5. The three-way moderating effect of compliance HR system and communal sharing climate on the perceived co-worker support/knowledge-hiding relationship.

Table 5
Overview of all hypotheses as supported or rejected.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Supported or rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Perceived co-worker support is negatively related to knowledge hiding.</td>
<td>Supported</td>
</tr>
<tr>
<td>H2a: A commitment HR system moderates the relationship between perceived co-worker support and knowledge hiding. The higher the commitment HR system, the more negative the relationship.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2b: A compliance HR system moderates the relationship between perceived co-worker support and knowledge hiding. The higher the compliance HR system, the less negative the relationship.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3a: A perceived communal sharing climate moderates the relationship between perceived co-worker support and knowledge hiding. The higher the perceived communal sharing climate, the more negative the relationship.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H3b: A perceived market pricing climate moderates the relationship between perceived co-worker support and knowledge hiding. The higher the perceived market pricing climate, the less negative the relationship.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H4a: Perceived co-worker support, commitment HR system, and communal sharing climate interact to relate to knowledge hiding in such a way that perceived co-worker support will have the most negative relationship with knowledge hiding when both commitment HR system and communal sharing climate are high.</td>
<td>Supported</td>
</tr>
<tr>
<td>H4b: Perceived co-worker support, compliance HR system, and market pricing climate interact to relate to knowledge hiding in such a way that perceived co-worker support will have the least negative relationship with knowledge hiding when both compliance HR system and market pricing climate are high.</td>
<td>Supported</td>
</tr>
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</table>
positively related to knowledge hiding (Černe et al., 2014; Zhu et al., 2019).

Additionally, our findings further support the notion that contextual theories (Johns, 2006) might provide a very fruitful lens to explore individual behavior. Whereas the designed context through HR systems shows promise (under a compliance HR system), the true key message here appears to be the alignment between the formal and emerging context in place, which can interact at the same time (e.g., Cable & Edwards, 2004; Dutton & Dukerich, 1991). Thus, we expand the limited view of previous studies that neglected the designed context in place (cf. Xiao & Cooke, 2019), which took only the emerging context (e.g., climates) into consideration in looking at negative behaviors such as knowledge hiding (Banau et al., 2021; Černe et al., 2014; Pereira & Mohiya, 2021, Yao et al., 2020). Looking at HR systems as designed context further expands our knowledge about the interplay between HR systems and climates, suggesting that there is no universal best case scenario (cf. Ostroff & Bowen, 2016). Focusing only on the climate in teams or organizations is not enough and would neglect a powerful tool that organizations can use to achieve their strategic goals. We provide further theoretical understanding with the notion that designed and emerging contexts need to be aligned. For example, the positive message of a strong commitment HR system, through rewarding, training, and job design (Xiao & Cooke, 2019), needs to be complemented by the line manager matching a strong communal sharing climate (Schneider et al., 2017), where errors are not punished and knowledge is perceived as a common resource. However, this may not always be the best scenario; in some cases, more tailored approaches should also be used depending on the goal of the organization, which can lead to potential trade-offs (well-being vs. performance). Yet, as our results are not completely consistent across our two studies, these findings need to be taken with caution.

Overall, our findings suggest that it is necessary to take both contexts together to see an impact on the focus relationship between co-worker support and knowledge hiding, rather than viewing them separately in this respect.

5.2. Limitations and suggestions for future research

As with every study, ours has some limitations as well. First, it seems that Study 1 did not provide strong supporting evidence for Study 2, which can probably be attributed to the (student) sample population of Study 1. Highhouse and Gillespie (2009) argued that the use of student samples is problematic only in a situation when the studied behavior is very specific to a certain demographic or occupational cohort. Climates and HR systems are relevant for all employees as well as for students enrolled in an HR program (which form our sample). Therefore, we believe that the latter group constituted a reasonable sample. We followed the guidelines proposed to manipulate HR systems (Yang & Dickinson, 2013) and used already developed vignettes for climates, which had previously been tested on students as well (van Baalen et al., 2013).

Moreover, our Study 2 had a relatively small sample size of 30 teams for multilevel research (Mans & Hox, 2005) and might not have enough statistical power in multilevel modeling to obtain accurate estimations for the hypothesized effects (Scherbaum & Ferreter, 2009). Yet, small sample sizes might be deemed appropriate for exploratory research (e.g., Wang, Fang, Qureshi, & Janssen, 2015) as we also see our study, and similar level-2 sample sizes have been used in previous research (To, Fisher, Ashkanasy, & Rowe, 2012). In light of the above-mentioned limitations, we suggest further exploring the alignment of both contexts in place with further larger-scale studies, where the time dynamics can also be taken into consideration (Playhart & Vandenberg, 2010). As Study 1 did not fully support the findings of Study 2, we cannot infer causality nor a reverse relationship, or exclude that a different relationship can be moderated (e.g., between Z-Y or W-Y), which could explain the non-significance of our slope tests (Dawson, 2014). Furthermore, we did not explore contextual mismatches (Cable & Edwards, 2004). However, a mismatch between the climate and HR system in place (e.g., commitment HR system and market pricing climate) might work in a different way (Batistic et al., 2016), for example boosting knowledge hiding rather than hindering it. Another possible direction for future research would be to further tap into the social exchange aspect of the negative context, as in some cases knowledge hiding might be avoided if the knowledge hider receives something in return for sharing their knowledge (Connelly et al., 2019). It would also be good to collect multi-source assessments of HR systems in place to increase the reliability of this context measure. Moreover, it would be worthwhile to consider knowledge hiding as a multi-dimensional concept and test its antecedents and outcomes for each of the original three sub-dimensions (Connelly et al., 2012).

Second, the context in place can also inform other forms of support or behaviors, even if we specifically focus on co-worker support to emphasize the relational/dyadic view of knowledge hiding itself (Connelly et al., 2019; Connelly et al., 2012). We controlled for POS as well as for task interdependency, which could affect the perception of knowledge hiding as well. There are other behaviors or traits, however, that can shed further light on ways of predicting knowledge hiding. One of them could be proactive behavior or personality (Bateman & Crant, 1993), which can be seen as an antecedent or potential moderator and can also play a different role viewed as a positive or negative construct (Belschak, Den Hartog, & Fay, 2010). Further research could focus on such predictors of knowledge hiding.

Third, knowledge hiding might be a relatively under-reported event (Connelly et al., 2012) as it may be clear to the individual that such behavior is not desired. Yet, any other-reported survey could be inaccurate as well, as it is difficult to ask supervisors or co-workers to evaluate an individual’s knowledge-hiding behaviors when, by definition, the action of hiding itself is covered (Connelly et al., 2012). Moreover, previous meta-analytical findings support the notion that third-party assessments (e.g., supervisors) compared to self-reports of undesired behaviors (such as counterproductive work behavior, which is to some extent similar to knowledge hiding) do not capture more unique and incremental variance (Berry et al., 2012).

5.3. Practical implications

In a fast-moving business world, where uncertainty and competitive advantage seem to be mentioned on a daily basis, one of the factors that could have a negative impact on business success and competitive advantage is knowledge hiding (Connelly et al., 2012). Our study conveys two important messages to organizations. First, it might be the case that organizations should focus on co-worker support, rather than on building POS, as motivating co-worker support helps employees reciprocate and answer calls for support (Swift & Virick, 2013). Motivating such support could alleviate the problem of knowledge hiding in the work environment. Hence, team leaders and line managers should set the right example and openly reward employees that support or help co-workers. Second, organizations seem to be faced with a complex problem, that is, how to put into practice a climate matching with the HR system. Emerging elements of the organizational context are particularly difficult to grasp and might require systematic observation and analysis to be fully understood (Schneider et al., 2017). Thus, it might be more viable and easier for the organization to start implementing or changing the HR systems in place, which is also partially supported by our two-way interaction. However, the full potential might be unleashed only when both contexts work together simultaneously; therefore to lower knowledge hiding organizations should probably try to achieve the combination of a high commitment HR system and a high communal sharing climate, avoiding the combination of a high compliance HR system and a high market pricing climate. This could be achieved when organizational leaders introduce HR practices such as increased job autonomy and personal development planning, along with work practices such as teamwork and community building.
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References


Brachi, D., & R depicted the...