Journal of Organizational Behavior, J. Organiz. Behav. **33**, 64–88 (2012)
Published online 5 January 2011 in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/job.737

Knowledge hiding in organizations

CATHERINE E. CONNELLY[1]*, DAVID ZWEIG[2], JANE WEBSTER[3] AND JOHN P. TROUGAKOS[2]

[1]*DeGroote School of Business, McMaster University, Hamilton, ON, Canada*
[2]*Department of Management, University of Toronto, Toronto, ON, Canada*
[3]*Queen's School of Business, Queen's University, Kingston, ON, Canada*

Summary Despite the efforts to enhance knowledge transfer in organizations, success has been elusive. It is becoming clear that in many instances employees are unwilling to share their knowledge even when organizational practices are designed to facilitate transfer. Consequently, this paper develops and investigates a novel construct, knowledge hiding. We establish that knowledge hiding exists, we distinguish knowledge hiding from related concepts (knowledge hoarding and knowledge sharing), and we develop a multidimensional measure of this construct. We also identify several predictors of knowledge hiding in organizations. The results of three studies, using different methods, suggest that knowledge hiding is comprised of three related factors: evasive hiding, rationalized hiding, and playing dumb. Each of these hiding behaviors is predicted by distrust, yet each also has a different set of interpersonal and organizational predictors. We draw implications for future research on knowledge management. Copyright © 2011 John Wiley & Sons, Ltd.

Keywords: knowledge management; knowledge hiding; distrust; knowledge sharing; knowledge hoarding

> Learning ''to withhold some versions of the truth is fundamental to the maintenance of the social order . . . On the other hand, organizations have put enormous emphasis on 'openness,' 'information sharing,' 'knowledge management,' and 'telling it how it is' as part of a process of improving performance'' (Schein, 2004, p. 261).

Introduction

Organizations do not ''own'' the ''intellectual assets'' of employees, and as such, cannot coerce workers to transfer their knowledge to other organizational members (Kelloway & Barling, 2000). Despite efforts designed to enhance knowledge transfer within organizations, success has been elusive (Hislop, 2002). This reluctance to transfer knowledge persists even when employees are encouraged and rewarded for doing so (e.g., Bock, Zmud, Kim, & Lee, 2005; Swap, Leonard, Shields, & Abrams, 2001).

There is growing acknowledgement that employees must be motivated to share their knowledge with others, although this is difficult (e.g., Husted & Michailova, 2002; Wittenbaum, Hollingshead, & Botero, 2004). To address this challenge, researchers have focused on factors that may increase knowledge sharing, such as how sharing may enhance one's status and reputation (Wasko & Faraj, 2005), how developing nurturing relationships may lead to reciprocal behaviors such as knowledge sharing (Ko, Kirsh, & King, 2005), and how employees' behaviors may be

* Correspondence to: Catherine E. Connelly, DeGroote School of Business, McMaster University, 1280 Main Street West, Hamilton, ON, Canada L8S 4M4. E-mail: connell@mcmaster.ca

Received 28 July 2009
Revised 8 November 2010, Accepted 18 November 2010

affected by sharing norms (Bock et al., 2005). Other factors that might encourage knowledge sharing include: incentives (Bartol & Srivastava, 2002), fairness (Bouty, 2002), psychologic contract maintenance (Scarborough & Carter, 2000), and knowledge sharing climate (Connelly & Kelloway, 2003; Jarvenpaa & Staples, 2001). Further, because of the way in which trust captures the complexity of interpersonal relationships, several researchers have examined how it affects knowledge sharing in organizations (e.g., Jarvenpaa & Majchrzak, 2008; Kankahalli, Tan, & Wei, 2005).

Although much research has explored the factors that contribute to knowledge sharing (Wang & Noe, 2010), those that contribute to knowledge hiding are as yet unexplored. We suggest that it is crucial to examine the presence of active and intentional attempts by organizational members to hide knowledge. As such, we aim to establish knowledge hiding as a distinct construct, and present an empirical examination of the factors that predict knowledge hiding in organizations.

Knowledge hiding has received some attention from practitioners (e.g., Davenport & Prusak, 1997) and has been identified as an area requiring research attention (e.g., Greenberg, Brinsfield, & Edwards, 2007; Schein, 2004; Webster, Brown, Zweig, Connelly, Brodt, & Sitkin, 2008). Further, a recent newspaper poll of over 1700 readers suggests that 76 per cent of employees withhold knowledge from fellow workers (The Globe & Mail, 2006). Surprisingly, there is little empirical research examining knowledge hiding in organizations, although several studies have examined related constructs such as deception (e.g., Carlson & George, 2004).

In this article, we present the results of three studies that together: (a) establish that knowledge hiding occurs in organizations, (b) develop a multidimensional measure to assess knowledge hiding and to distinguish this behavior from related constructs, and (c) focus on distrust as a key predictor of knowledge hiding in organizations. Our goal is to present a theory of knowledge hiding, which may deepen our understanding of how knowledge is transferred within organizations, uncover the barriers to effective knowledge transfer, and provide a basis for future research. Our first study uses an experience sampling methodology (ESM) to uncover knowledge transfer events as they occur in one organization over multiple days and then qualitative interviews to understand the dimensionality of the construct. In our second study, we develop and validate a measure of knowledge hiding behaviors. In our third study, we use this measure to explore the role of distrust and other predictors in explaining knowledge hiding.

Knowledge Hiding

We define knowledge hiding as an intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person[1]. As such, we focus on situations in which a specific request for knowledge has been made by one employee to another. For example, one employee may ask a coworker for a copy of a report; the coworker may then reply that this report is confidential and that she will therefore not disclose it. In this example, the requested knowledge is not forthcoming, even though no deception is involved. Another example of knowledge hiding would be a situation in which the coworker provides some, but not all, of the requested knowledge; in this case, deception may be involved. That is, hiding is not always deceptive; similarly, managers do not view hiding knowledge as deception (Takala & Urpilainen, 1999). Furthermore, knowledge hiding may have positive intentions or outcomes; as with any ''white lie'' (Saxe, 1991), it may be intended to protect the other party's feelings, preserve confidentiality, or protect the interests of a third party. As such, it is not a uniformly negative behavior.

It is also important to note that, in the above examples, these requests for knowledge came from individuals, not from groups or organizations. Accordingly, we study knowledge hiding in dyads, because dyadic interaction is the main way in which knowledge is transferred within organizations (Hislop, 2002; Lane & Wegner, 1995). This

[1]Knowledge encompasses the information, ideas, and expertise relevant for tasks performed by organizational members (e.g., Bartol & Srivastava, 2002).

DOI: 10.1002/job

approach is consistent with Szulanski (1996, p. 28), who defined knowledge transfer as a "dyadic exchange of organizational knowledge between a source and a recipient unit in which the identity of the recipient matters."[2]

What knowledge hiding is not

Figure 1 positions knowledge hiding among potentially related but distinct sets of behaviors: knowledge hoarding, knowledge sharing, counterproductive workplace behaviors (CWB), workplace aggression, social undermining in the workplace, workplace incivility, and deception. This figure was adapted to include knowledge hiding from one developed by Pearson, Andersson, and Porath (2004) that was originally designed to clarify the distinctions between CWB, aggression, and incivility and other behaviors (i.e., mobbing, violence, deviant behavior, and bullying).

Although there may be some conceptual overlap between knowledge hiding and other workplace behaviors, we argue that knowledge hiding is a unique construct that broadens our understanding of knowledge transfer. For example, although no previous research has focused specifically on knowledge hiding, knowledge hoarding might demonstrate a degree of conceptual and empirical overlap with knowledge hiding. Knowledge hoarding represents the act of accumulating knowledge that may or may not be shared at a later date (Hislop, 2003). Both knowledge hiding and hoarding can be characterized as a repertoire of possible behaviors that can be classified as withholding knowledge. However, in contrast to knowledge hiding, which represents an intentional concealment of knowledge

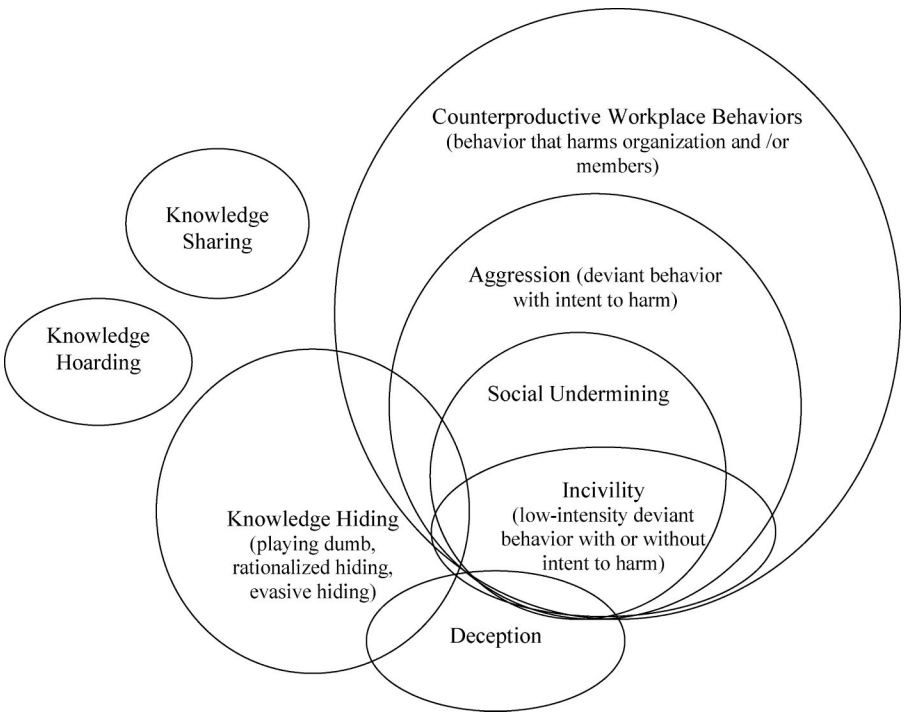

Figure 1. Knowledge hiding and other behaviors in organizations (extended from Pearson et al., 2004)

[2]We therefore do not study situations in which employees keep silent or keep secrets (as no knowledge has been requested), nor do we focus on other levels of analysis, such as group (e.g., Kane, Argote, & Levine, 2005), organizational (e.g., Morrison & Milliken, 2000), or inter-organizational (e.g., Mowery, Oxley, & Silverman, 1996).

DOI: 10.1002/job

requested by another, knowledge hoarding captures the accumulation of knowledge that has not necessarily been requested by another individual (Webster et al., 2008). The intentional nature of knowledge hiding and the broader scope of possible methods of engaging in knowledge hiding represent further fundamental differences between it and knowledge hoarding.

It is also important to distinguish between knowledge hiding and knowledge sharing. We contend that knowledge hiding is not simply the absence of sharing; rather, knowledge hiding is the intentional attempt to withhold or conceal knowledge that has been requested by another individual. Although a comparison of knowledge hiding and sharing might suggest that individuals either share or hide their knowledge, we suggest that these variables are not the opposites of each other but rather two conceptually distinct constructs. Behaviorally, the two constructs might appear quite similar but the motivations behind knowledge hiding and a lack of knowledge sharing are strikingly different. Knowledge hiding might be motivated by a number of different reasons (e.g., prosocial, instrumental, laziness, etc.), whereas a lack of knowledge sharing is likely only driven by an absence of the knowledge itself. For example, an employee may receive a request for knowledge and choose to share it. However, it is possible that s/he is not in possession of the knowledge to share. This person is not intentionally attempting to hide this knowledge; rather, s/he is simply unable to engage in the sharing behavior. That is, knowledge hiding does not include cases where an employee fails to share knowledge by mistake, accident, or ignorance. In contrast, if s/he receives a request for knowledge and engages in a behavior designed to conceal the knowledge (e.g., pretending s/he does not have this knowledge), this is an example of knowledge hiding.

Knowledge hiding is also distinct from CWB. These behaviors consist of actions taken by workers that are ''intended to have a detrimental effect on organizations and their members'' (Fox, Spector & Miles, 2001, p. 292). In contrast, knowledge hiding behaviors are not necessarily intended to cause harm; some employees may engage in knowledge hiding to protect themselves or a colleague (e.g., avoid hurting someone's feelings). It is also important to note that CWB can be directed towards individuals or the organization itself (e.g., sabotage, theft), whereas knowledge hiding occurs in response to a request from an individual.

Although CWB are intended to harm either an organization or its members, workplace aggression is directed towards individuals with the organization. Workplace aggression is defined as ''behavior by an individual or individuals within or outside an organization that is intended to physically or psychologically harm work or workers and occurs in a work-related context'' (Schat & Kelloway, 2005, p.191). Although there are, again, some superficial similarities between some of these behaviors and knowledge hiding (e.g., both are directed towards individuals) it is important to consider that knowledge hiding is not necessarily intended to harm an individual, as noted above. As such, we see how workplace aggression and knowledge hiding are separate behaviors.

Much recent attention has been devoted to the topic of social undermining in the workplace (e.g., Duffy, Ganster, Shaw, Johnson & Pagon, 2006). Knowledge hiding may also appear similar to this behavior, which is intended to ''hinder, over time, a worker's ability to establish and maintain positive interpersonal relationships, work-related success, and favorable reputation'' (Duffy, Ganster, & Pagon, 2002). Whereas social undermining includes behaviors such as giving someone the silent treatment, it also includes ''letting you know that they did not like something about you, belittled you or your ideas, and talked down to you'' (Duffy et al., 2002). Although knowledge hiding might be used to undermine a social rival, these are separate behaviors; knowledge hiding is not necessarily intended to harm another. As noted above, knowledge hiding might also be used in order to protect oneself, a coworker, or the organization.

Knowledge hiding might also appear similar to workplace incivility, which is characterized by ''low-intensity deviant'' (rude, discourteous) behavior with intent to harm the target in violation of workplace norms for mutual respect (Pearson et al., 2004). However, in contrast to workplace incivility (e.g., Andersson & Pearson, 1999), knowledge hiding is not necessarily discourteous, nor enacted with intent to harm; the knowledge hider may provide a respectful response to the request for information, while still not being forthcoming.

Deception, or ''a message knowingly transmitted by a sender to foster a false belief or conclusion by the receiver,'' can be accomplished through falsification, equivocation, or concealment (Buller & Burgoon, 1996, p. 205). But, as noted above, knowledge hiding may or may not be deceptive. Even though most research on deception has examined

DOI: 10.1002/job

lie detection (often with children or in romantic relationships), rather than perceptual and situational factors associated with deception in the workplace (Gordon & Miller, 2000; Seiter, Bruschke, & Bai, 2002), we are starting to see some research on the topic. For example, Carlson and George (2004) examine the appropriateness of electronic media for deceptive communication and detection, while Grazioli (2004) investigates whether students can detect deception on the Internet. However, rather than focusing solely on the intentional act of deception, we examine how and why people hide knowledge deceptively *and* via other means in organizations.

Predicting knowledge hiding

Because knowledge hiding occurs between coworker dyads, the quality of the relationship between these individuals is likely to affect how one person responds to a request for knowledge from the other. Dyadic interactions in organizations are generally governed by an unspoken social exchange between individuals (Blau, 1964). Positive relationships will draw on norms of reciprocity and expectations of trust, honesty, and mutual aid (Buller & Burgoon, 1996). Essentially, a person who voluntarily and spontaneously engages in one positive behavior towards another person will implicitly invoke a similar yet unspecified reciprocal behavior. Over time, the nature of the exchanges expands, as obligations are discharged and new ones are created, and as trust between the parties builds. Thus, drawing from Blau's social exchange theory, we suggest that the history of reciprocity among colleagues may affect the likelihood of an employee engaging in hiding behaviors.

Individuals who have had their previous requests for assistance rebuffed may retaliate by hiding their knowledge. Furthermore, although the colleagues in question may not have a history of reciprocating assistance, the quality of their relationship and their previous interactions may still bear on whether they engage in knowledge hiding behaviors. That is, the nature of their relationship will affect the acceptability of any behaviors (Seiter et al., 2002). To be specific, interpersonal distrust may underlie ineffective social exchanges (Blau, 1964), and as such, may affect employees' knowledge hiding behaviors.

Distrust is often defined as a ''lack of confidence in the other, a concern that the other may act so as to harm one, and that the other does not care about one's welfare, intends to act harmfully, or is hostile'' (Grovier, 1994, p. 240). Distrust is engendered when ''an individual or group is perceived as not sharing key cultural values'' (Sitkin & Roth, 1993, p. 371). Despite some conceptual similarities, distrust is actually separate from trust (Lewicki, McAllister, & Bies, 1998; McKnight, Kacmar, & Choudhury, 2004), which can be conceptualized as ''the willingness of a party to be vulnerable to the actions of another party'' (Mayer, Davis, & Schoorman, 1995, p. 712). There is a substantial body of research showing that trust predicts risk taking, task performance, and citizenship behaviors (Colquitt, Scott, & LePine, 2007), as well as knowledge sharing in organizations (e.g., Jarvenpaa & Majchrzak, 2008). However, as noted by Gefen, Benbasat, and Pavlou (2008), it is ''an imperative'' that distrust be studied now that the nomologic net of trust has been well established. We therefore explore how interpersonal distrust may relate to knowledge hiding behaviors. Along with distrust, we examine additional predictors of knowledge hiding in Study 3 (i.e., knowledge complexity, task relatedeness, and knowledge sharing climate).

In sum, we examine dyadic situations in which knowledge is requested by one employee and that knowledge is hidden by another employee. The specific goals of this research are to establish whether dyadic knowledge hiding exists in organizations, to identify what strategies people use to hide their knowledge, and to begin to understand to the antecedents of knowledge hiding. To do so, we conducted three studies.

Study I

Because knowledge hiding is a new concept, the first goal of this study was to verify the existence of knowledge hiding in organizations and to establish a preliminary link between distrust and knowledge hiding intentions.

DOI: 10.1002/job

Although the popular press argues that employees do indeed hide their knowledge (e.g., The Globe & Mail, 2006), it is important to systematically test whether and how frequently this behavior occurs. We therefore used an event-based ESM to assess the daily knowledge hiding behaviors of employees.

The second goal of this study was to discover possible strategies that employees might use to hide their knowledge from coworkers. We were specifically interested in how knowledge hiding would be manifested. This was accomplished with a series of qualitative interviews, where employees were asked to describe incidents when they had hidden knowledge from coworkers. The samples, methods, analyses, and results of both parts are described next.

Experience sampling study

An event-based ESM (e.g., Beal, Trougakos, Weiss, & Green, 2006; Csiksentmihalyi & Hunter, 2003; Csikszentmihalyi, 1977; Csikszentmihalyi & Larson, 1987) was chosen because it allows researchers to collect data about people's thoughts and feelings in real-life situations, thereby making it possible to know users' cognitions and emotions during their work activities (Csikszentmihalyi & LeFevre, 1989). This method does not require participants to recall incidents from previous months, weeks, or even days; instead, participants report on activities occurring on a particular day, over a number of days (Csikszentmihalyi & Larson, 1987). Although employees may be able to remember an instance in their past where they had engaged in knowledge hiding, such reports would not help us to understand how frequently such behaviors occur. ESM, however, allows us to more clearly establish whether knowledge hiding occurs in organizations and determine the base-rate of this behavior over a short time period. Furthermore, this technique allows us to begin to explore the potential relationship between distrust and knowledge hiding intentions[3]. In the first part of Study 1, we sought to answer the following research questions:

Research Question 1: What is the relative frequency with which knowledge hiding behaviors occur?

Research Question 2: Is there a relationship between distrust and knowledge withholding intentions?

Sample

A random sample of Canadian employees from an international financial services firm was contacted to request participation. Thirty-six of the 95 randomly chosen employees responded, but one respondent was dropped from the analysis because of incomplete responses. This sample size is comparable to those used in other studies using event-based experience-sampling methodologies (e.g., Beal et al., 2006; Ilies & Judge, 2002; Weiss, Nicholas, & Daus, 1999). Approximately 83 per cent were female and a wide age range was represented (e.g., 25 per cent between 30 and 39 per cent and 31 per cent between 40 and 49 years of age; $SD = 0.92$). Forty-eight percent reported ''some college or university'' ($SD = 0.90$). Total full-time work experience varied from less than 1 year to over 20 years ($SD = 1.12$), representing a variety of functional areas (e.g., administration, sales, information technology, services). Most of the participants (94 per cent) were in non-management roles.

Procedure

We requested that participants complete a short daily survey about their knowledge transfer incidents. On five consecutive working days, participants received an email that included a link to a daily survey. Each day, they were asked to recall an incident that day in which they had knowledge requested of them:

[3]Because knowledge hiding is a novel construct, no measures exist that examine it directly. We therefore used an existing measure of ''intentions to withhold knowledge in the future,'' as described below.

DOI: 10.1002/job

> Please think of a recent episode that occurred today in which a specific co-worker requested knowledge from you. For example, this coworker may have asked you a question about something or asked you for specific information to solve a problem.

Participants were then asked if they could recall a specific episode that day; if so, they were then asked a series of questions pertaining to that incident, specifically, whether they shared or hid the knowledge in response to the request, the extent to which they distrusted the individual making the request, and the extent to which they intended to withhold knowledge from that individual in the future.

Measures

Distrust

Interpersonal distrust was assessed with five items from McAllister, Lewicki, and Bies (2000). A sample item is ''The more I know about this person, the more cautious I become'' ($\alpha = 0.85$).

Knowledge withholding intentions

Intentions to withhold knowledge in the future were assessed (three items). This measure was developed by drawing on Bock et al.'s (2005) intention to share knowledge measure ($\alpha > 0.90$), which itself drew from Fishbein and Ajzen's (1975) intentions measure. These items were preceded by ''If you needed to work with this co-worker in the future''; a sample intention to withhold item is, ''I would likely keep my ideas to myself if this person asked for my help'' ($\alpha = 0.71$).

Analyses

Employees reported on daily events over five successive working days. As a result, there were a possible 175 daily surveys that the 35 respondents could have completed. Overall, participants completed 113 daily surveys reporting on their knowledge transfer behaviors (65 percent). Consistent with prior recommendations for this type of data, we used multilevel modeling techniques (Beal & Weiss, 2003) with level one as the five possible daily measurement occasions and level two as the employee. To analyze the data, we used the HLM6 program (Raudenbush, Bryk, Cheong, & Congdon, 2004) with scores centered around each person. Before testing the within-individual research questions, we examined whether there was sufficient within-individual variance in the construct scores to justify within-person modeling. A calculation of the within-person variance for both knowledge transfer behavior (20 percent), and knowledge withholding intentions (61 percent) revealed a reasonable amount of within-person variance, thus justifying the appropriateness of this particular analytic strategy.

Results and Discussion

In answer to our first research question, of the 113 distinct knowledge transfer events, 11 (or slightly over 10 percent of the total) were identified as incidents of knowledge hiding. Although the sample was small and included more females, we did not find that knowledge hiding was related to our demographic variables (i.e., age, gender). Thus, we have evidence to suggest that knowledge hiding does occur. However, as with certain other behaviors, such as workplace aggression (e.g., Schat, Frone, & Kelloway, 2006), knowledge hiding may be a relatively under-reported

DOI: 10.1002/job

low-base-rate event. Such low-base-rate behaviors (e.g., theft, incivility) may be difficult to study but when they occur, they have important implications for organizations and employees (Pearson, Andersson, & Porath, 2000).

Our second research question focused on the link between distrust and knowledge withholding intentions. In this analysis, we controlled for the gender of both parties to the interaction as well as a monotonically increasing variable representing the day, in order to account for any effects due to day-of-week fluctuations. A model testing distrust as a predictor of intentions to withhold knowledge from the target person in the future revealed a significant positive relationship ($r = 0.26$, $t = 2.60$, $p < 0.05$). That is, the more employees distrust the person they are interacting with, the greater their intentions to withhold knowledge from them in the future.

Interview study

Having established that people in organizations do hide knowledge from one another, the goal of our interviews was to develop an understanding of how knowledge hiding is manifested in organizations. We conducted a series of in-depth qualitative interviews to provide the basis for the development of a knowledge hiding measure. Qualitative interviews with relevant informants are a useful way to generate items with a high level of content validity, which can then be further verified with surveys. Although other studies have used a more deductive review of the conceptual literature as a basis to generate potential scale items, this method was not feasible in our case, due to a lack of available relevant literature. We therefore followed an inductive approach, which is appropriate for the development of new constructs, and which relies heavily on factor analysis to determine scale dimensions (Hinkin, 1998).

Sample

We interviewed 11 employees in a variety of jobs (e.g., clerical, administration, engineer, and project manager) who worked in the manufacturing and education sectors. One informant was located in India, two were located in the United States, and the others were located in Canada. Three interviewees were male and eight were female, and the informants' organizational tenures ranged from 9 months to 25 years. We stopped recruiting additional participants once we had achieved theoretical saturation; that is, the new informants did not yield new or different information or experiences.

Procedure

Semi-structured interviews took place either face-to-face or on the telephone, and ten informants permitted the interview to be recorded and transcribed. After providing some background information on their job duties and the characteristics of their organizations, respondents were asked to describe incidents where they had shared or received knowledge from colleagues, and incidents where they had hidden their knowledge from a coworker or believed that a coworker had hidden knowledge from them. Follow-up questions related to their personal characteristics and the nature of their relationships with these co-workers.

Analysis and results

The interview transcripts were analyzed with the assistance of version QSR N6 of the NUD*IST (i.e., Non-numerical Uniform Distribution Indexing Searching and Theory-building) qualitative data analysis software. This software is designed to assist with the organization of qualitative data, by allowing sections to be classified, or ''coded'' into

DOI: 10.1002/job

categories. The transcript of each interview was read closely, repeatedly, and then coded according to the categories of knowledge hiding behaviors which emerged from the texts.

The results suggest that people engage in a variety of knowledge hiding behaviors. For example, some informants provided examples of hiding their knowledge from others: ''There are always ways to answer questions without answering questions . . . there are certainly different ways to avoid saying what they are really asking for,'' ''the woman who was told this goes out of her way to show that she doesn't know this, that nothing has changed, and it is very phony,'' and ''you get [people saying] that . . . I don't know that information, or try so-and-so.'' Interestingly, although one might argue that employees would be unaware if knowledge was being withheld from them, some informants reported that they knew of instances where their colleagues intentionally hid their knowledge: ''Basically, at the time they just said they didn't know anything . . . since then I've heard that they do know something . . . for whatever reason, they don't always tell.'' From the interviews, a total of 26 knowledge sharing and hiding items were generated (listed in Table 1).

Discussion

Using experience sampling techniques, we were able to demonstrate the existence of knowledge hiding behaviors in organizations, as well as a preliminary relationship between distrust and intentions to withhold knowledge from coworkers. This confirms accounts in the popular press and presents another potential explanation for why knowledge transfer initiatives might not succeed. Nonetheless, it should be noted that knowledge hiding did not occur frequently. As noted earlier, however, knowledge hiding is a sensitive phenomenon that could be perceived as socially undesirable, and people tend to under-report such phenomena. The fact that employees reported these incidents at all, when they could have reported no incidents or only sharing incidents, suggests that these behaviors occur in organizations.

Beyond establishing the existence of knowledge hiding behaviors, the interviews demonstrate how knowledge hiding behaviors are manifested in organizations and reveal that engaging in hiding is not merely a simple refusal to transfer knowledge. The different identified strategies suggest that knowledge hiding is a multi-faceted behavior that needs to be captured using multidimensional measures.

Study II

Drawing upon the results of the first study, the goal of our second study was to create a measure to capture knowledge hiding behaviors, to examine the dimensionality of knowledge hiding, and to establish the reliability of the items used to assess this construct. We also sought to explore the discriminant validity of knowledge hiding by ascertaining if knowledge hiding behaviors are demonstrably separate from related behaviors, such as knowledge hoarding and knowledge sharing.

Methods

This study used a survey methodology to help identify the dimensionality of the knowledge hiding items, examine the psychometric properties of a new knowledge hiding scale, and test the discriminant validity of the knowledge hiding construct.

DOI: 10.1002/job

Table 1. Factor loadings for knowledge hiding, knowledge hoarding, and knowledge sharing items, Study II

In this specific situation, I...	1: Evasive hiding	2: Lack of sharing	3: Playing dumb	4: Rationalized hiding	5: Knowledge hoarding	Communalities
Agreed to help him/her but never really intended to	**0.86**	−0.01	0.15	0.05	0.12	0.78
Agreed to help him/her but instead gave him/her information different from what s/he wanted	**0.49**	−0.04	0.12	0.09	0.06	0.26
Told him/her that I would help him/her out later but stalled as much as possible	**0.60**	0.05	0.21	0.00	0.08	0.41
Offered him/her some other information instead of what he/she really wanted	**0.50**	−0.05	0.21	0.19	0.06	0.34
Looked into the request to make sure my answers were accurate	0.03	**0.78**	−0.03	0.10	0.07	0.62
Explained everything very thoroughly	−0.04	**0.77**	−0.09	−0.09	−0.09	0.61
Answered all his/her questions immediately	0.03	**0.75**	−0.07	−0.08	−0.03	0.57
Told my coworker exactly what s/he needed to know	0.01	**0.76**	−0.15	−0.15	−0.12	0.62
Went out of my way to ensure that I understood the request before responding	−0.13	**0.51**	−0.10	−0.10	0.10	0.35
Pretended that I did not know the information	0.16	−0.10	**0.94**	0.02	0.07	0.93
Said that I did not know, even though I did	0.21	−0.18	**0.80**	0.00	0.12	0.74
Pretended I did not know what s/he was talking about	0.23	−0.23	**0.61**	−0.02	0.04	0.48
Said that I was not very knowledgeable about the topic	−0.29	0.03	**0.52**	0.05	0.13	0.38
Explained that I would like to tell him/her, but was not supposed to	0.00	0.12	0.02	**0.77**	−0.02	0.62
Explained that the information is confidential and only available to people on a particular project	0.10	0.10	0.00	**0.75**	0.05	0.58
Told him/her that my boss would not let anyone share this knowledge	0.18	0.08	0.07	**0.70**	−0.05	0.53
Said that I would not answer his/her questions	0.05	−0.20	−0.05	**0.46**	0.18	0.29
I am a "pack rat" when it comes to information	0.09	−0.03	0.10	0.09	**0.82**	**0.59**
I tend to accumulate and store information	0.11	−0.07	0.01	−0.08	**0.82**	**0.10**
I like to stockpile information just in case I might need it	0.15	−0.06	0.9	0.03	**0.81**	**0.58**
I never throw away any information that I think might be useful in the future	0.00	0.07	0.08	0.12	**0.70**	**0.40**
Percentage of variance explained (following rotation)	9.02	13.19	11.29	9.64	8.13	

Factor loadings for each factor are indicated in bold.

DOI: 10.1002/job

Sample

A total of 194 employees from a voluntary online panel of English-speaking adults (The StudyResponse Project: Stanton & Weiss, 2002) completed our questionnaire. The response rate was approximately 11 per cent, which is typical for StudyResponse. The use of this panel overcomes some of the limitations of other data collection methods (e.g., the use of undergraduates or employees from only one or a few organizations) by sampling from adult employees in a wide variety of occupations and organizations. This panel has been widely used by other researchers in the past (e.g., Piccolo & Colquitt, 2006). Although our participants came from around the world, most were North American (51 per cent US, 11 per cent Canada), and all spoke English. Approximately 57 per cent were female and a wide age range was represented (e.g., 30 per cent between 30 and 39 per cent and 22 per cent between 40 and 49 years of age; $SD = 1.34$). Education varied, with the most prevalent category, at 39 per cent, being ''some college or university'' ($SD = 1.16$). Total full-time work experience varied from less than 1 year to over 20 years ($SD = 1.24$), representing a variety of functional areas (e.g., administration, sales, information technology, and services). Managers made up 36 per cent of the sample and participants were employed in many industries (e.g., real estate, for-profit services, transportation, health, and government).

Procedure

Participants were recruited through email messages, and those who participated were entered into a lottery to receive gift certificates from an online organization. An examination of early versus late respondents revealed no significant differences. Consistent with suggestions for studying deviant behaviors (Bennett & Robinson, 2003; Korsgaard et al., 2002), we used a critical incident technique in which participants were asked to describe a recent knowledge hiding or sharing incident at work. Although our interview data did suggest that individuals may perceive that knowledge is being hidden from them, we chose to only study employee reports of their own behaviors. We did not define the term ''knowledge'' for participants, because this may depend on the context and the individuals involved; that is, we let participants decide what knowledge meant to them. Specifically, for knowledge hiding, the participant was instructed to:

> Please think of a recent episode in which a specific co-worker requested knowledge from you and you declined to share your knowledge or expertise with him/her or did not give all of the information needed. For example, you might not have shown this co-worker how to do something, only gave a part of the information needed, declined to tell something s/he needed to know, or did not help him/her learn something important.

To make this incident concrete in their minds, they were then asked to provide a description of this incident:

> Please describe the episode in which you declined to share knowledge with your co-worker: {open-ended write-in area provided}.

Measures

Knowledge hiding behaviors

These were assessed with the items generated from the interviews discussed above (see Table 1). Sample knowledge hiding items included ''said that I would not answer his/her questions,'' ''pretended that I couldn't find the information that s/he wanted,'' and ''gave him/her a little bit of assistance, but didn't help him/her to the extent s/he wanted.'' Each question was assessed with a seven-point Likert scale, with respondents indicating the extent to which they agreed with the statement (1 = not at all, 4 = somewhat, and 7 = to a very great extent).

DOI: 10.1002/job

Related constructs

Knowledge sharing was measured with five items derived from the interviews described above and listed in Table 1. A sample knowledge sharing item is ''told him/her exactly what s/he wanted to know.'' Knowledge hoarding consisted of four items that were developed especially for this study, based on Hislop's (2003) theoretical review, and listed in Table 1. A sample knowledge hoarding item is ''I never throw away any information that I might think might be useful in the future.'' Each question was assessed with a seven-point Likert scale, with respondents indicating the extent to which they agreed with the statement (1 = not at all, 4 = somewhat, and 7 = to a very great extent).

Analyses

To examine discriminant validity, an exploratory factor analysis (EFA) with principal axis factor analysis and varimax rotation was conducted to determine if there was significant overlap between the knowledge hiding dimensions, knowledge sharing, and hoarding. This type of exploratory analysis was appropriate because we were looking for underlying patterns in the data (Gerbing & Hamilton, 1996). We expected knowledge hiding to be multidimensional given the results of the interview study, which revealed different ways that people hid their knowledge. However, we did not have any preconceptions of the factor structure that would best represent ''knowledge hiding,'' in terms of how many factors would exist, and what they would consist of.

In our analysis, we retained four items for each of the knowledge hiding factors, and rejected all items with cross-loadings above 0.40. Because this was an EFA, we did not specify the number of desired factors in our analysis; we let the number of factors emerge. The remaining items were those that demonstrated the highest factor loadings. None of the communality variables for the knowledge hiding or lack of sharing items approach or exceed 1 and none are lower than 0.26, indicating no issues with the solution. The results of the EFA are shown in Table 1.

Results

Means, standard deviations, internal consistencies, and correlations between variables are presented in Table 2. In the EFA, five separate factors emerged: three knowledge hiding dimensions, a (lack of) knowledge sharing factor, and a hoarding factor. The first knowledge hiding factor describes behaviors whereby the hider pretends to be ignorant of the relevant knowledge. This dimension of knowledge hiding involves some deception. No knowledge is forthcoming in response to the request. We labeled this dimension *playing dumb* (four items). The second factor of knowledge hiding involves instances where the hider provides incorrect information or a misleading promise of a

Table 2. Means, standard deviations, correlations, and reliabilities,[a] Study II

Variables	Mean	*SD*	1	2	3	4	5	6	7
1. Playing dumb	2.33	1.55	(0.84)						
2. Sharing	3.03	1.58	−0.25**	(0.83)					
3. Evasive hiding	1.98	1.24	0.45***	−0.06	(0.73)				
4. Rationalized hiding	2.15	1.47	0.08	0.07	0.22**	(0.76)			
5. Knowledge hoarding	4.79	1.45	0.21**	−0.05	0.20**	0.10	(0.80)		
6. Age[b]	4.10	1.29	−0.10	0.05	−0.13	0.04	−0.02	(NA)	
7. Gender[c]	1.57	0.50	−0.03	0.04	−0.04	−0.07	0.04	−0.12	(NA)

[a]Coefficient alpha reliability estimates in parentheses on the diagonal. [b]Age was measured with the following ranges: <20, 20–24, 25–29, 30–39, 40–49, 50–59, and >60. The mean age was between 30 and 39 years old. [c]1 = male, 2 = female. $^{**}p < 0.01$. $^{***}p < 0.001$.

DOI: 10.1002/job

complete answer in the future, even though there is no intention to actually provide this. As with the playing dumb dimension, this dimension, labeled *evasive hiding* also involves some deception (four items). The third factor of knowledge hiding does not necessarily involve deception. In this case, the hider is offering a justification for failing to provide requested knowledge by either suggesting he or she is unable to provide the knowledge requested or by blaming another party. This factor was labeled *rationalized hiding* (four items). As noted in Table 2, the three knowledge hiding dimensions are weakly to moderately correlated with each other ($r = 0.08$ to 0.45); the highest correlation is between the conceptually related evasive hiding and playing dumb dimensions. The different knowledge hiding behaviors are weakly correlated with knowledge sharing ($r = -0.25$ to 0.07) and hoarding ($r = 0.10$ to 0.21), and the items related to each construct load on separate factors. Thus, knowledge hiding appears to be a different construct than knowledge sharing or hoarding, demonstrating discriminant validity. Further, each knowledge hiding dimension has an acceptable level of internal consistency (i.e., all Cronbach alphas exceed 0.70).

Discussion

The results of our quantitative study replicate and extend the results of our first study. These results help to support the existence of knowledge hiding in organizations and identify three separate strategies that employees may use in order to hide their knowledge from their colleagues – playing dumb, evasive hiding, and rationalized hiding. These strategies are distinct from each other and represent a broad spectrum of employee hiding behaviors. It should be emphasized, however, that in all three cases the goal of the behavior is the same: to hide knowledge from a coworker who has requested it. The factor analysis also reveals that knowledge hiding, knowledge hoarding, and knowledge sharing are distinct sets of behaviors that load on separate dimensions and are not strongly correlated.

Study III

With evidence pointing to the existence and dimensionality of knowledge hiding, it is important to search for possible predictors of this behavior. We therefore conducted an exploratory study that examines some possible interpersonal and situational factors that may affect employees' knowledge hiding in organizations.

Predictors of knowledge hiding

Consistent with related research on knowledge sharing (Constant, Kiesler, & Sproull, 1994), workplace deviance (Bennett & Robinson, 2003), social undermining (Duffy et al., 2006), and information deception (Buller & Burgoon, 1996), we consider how interpersonal and contextual factors may predict knowledge hiding in organizations. As such, we examine knowledge hiding as a reaction to distrust, characteristics of the knowledge itself, and as an adaptation to the social context.

As described earlier, one important arbiter of the quality of an interpersonal relationship is the level of distrust between these individuals. We reasoned that interpersonal distrust may underlie ineffective social exchanges (Blau, 1964), and as such, may affect employees' knowledge hiding behaviors. Although no one has yet investigated the relationship between distrust and knowledge hiding, Ford (2004) proposed that distrust is a predictor of partial knowledge disclosure and our results from Study 1 indicate that distrust relates to future intentions to withhold knowledge. More generally, empirical research on distrust has been linked to several negative interpersonal

DOI: 10.1002/job

outcomes. This research suggests that distrust may lead managers to use hard influence tactics when dealing with colleagues (McAllister et al., 2000) and may impede communication in project teams (Arnulf, Dreyer, & Grenness, 2005). We therefore suggest the following hypothesis:

Hypothesis 1: Employees' perceptions of distrust will be positively related to their knowledge hiding behaviors.

Although the nature of relationships may affect employees' behaviors, it is also important to consider how characteristics of the knowledge itself will affect people's knowledge hiding. The complexity of the knowledge to be transferred may affect employees' knowledge transfer behaviors (Ko et al., 2005). Given that employees are primarily rewarded for their task performance, and given that time spent responding to a knowledge request may detract from the time available to devote to their own tasks, we need to take into account how knowledge requests may relate to or detract from the core requirements of an employee's responsibilities.

This perspective is congruent with interdependence theory, which suggests that individuals' behaviors are not simply governed by the quid pro quo of reciprocal exchanges. Rather, people's interactions with others also take into account other factors, such as the possible impact of their decisions on their future goals (Kelley & Thibault, 1978). According to interdependence theory, employees would be expected to engage in knowledge hiding if the requested knowledge would require undue time or effort to explain, because this would affect their ability to achieve their own goals. We use complexity of the knowledge as a proxy for the time and effort that would be required to transfer it to a colleague, because a complex request would be a greater imposition than a simpler one. We therefore suggest the following hypothesis:

Hypothesis 2a: The complexity of the knowledge being requested will be positively related to knowledge hiding behaviors.

Although employees may be reluctant to spend time or effort dispensing knowledge to coworkers instead of discharging their own responsibilities, an exception may occur if the knowledge in question is related to these job requirements. Employees may be less likely to hide knowledge if the requested knowledge relates specifically to their assigned tasks, because there may be a belief that providing answers to relevant questions from colleagues is a part of their job responsibilities. As such, knowledge hiding would harm their abilities to achieve their career goals. Therefore, again consistent with interdependence theory (Kelley & Thibault, 1978), the following hypothesis is suggested:

Hypothesis 2b: The task-relatedness of the knowledge being requested will be negatively related to knowledge hiding behaviors.

Organizational climate may also have an important effect on employees' knowledge hiding behaviors. In situations where the correct course of action is ambiguous, people are more likely to conform to the actions of others (e.g., Deutsch & Gerard, 1955). Indeed, prior research on knowledge sharing suggests that organizational climate affects employees' sharing intentions and that this relationship is partially mediated by social norms (Bock et al., 2005). As noted by Constant et al. (1994, p. 404), ''believing that information sharing is usual, correct, and socially expected workplace behavior should increase information sharing, independent of the information possessor's personal feelings about his or her coworkers.'' Employees are affected by the organizational climate when they are deciding what knowledge to transfer to colleagues, and what knowledge they will keep to themselves.

In our research, we specifically examine knowledge hiding, rather than knowledge sharing. It is interesting to note, however, that the effects of organizational climate may be especially powerful when the behavior in question is negative, as with knowledge hiding (i.e., turning down a request would be more negative than complying with it). Because coworkers are likely to weigh negative information heavily when evaluating someone (Fiske, 1980), and because those who transgress organizational norms are often sanctioned, employees are likely to carefully consider

DOI: 10.1002/job

the organizational knowledge sharing climate when they decide how to behave. Accordingly, we suggest the following hypothesis.

Hypothesis 3: Knowledge sharing climate will be negatively related to knowledge hiding behaviors.

These hypotheses examine the predictors of knowledge hiding as a whole, without specifically hypothesizing differential relations for each of the forms that knowledge hiding can take (i.e., playing dumb, evasive hiding, and rationalized hiding). Although we expect distrust to relate to each of the dimensions, we expect that the relations will differ for the other predictor variables. As suggested by interdependence theory (Kelley & Thibault, 1978), employees will adjust their behaviors in ways that are situationally appropriate, in order to ensure that their actions do not interfere with their ability to achieve their goals. For example, if an employee believes that evasive hiding is less socially acceptable than rationalized hiding or playing dumb, then this behavior may be more strongly related to organizational climate. Similarly, if employees believe that playing dumb may negatively affect how their colleagues perceive them (e.g., ignorant) then they may be more likely to engage in evasive or rationalized hiding. Therefore, we propose that:

Research Question 3: The predictors of knowledge hiding will relate differently to knowledge hiding's dimensions.

Methods

The goal of this study was to explore the relationships between some possible antecedents and the three knowledge hiding dimensions. A total of 105 respondents participated in the survey. Undergraduate business students with work experience who were registered with a Canadian university's research pool completed a web-based survey in order to gain extra credit for their course work. About 58 percent of the participants were male and 57 percent were between 20 and 24 years of age ($SD = 0.51$). Forty-five percent of respondents reported having between 2 and 5 years of part-time work experience ($SD = 1.10$) and 12 percent reported between 2 and 5 years of full-time work experience ($SD = 1.08$).

Procedure

As with Study 2, a critical incident methodology was used; participants were asked to describe a recent knowledge hiding incident at work and answer questions about this incident.

Measures

Dependent variables

Rationalized hiding, playing dumb, and evasive hiding were each assessed with four items developed for this research and described in Study 2.

Independent variables

As in Study 1, interpersonal distrust was assessed with five items from McAllister et al. (2000). Knowledge complexity was assessed with four items adapted from Trevino, Webster, and Stein's (2000) scale. A sample item is, ''This knowledge was very complicated and difficult to explain.'' Task-relatedness of knowledge was assessed with three items drawn from the interview study. A sample item is, ''This knowledge was primarily task-related

DOI: 10.1002/job

Table 3. Means, standard deviations, correlations, and reliabilities,[a] Study III

Variable	Mean	*SD*	1	2	3	4	5	6	7
1. Evasive hiding	2.81	1.36	(0.75)						
2. Rationalized hiding	1.99	1.36	0.03	(0.85)					
3. Playing dumb	3.07	1.43	0.15	0.14	(0.73)				
4. Knowledge sharing climate	4.18	0.95	−0.19	−0.12	0.00	(0.87)			
5. Interpersonal distrust	3.25	1.55	0.46***	0.24	0.34***	−0.04	(0.87)		
6. Knowledge complexity	3.38	1.25	0.22*	0.06	0.05	0.00	0.10	(0.70)	
7. Task related knowledge	4.51	1.09	0.13	−0.23	−0.02	0.03	−0.07	−0.03	(0.63)

[a]Coefficient alpha reliability estimates in parentheses on the diagonal. $^{*}p < 0.05$. $^{***}p < 0.001$.

(e.g., relevant to my job).'' Knowledge sharing climate was assessed with 16 items from Connelly and Kelloway's (2003) measure. A sample item is ''People in this organization share their ideas openly.''

Analyses

Descriptive statistics, correlations, and internal consistency reliability estimates for the measures are presented in Table 3. Because the dimensions of hiding are moderately correlated (see Table 3), we first conducted an omnibus test, specifically, a canonical correlation analysis. As this analysis was significant (Wilks' lambda = 0.535, $p < 0.001$), three sets of multiple regression analyses were conducted. In them, we analyzed the effect of interpersonal distrust, knowledge characteristics (complexity and task-relatedness), and knowledge sharing climate on the different knowledge hiding behaviors. These analyses are presented in Table 4.

Results

Hypothesis 1, suggesting that hiding behaviors would relate to perceptions of distrust, is supported: all three hiding dimensions relate significantly to interpersonal distrust (evasive hiding $\beta = 0.45$, $p < 0.001$; playing dumb $\beta = 0.35$, $p < 0.01$; rationalized hiding $\beta = 0.23$, $p < 0.05$).

Hypothesis 2a, that the complexity of the knowledge being requested will be positively related to knowledge hiding behaviors, is partially supported. Knowledge complexity predicted evasive hiding ($\beta = 0.18$, $p < 0.05$). Hypothesis 2b, suggesting that the task-relatedness of the knowledge being requested will be negatively related to knowledge hiding behaviors, is also partially supported. Task-relatedness is negatively related to rationalized hiding ($\beta = -0.35$, $p < 0.01$) and positively related to evasive hiding ($\beta = 0.20$, $p < 0.05$).

Table 4. Results of multiple regressions,[a] Study III

	Hiding behaviors		
	Playing dumb	Rationalized hiding	Evasive hiding
Knowledge complexity	0.05	0.03	0.18*
Task-related knowledge	0.02	−0.21*	0.20*
Interpersonal distrust	0.35**	0.23*	0.45***
Knowledge sharing climate	0.06	−0.11	−0.180*
R^2	0.13*	0.12*	0.31***

[a]Betas (standardized regression coefficients) reported. $^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

DOI: 10.1002/job

Hypothesis 3, that knowledge sharing climate will be negatively related to knowledge hiding behaviors, is partially supported. Knowledge sharing climate predicts evasive hiding ($\beta = -0.18$, $p < 0.05$).

Research question 3, suggesting that knowledge hiding's dimensions would relate differentially to the predictors, was supported. Although all hiding dimensions were predicted by distrust, evasive hiding was the only type of knowledge hiding that was also predicted by knowledge complexity, task-relatedness, and knowledge sharing climate. Rationalized hiding, in contrast, was predicted only by both distrust and task-relatedness, and playing dumb was only predicted by distrust.

Discussion

From the findings of our third study, it appears that employees who distrust a coworker are more likely to hide their knowledge from this individual. This effect was significant for each type of knowledge hiding behavior. Clearly, interpersonal dynamics affect individuals' decisions to hide their knowledge. It is interesting to consider whether such decisions reflect an ongoing pattern of behavior (e.g., the coworker has demonstrated their untrustworthiness) or whether the distrust stems from other social cues (e.g., the coworker belongs to a different work group).

Our findings also suggest that the specific way in which an employee decides to hide knowledge is affected by the characteristics of the knowledge in question. When the knowledge in question was complicated, the employees were more likely to engage in evasive hiding. This finding suggests that employees are able to adjust their knowledge hiding behaviors in ways that are situationally appropriate; it may be ineffective to ''play dumb'' or rationalize when the requested knowledge is relatively straightforward. At the same time, knowledge that is relevant to a worker's job description is also treated differently. Employees who were asked for task-related knowledge were less likely to engage in rationalized hiding but more likely to engage in evasive hiding. That is, it may be difficult for employees to provide a reasonable rationale for hiding knowledge that is task-related (e.g., how do I do this task?) so they may instead try to avoid responding.

The organizational context also seems to affect employees' decisions whether to hide their knowledge; employees in organizations with stronger knowledge sharing climates were less likely to engage in evasive knowledge hiding. It should be noted that the two non-significant relationships between organizational climate and knowledge hiding (playing dumb and rationalized hiding) both involve types of knowledge hiding that may be more socially acceptable than evasive hiding, and therefore be less subject to the influence of organizational climate. For example, playing dumb (e.g., ''pretended I didn't know what s/he was talking about''), may involve deception, which has been shown to be highly constrained by culture (Seiter et al., 2002). Rationalized hiding involves an explanation (e.g., ''explained that I would like to tell him/her, but was not supposed to''), which again would allow colleagues to preserve their relationships by allowing an external attribution to be made for why the knowledge was not forthcoming. Future research should examine additional organizational elements that may affect employees' knowledge hiding (e.g., shared or individual rewards, organizational policies). Again, it appears that employees take into account situational and contextual cues when reacting to coworkers' requests for knowledge.

In summary, our results clearly indicate that employees hide knowledge from those they distrust. However, each type of knowledge hiding is predicted by different contextual and interpersonal variables, which further supports the multidimensionality of the construct. For example, evasive hiding is the only knowledge hiding technique predicted by the complexity of the knowledge in question. One possible explanation for these differential relations is that employees who decide to hide their knowledge may choose the evasive hiding technique (e.g., give incomplete information) only when the situation lends itself; that is, when the knowledge in question is sufficiently complicated that a partial answer is believable. In contrast, employees may find it awkward to feign ignorance (play dumb) or to present many excuses (rationalized hiding) when the answer is very simple or obvious.

DOI: 10.1002/job

General Discussion

Although researchers have called for more investigations into the failure of knowledge transfer within organizations, most of the existing literature has focused on enhancing knowledge sharing (e.g., Bock et al., 2005; Wasko & Faraj, 2005). In contrast, we examined a novel construct, knowledge hiding between employee dyads in organizations. The present research is the first to identify and empirically study the multi-dimensional nature of knowledge hiding between employees. We extend past research on knowledge transfer behaviors that consider activities such as knowledge creation and sharing, and we respond to calls for the development of multi-dimensional measures (Nissen & Jennex, 2005) and for the investigation of knowledge withholding in organizations (Greenberg et al., 2007). The results of our studies suggest that distrust often drives employees to hide knowledge from their colleagues.

Using an ESM, we found evidence to suggest that knowledge hiding does indeed occur in organizations on a daily basis, and that distrust relates to future intentions to withhold knowledge. Our interviews described how knowledge hiding behaviors are manifested, and our first set of surveys suggested that there are three different types of knowledge hiding in organizations – playing dumb, evasive hiding, and rationalized hiding – that are demonstrably separate from knowledge sharing and knowledge hoarding. In our second set of surveys, we identified distrust as an important predictor of each type of knowledge hiding, and we further demonstrated that the different knowledge hiding behaviors have different antecedents. Thus, we have begun to establish knowledge hiding's dimensionality as well as how this new construct relates to individual, interpersonal, and contextual antecedents.

Future research

Given that we have introduced a novel construct and begun to examine its nomologic net, our findings present several opportunities for future research, which we outline in Figure 2. This figure has been adapted from Wang and Noe (2010) to include knowledge hiding, and presents the antecedents of knowledge hiding that we tested in our third study (in shaded boxes with solid lines), as well as some suggestions for future research (in clear boxes with dotted lines). We now turn to these future research ideas.

Considering our results concerning the role of distrust in predicting knowledge hiding, it will be interesting to ascertain what other interpersonal dynamics affect this behavior. With distrust as a significant predictor of knowledge hiding, it would be useful to build on this finding and consider if interpersonal justice (Donovan, Drasgow, & Munson, 1998) or justice climate (Colquitt, Noe & Jackson, 2002) have similar effects. Specifically, it is possible that unfair interpersonal treatment will increase the amount of knowledge hiding. Similarly, power differences (e.g., Yukl, Kim, & Falbe, 1996) between the requestor and the knowledge hider may further affect the likelihood that knowledge will be hidden or forthcoming. Because some groups of workers may be more likely to experience higher levels of interpersonal injustice and greater power differentials (e.g., contingent workers, visible and ethnic minorities, workers with disabilities, and women in non-traditional occupations), it will also be instructive to examine how these workers experience and cope with knowledge hiding and its consequences.

It is equally important for managers to further consider the context in which the communication takes place. In particular, some communication technologies can affect employees' distrust in each other, and may therefore affect knowledge hiding behaviors. There is a tendency for employees who use leaner communication media (e.g., reverse auctions instead of email) to fail to develop trust (Huang, Gattiker, & Schwarz, 2008), especially when faced with complex interactions (Gattiker, Huang, & Schwarz, 2007). Organizations that promote the use of lean communication systems (e.g., in virtual teams or with telecommuters) may face unanticipated consequences; these outcomes can be explored further in future research.

Future research may identify specific consequences of knowledge hiding behaviors at individual, interpersonal, and organizational levels. We expect that, in cases where there is competition between employees for recognition, knowledge hiding will increase short-term performance ratings for individual employees, while decreasing long-

DOI: 10.1002/job

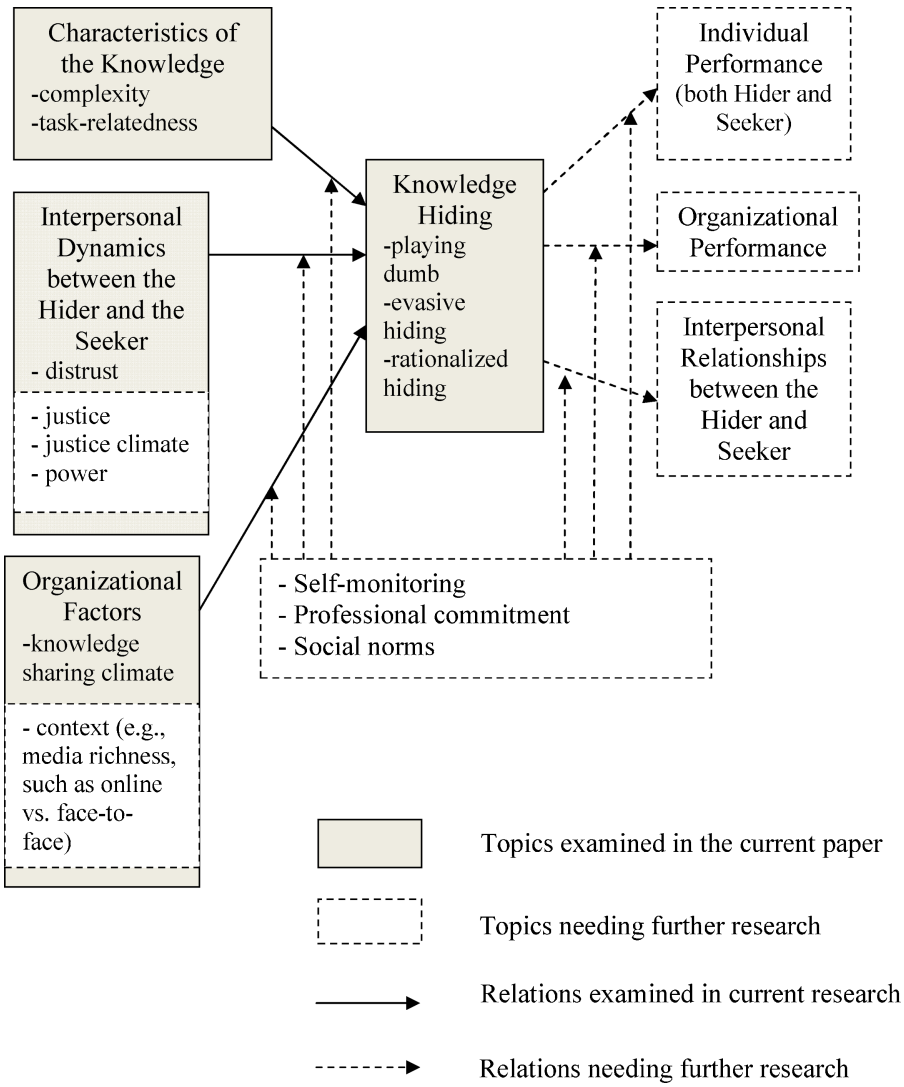

Figure 2. Theoretical antecedents and consequences of knowledge hiding in organizations (extended from Wang & Noe, 2010)

term performance of groups and organizations. It will also be interesting to explore whether different types of knowledge hiding have different consequences on interpersonal relationships. Note that the three dimensions of knowledge hiding (i.e., playing dumb, evasive hiding, and rationalized hiding) exist along a continuum of bluntness. Evasive hiding may damage interpersonal relationships more severely than rationalized hiding, where an explanation is given for not providing the requested knowledge, but it may be quite apparent that the knowledge is being purposely hidden. In contrast, the intent to hide knowledge may be less apparent when the hider ''plays dumb''; the relationship between the knowledge hider and seeker may therefore be preserved. Keeping in mind that knowledge hiding is not necessarily intended to be harmful, future research can examine the possible link between positive or prosocial intentions (e.g., to preserve confidentiality or to protect another individual) and the types of knowledge hiding that result. For example, it is possible that positive intentions are associated more strongly with rationalized hiding than with the other types of knowledge hiding.

DOI: 10.1002/job

Several factors may moderate the relationships in the model. For instance, moderators may increase or reduce the likelihood of knowledge hiding or may predispose an individual towards specific types of knowledge hiding. For example, individuals with high levels of self-monitoring (Snyder, 1974) may be more likely engage in rationalized hiding than playing dumb, because they may be more comfortable with direct communication. Similarly, individuals with high levels of professional commitment (e.g., nurses) may never hide knowledge if they consider it their professional responsibility to respond to all requests, even if they do not trust or like the requestor. Future research should examine these moderators more closely.

Relationships between knowledge hiding and outcomes may also be moderated. For example, knowledge hiding may have different effects in organizations with social norms that are hostile or supportive of knowledge hiding. Although our results suggest that knowledge sharing climate may discourage evasive hiding, it would be interesting to further examine if knowledge hiding that occurs in organizations with strong knowledge sharing climates would negatively affect perceptions of collegiality and performance (in comparison to organizations where knowledge hiding is more common). Research that uses organizational-level climate perceptions should be conducted to resolve these questions.

Study limitations

This research makes a number of important contributions; however, some limitations should be acknowledged. Although we utilized multiple methods, the nature of the issue being investigated necessitated the use of self-report data. Indeed, it is difficult to ask supervisors or coworkers to assess an employee's knowledge hiding behaviors when, by definition, the actions involved would be concealed. As noted by Tangirala and Ramanujam (2008), supervisor or coworker ratings would most likely reflect the observer's broad impressions and implicit theories about the target employees. Concerns about common-method bias are somewhat mitigated by the fact that in our first study we used interviews and a multi-level methodology employing repeated measures to assess behaviors on a daily basis. It is also important to acknowledge that we cannot establish the direction of the relationships based on the cross-sectional data that we collected. Future research will be needed to determine whether knowledge hiding affects distrust or *vice versa*.

Another potential limitation to this program of research was that the participants from the experience sampling study were somewhat homogenous. As such, there is potential threat to the generalizability of the findings associated with this group. That being said, the 11 percent report rate of knowledge hiding is comparable with previous organizational studies examining other types of negative work behaviors (e.g., workplace incivility). Moreover, the subsequent studies in this paper tested and found knowledge hiding in more diverse samples. As such, while the response rate for this study is a potential limitation, we believe this concern is somewhat alleviated by the evidence from the other studies in this paper.

A further possible limitation is our use of a student sample for our final study. However, as noted by Highhouse and Gillepsie (2009), the use of student samples is only problematic when the behavior being studied is specific to a different demographic or occupational group (e.g., CEOs, retirees, and expatriates). Because knowledge hiding may be engaged in by all workers, including those who are also students, this population was a reasonable sample to test our hypotheses. In our other studies we examine employees of a single organization (experience sampling study) as well as employees from a cross-section of different organizations and industries (interview study and first survey). Our multi-sample, multi-method approach addresses generalizability concerns by showing that knowledge hiding occurs in a wide variety of settings.

As with much research that deals with potentially awkward interpersonal behaviors, it is possible that our participants responded in socially desirable ways. We attempted to mitigate this issue by ensuring the confidentiality of responses in all of our studies. However, future research could include some items to try and assess whether participants are actively altering their responses in a socially desirable manner. For instance, future measures of knowledge hiding could include ''lie'' statements similar to those used in personality measures that would indicate

DOI: 10.1002/job

social desirability concerns if they were strongly endorsed (e.g., ''I always tell my colleagues everything I know when they ask me for information'' or ''I never withhold information from anyone''). We would also like to acknowledge that we did not measure knowledge sharing climate at the organizational level. Because organizational climate reflects employees' shared perceptions, an aggregated measure may be more accurate. Future research, however, may explore how knowledge hiding occurs within specific organizations so that contextual factors can be addressed in more detail. Our paper focuses on knowledge hiding; a behavior that occurs in organizations, but that has not received any research attention. By studying it separately from related constructs such as CWB, incivility, and deception, we are able to more fully understand why this behavior occurs, how it is manifested, and how it might affect those who engage in it and those who are its targets. Future research may investigate how some of the facets of knowledge hiding (e.g., playing dumb) share more similarities with other constructs, such as social undermining, than others (e.g., rationalized hiding). Our hope is that future research will continue our efforts to delineate the nomologic net of knowledge hiding, and furthermore identify antecedents and consequences of its different facets.

Implications for practice

Based on our series of studies, we are able to make several recommendations for practice and research. Of course, in the same way that knowledge sharing is not always a positive and beneficial behavior (Schultze & Leidner, 2002), it is equally important to emphasize that knowledge hiding is not necessarily a ''bad'' or deviant behavior. As with many other behaviors (e.g., lying), there may be positive, negative, or unintended consequences, depending partly on the intent of the perpetrator. Employees may engage in knowledge hiding in order to protect their own interests or the interests of their organizations, or they may hide knowledge to undermine or retaliate against another employee. However, managers who wish to curtail the incidence of these behaviors have several avenues. Managers can attempt to increase employees' perceptions of the trustworthiness of their colleagues, by emphasizing a shared identity, or by highlighting instances where trustworthiness has been demonstrated (e.g., by acknowledging when someone follows through with what was promised). It would also be important to avoid providing incentives for employees to ''betray'' their coworkers (e.g., to discourage sales people from poaching each others' customers). Further, managers can endeavor to change their organization's knowledge sharing climate by demonstrating managerial support for knowledge sharing, and by increasing employees' opportunities for social interactions (Connelly & Kelloway, 2003). Early interventions may help to prevent negative outcomes related to knowledge hiding behaviors from becoming entrenched and even more difficult to manage (Garud & Kumaraswamy, 2005).

Studying knowledge hiding between dyads in organizations is novel. Given increased calls for research to investigate the failure of knowledge sharing initiatives in organizations, our introduction of knowledge hiding is especially timely. Our research demonstrates that knowledge hiding occurs in organizations and the results support the need to pay more attention to the influence of distrust on knowledge transfer behaviors in the workplace. By using several different methods to identify, describe and explore this new construct, we have provided an important foundation for future research on knowledge hiding in organizations.

Acknowledgements

We would like to acknowledge the assistance of Stephane Cote, Peer Fiss, Linda Freeman, Karlene Harry, Gary Latham, Belle Rose Ragins, Tracy Street, and Haiyan Zhang. This research was completed with financial assistance from the Monieson Centre of Queen's University, Queen's School of Business, and the Arts Research Board of McMaster University.

DOI: 10.1002/job

Author biographies

Catherine E. Connelly is an Associate Professor of Organizational Behavior and Human Resources Management at the DeGroote School of Business at McMaster University in Canada. She received her PhD from Queen's University and studies knowledge hiding, knowledge sharing, and knowledge management as well as the attitudes and behaviors of non-standard workers. Her research has appeared in several journals, including *Journal of Applied Psychology, Journal of Management, Journal of Vocational Behavior, Journal of Management Information Systems, Information & Management,* and *Human Resource Management Review.* She currently serves on the editorial board of *Human Relations.*

David Zweig is an Associate Professor of Organizational Behavior and Human Resources Management in the Department of Management at the University of Toronto. He received his Ph.D. in Industrial/Organizational Psychology at the University of Waterloo. His research interests include employee privacy, knowledge hiding and knowledge management, structured interviews, psychological contract breach and employee cynicism.

Jane Webster received her PhD from New York University and is the E. Marie Shantz Professor of MIS in the School of Business at Queen's University in Canada. She has served as a Senior Editor for *MIS Quarterly* and has published in a variety of journals including the *Academy of Management Journal*, *Communication Research*, *Information Systems Journal*, *Information Systems Research*, *Journal of Organizational Behavior*, *MIS Quarterly*, and *Organization Science*. Her current research concerns information systems and technologies for environmental sustainability. She also investigates the impacts of technologies in the support of distributed work, organizational communication, employee recruitment and selection, employee monitoring, training and learning, and human-computer interaction.

John P. Trougakos is an Assistant Professor of Management in the Department of Management at the University of Toronto's Scarborough Campus, as well as the Rotman School of Management at the University of Toronto's St. George Campus. He earned his Ph.D. at Purdue University. His research interests include emotions in the workplace, experience sampling research, social interaction at work, leadership, and work recovery.

REFERENCES

Andersson, L. M., & Pearson, C. M. (1999). Tit for tat? The spiraling effect of incivility in the workplace. *Academy of Management Review*, *24*, 452–471.

Arnulf, J. K., Dreyer, H. C., & Grenness, C. E. (2005). Trust and knowledge creation: How the dynamics of trust and absorptive capacity may affect supply chain management development projects. *International Journal of Logistics: Research and Applications*, *8*, 225–236.

Bartol, K., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership and Organization Studies*, *19*, 64–76.

Beal, D. J., Trougakos, J. P., Weiss, H. M., & Green, S. G. (2006). Episodic processes in emotional labor: Perceptions of affective delivery and regulation strategies. *Journal of Applied Psychology*, *91*, 1053–1065.

Beal, D. J., & Weiss, H. M. (2003). Methods of ecological momentary assessment in organizational research. *Organizational Research Methods*, *6*, 440–464.

Bennett, R. J., & Robinson, S. L. (2003). The past, present and future of workplace deviance research. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* 2nd edition (pp. 247–281). Mahwah, NJ: Lawrence Erlbaum.

Blau, P. M. (1964). *Exchange and power in social life*. New York, NY: John Wiley & Sons.

Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces & organizational climate. *MIS Quarterly*, *29*, 87–112.

Bouty, I. (2002). Interpersonal and interaction influences on informal resource exchanges between R&D researchers across organizational boundaries. *Academy of Management Journal*, *43*, 50–65.

Buller, D. B., & Burgoon, J. K. (1996). Interpersonal deception theory. *Communication Theory*, *6*, 203–242.

Carlson, J. R., & George, J. R. (2004). Media appropriateness in the conduct and discovery of deceptive communication: The relative influence of richness and synchronicity. *Group Decision and Negotiation*, *13*, 191–210.
Colquitt, J. A., Noe, R. A., & Jackson, C. L. (2002). Justice in teams: Antecedents and consequences of procedural justice climate. *Personnel Psychology*, *55*, 83–109.
Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology*, *92*, 909–927.
Connelly, C. E., & Kelloway, E. K. (2003). Predictors of employees' perceptions of knowledge sharing cultures. *Leadership and Organization Development Journal*, *24*, 294–301.
Constant, D., Kiesler, S., & Sproull, L. (1994). What's mine is ours, or is it? A study of attitudes about information sharing. *Information Systems Research*, *5*, 400–421.
Csikszentmihalyi, M. (1977). *Flow: The psychology of optimal experience*. New York, NY: Harper and Row.
Ciksentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies*, *4*, 185–199.
Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the Experience-Sampling Method. *Journal of Nervous and Mental Diseases*, *175*, 526–536.
Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology*, *56*, 815–822.
Davenport, T. H., & Prusak, L. (1997). *Information ecology: Mastering the information and knowledge environment*. Oxford, UK: Oxford University Press.
Deutsch, M., & Gerard, H. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*, *51*, 629–636.
Donovan, M. A., Drasgow, F., & Munson, L. J. (1998). The perceptions of fair interpersonal treatment scale: Development and validation of a measure of interpersonal treatment in the workplace. *Journal of Applied Psychology*, *83*, 683–692.
Duffy, M. K., Ganster, D. C., & Pagon, M. (2002). Social undermining in the workplace. *Academy of Management Journal*, *45*, 331–351.
Duffy, M. K., Ganster, D. C., Shaw, J. D., Johnson, J. L., & Pagon, M. (2006). The social context of undermining behavior at work. *Organizational Behavior and Human Decision Processes*, *101*, 105–126.
Fishbein, M., & Ajzen, I. (1975). *Beliefs, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley Publishing Company.
Fiske, S. T. (1980). Attention and weight in person perceptions: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology*, *38*, 889–906.
Ford, D. (2004). Knowledge sharing: Seeking to understand intentions and actual sharing. *Unpublished PhD thesis*, Queen's University, Canada.
Fox, S., Spector, P. E., & Miles, D. (2001). Counterproductive work behavior (CWB) in response to job stressors and organizational justice: Some mediator and moderator tests for autonomy and emotions. *Journal of Vocational Behavior*, *59*, 291–309.
Garud, R., & Kumaraswamy, A. (2005). Vicious and virtuous circles in the management of knowledge: The case of Infosys Technologies. *MIS Quarterly*, *29*, 9–33.
Gattiker, T. F., Huang, X., & Schwarz, J. L. (2007). Negotiation, email, and Internet reverse auctions: How sourcing mechanisms deployed by buyers affect suppliers' trust. *Journal of Operations Management*, *25*, 184–202.
Gefen, D., Benbasat, I., & Pavlou, P. A. (2008). A research agenda for trust in online environments. *Journal of Management Information Systems*, *24*, 275–286.
Gerbing, D. W., & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling*, *3*, 62–72.
Greenberg, J., Brinsfield, C. T., & Edwards, M. S. (2007). Silence as deviant work behavior: The peril of words unspoken. *Symposium presented at the annual meeting of the Society for Industrial and Organizational Psychology*, New York, NY.
Gordon, A. K., & Miller, A. G. (2000). Perspective differences in the construal of lies: Is deception in the eye of the beholder? *Personality and Social Psychology Bulletin*, *26*, 46–55.
Grazioli, S. (2004). Where did they go wrong? An analysis of the failure of knowledgeable Internet consumers to detect deception over the Internet. *Group Decision and Negotiation*, *13*, 149–172.
Highhouse, S., & Gillepsie, J. Z. (2009). Do samples really matter that much? In C.E. Lance, & R.J. Vandenberg (Eds.), *Statistical and Methodological Myths and Urban Legends* (pp. 247–266). New York, NY: Routledge.
Grovier, T. (1994). An epistemology of trust. *International Journal of Moral and Social Studies*, *8*, 155–174.
Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*, 104–121.
Hislop, D. (2002). Mission impossible? Communicating and sharing knowledge via information technology. *Journal of Information Technology*, *17*, 165–177.

DOI: 10.1002/job

Hislop, D. (2003). Linking human resource management and knowledge management via commitment: A review and research agenda. *Employee Relations*, *25*, 182–202.
Huang, X., Gattiker, T. F., & Schwarz, J. L. (2008). Interpersonal trust formation during the supplier selection process: The role of the communication channel. *Journal of Supply Chain Management*, *44*, 53–75.
Husted, K., & Michailova, S. (2002). Diagnosing and fighting knowledge-sharing hostility. *Organizational Dynamics*, *31*, 60–73.
Ilies, R., & Judge, T. A. (2002). Understanding the dynamic relationships among personality, mood, and job satisfaction: A field experience sampling study. *Organizational Behavior and Human Decision Processes*, *89*, 1119–1139.
Jarvenpaa, S. L., & Majchrzak, A. (2008). Knowledge collaboration among professionals protecting national security: Role of transactive memories in ego-centered knowledge networks. *Organization Science*, *19*, 260–276.
Jarvenpaa, S. L., & Staples, D. S. (2001). Exploring perceptions of organizational ownership of information and expertise. *Journal of Management Information Systems*, *18*, 151–183.
Kane, A. A., Argote, L., & Levine, J. M. (2005). Knowledge transfer between groups via personnel rotation: Effects of social identity and knowledge quality. *Organizational Behavior and Human Decision Processes*, *96*, 56–71.
Kankahalli, A., Tan, B. C. Y., & Wei, K.-K. (2005). Contributing knowledge to electronic knowledge repositories: An empirical investigation. *MIS Quarterly*, *29*, 113–143.
Kelley, H. H., & Thibault, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York, NY: Wiley Publishers.
Kelloway, E. K., & Barling, J. (2000). Knowledge work as organizational behavior. *International Journal of Management Reviews*, *2*, 287–304.
Ko, D.-G., Kirsch, L. J., & King, W. R. (2005). Antecedents of knowledge transfer from consultants to clients in enterprise system implementations. *MIS Quarterly*, *29*, 59–85.
Korsgaard, M. A., Brodt, S., & Whitener, E. (2002). Trust in the face of conflict: The role of managerial trustworthy behavior and organizational context. *Journal of Applied Psychology*, *87*, 312–319.
Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *Journal of Personality and Social Psychology*, *69*, 237–253.
Lewicki, R. J., McAllister, D. J., & Bies, R. J. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review*, *23*, 438–459.
Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An intergrative model of organizational trust. *Academy of Management Review*, *20*, 709–734.
McAllister, R. J., Lewicki, D. J., & Bies, R. J. (2000). Hardball: How trust and distrust interact to predict hard influence tactics use. *Unpublished paper*, Georgetown University, Washington, DC.
McKnight, D. H., Kacmar, C. J., & Choudhury, V. (2004). Dispositional trust and distrust distinctions in predicting high and low-risk internet expert advice site perceptions. *E-Service Journal*, *3*, 35–58.
Morrison, E. W., & Milliken, F. J. (2000). Organizational silence: A barrier to change and development in a pluralistic world. *Academy of Management Review*, *25*, 706–725.
Mowery, D. C., Oxley, J. E., & Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, *17*, 77–91.
Nissen, M. E., & Jennex, M. E. (2005). Knowledge as a multidimensional concept: A call for action. *International Journal of Knowledge Management*, *1*, i–v.
Pearson, C. M., Andersson, L. M., & Porath, C. L. (2000). Assessing and attacking workplace incivility. *Organizational Dynamics*, *29*, 123–137.
Pearson, C. M., Andersson, L. M., & Porath, C. L. (2004). Workplace incivility. In S. Fox, & P. Spector (Eds.), *Counterproductive work behavior: Investigations of actors and targets* (pp. 177–199). Washington, DC: APA.
Piccolo, R. F., & Colquitt, J. A. (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal*, *49*, 327–340.
Raudenbush, S. W., Bryk, A., Cheong, Y. F., & Congdon, R. (2004). *HL M6: Hierarchical linear and nonlinear modeling*. Chicago, IL: Scientific Software International.
Saxe, L. (1991). Lying: Thoughts of an applied social psychologist. *American Psychologist*, *46*, 409–415.
Scarborough, H., & Carter, C. (2000). *Investigating knowledge management*. London, UK: CIPD.
Schat, A. C. H., Frone, M., & Kelloway, E. K. (2006). Prevalence of workplace aggression in the U.S. workforce: Findings from a national study. In E. K. Kelloway, J. Barling, & J. J. Hurrell Jr. (Eds.), *Handbook of workplace violence* (pp. 47–89). Thousand Oaks, CA: Sage Publications.
Schat, A. C. H., & Kelloway, E. K. (2005). Workplace aggression. In J. Barling, E. K. Kelloway, & M. R. Frone (Eds.), *Handbook of work stress* (pp. 189–218). Thousand Oaks, CA: Sage.
Schein, E. (2004). *Organizational culture and leadership*. 3rd edition. New York, NY: Wiley Publishers.
Seiter, J. S., Bruschke, J., & Bai, C. (2002). The acceptability of deception as a function of perceiver's culture, deceiver's intention, & deceiver-deceived relationship. *Western Journal of Communication*, *66*, 158–180.

DOI: 10.1002/job

Shultze, U., & Leidner, D. E. (2002). Studying knowledge management in information systems research: Discourses and theoretical assumptions. *MIS Quarterly*, *26*, 213–242.
Sitkin, S. B., & Roth, N. L. (1993). Explaining the limited effectiveness of legalistic ''remedies'' for trust/distrust. *Organization Science*, *4*, 367–392.
Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, *30*, 526–537.
Stanton, J. M., & Weiss, E. M. (2002). *Online Panels for Social Science Research: An Introduction to the StudyResponse Project*. Syracuse, NY: Syracuse University, School of Information Studies, Tech. Rep. No. 13001, accessed June 7, 2005 at http://istprojects.syr.edu/∼studyresponse/studyresponse/TechRpt13001.pdf.
Swap, W., Leonard, D., Shields, M., & Abrams, L. (2001). Using mentoring and storytelling to transfer knowledge in the workplace. *Journal of Management Information Systems*, *18*, 95–114.
Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, *17*, 27–43.
Takala, T., & Urpilainen, J. (1999). Managerial work and lying: A conceptual framework and an explorative case study. *Journal of Business Ethics*, *20*, 181–195.
Tangirala, S., & Ramanujam, R. (2008). Employee silence on critical work issues: The cross-level effects of procedural fairness climate. *Personnel Psychology*, *61*, 37–68.
The Globe and Mail. (2006). The weekly web poll. Friday May 12, 2006, C1.
Trevino, L. K., Webster, J., & Stein, E. (2000). Making connections: Complementary influences on communication media choices, attitudes, and use. *Organization Science*, *11*, 163–182.
Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, *20*, 115–131.
Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, *29*, 35–58.
Webster, J., Brown, G., Zweig, D., Connelly, C. E., Brodt, S., & Sitkin, S. (2008). Beyond knowledge sharing: Knowledge withholding at work. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* Vol. 27 (pp. 1–37). Bradford: Emerald Group Publishing.
Weiss, H. M., Nicholas, J. P., & Daus, C. S. (1999). An examination of the joint effects of affective experiences and job beliefs on job satisfaction and variations in affective experiences over time. *Organizational Behavior and Human Decision Processes*, *78*, 1–24.
Wittenbaum, G. M., Hollingshead, A. B., & Botero, I. C. (2004). From cooperative to motivated information sharing in groups: Moving beyond the hidden profile paradigm. *Communication Monographs*, *71*, 286–310.
Yukl, G., Kim, H., & Falbe, C. M. (1996). Antecedents of influence outcomes. *Journal of Applied Psychology*, *81*, 309–317.

DOI: 10.1002/job