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Differences in sharing knowledge interpersonally and via databases: The role of evaluation apprehension and perceived benefits

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Knowledge sharing is an essential component of effective knowledge management. However, evaluation apprehension, or the fear that your work may be critiqued, can inhibit knowledge sharing. Using the general framework of social exchange theory, we examined the effects of evaluation apprehension and perceived benefit of knowledge sharing (such as enhanced reputation) on employees' knowledge sharing intentions in two contexts: interpersonal (i.e., by direct contact between two employees) and database (i.e., via repositories). Evaluation apprehension was negatively associated with knowledge sharing intentions in both contexts while perceived benefit was only positively associated with knowledge sharing intentions in the database context. Moreover, compared to the interpersonal context, evaluation apprehension was higher and knowledge sharing lower in the database context. Finally, the negative effects of evaluation apprehension upon knowledge sharing intentions were worse when perceived benefits were low compared to when perceived benefits were high.

The identification of knowledge as a corporate asset has seen a proliferation of literature on knowledge management and intellectual capital (Davenport & Prusak, 1998; Foss & Pederson, 2004). Recently, the need for greater examination of the human and social components of

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knowledge management has been emphasized (Cross & Baird, 2000; Hansen, Nohria, & Tierny, 1999; Hinds & Pfeffer, 2003). Case studies of knowledge intensive firms have identified reciprocity, trust, and recognition as important determinants of knowledge sharing (Davenport & Prusak, 1998; Weiss, 1999). Similarly, Hinds and Pfeffer (2003) noted a range of cognitive (e.g., experts' inability to articulate tacit knowledge) and motivational (e.g., intergroup competition) barriers to knowledge sharing in organizations. Although our understanding of the role of individual level motivations is improving (Bock, Zmud, Kim, & Lee, 2005; Kankanhalli, Tan, & Wei, 2005), knowledge sharing processes are still not clearly understood and as a result many organizations fail to fully utilize their internal knowledge resources. Knowledge sharing is influenced by a range of individual and interpersonal influences and there is a need to further develop the "micro-foundations" (i.e., an understanding of the motivational barriers and facilitators; Foss & Pederson, 2004, p. 343) of knowledge sharing.

The current study extends the literature on knowledge sharing in several ways. First, we introduce the construct of evaluation apprehension (or the anxiety arising from a concern that one's knowledge or expertise may be evaluated unfavourably by an audience) as a motivational barrier to knowledge sharing. To our knowledge, evaluation apprehension has not been investigated in the context of knowledge sharing. Second, we test the effects of perceived benefits of knowledge sharing, such as enhanced career outcomes, upon knowledge sharing intentions and examine the interactive effect of evaluation apprehension—a barrier—and perceived benefits—a facilitator—of knowledge sharing. Finally, we examine these effects in two different contexts: interpersonal knowledge sharing versus sharing with a large audience in a database context.

Our approach to the study of motivation in knowledge sharing is based on the social exchange perspective. The process of knowledge sharing, though a social activity, is similar in many ways to an economic exchange (Davenport & Prusak, 1998; Weiss, 1999). This conceptualization of knowledge as a valued commodity traded between individuals has its roots in the social exchange theory. Social exchange theory (Blau, 1964) proposes that economic principles can be used to understand the nature of social exchange. Blau argued that people engage in certain behaviours after estimating the potential gain from the behaviour, comparing it with alternatives, and then selecting the behaviour, which they feel will bring them the best returns. Thus, the self-interest component of social exchange is derived from a cost–benefit analysis, comprising of the rewards (benefits) expected from the exchange and the effort (costs) involved in the exchange (Molm, 1997). As with economic behaviour, if the perceived benefits at least equal the costs the exchange process will continue, if not it will cease.

Social exchange theory has been the guiding framework in several areas in organizational behaviour and has been used to explain the effects of organizational support (Eisenberger, Huntington, Hutchison, & Sowa, 1986), psychological contract breach (Rousseau, 1995), and reciprocity of citizenship behaviours (Cardona, Lawrence, & Bentler, 2004). Similarly, this theory has been used to understand the individual and social determinants of knowledge sharing. This research has noted that employees take into account the costs and benefits of knowledge sharing (Kankanhalli et al., 2005). The costs may include time, mental effort, and loss of competitive advantage, while the potential gains include formal rewards, the establishment of a good reputation within the organization, or simply the creation of obligations for colleagues to reciprocate (Davenport & Prusak, 1998; Weiss, 1999). Although a range of costs and benefits have been identified, evaluation apprehension as a cost associated with social interaction in the knowledge sharing context has been overlooked. Evaluation apprehension can be considered as the fear that costs (in social exchange terms) of knowledge sharing may be too high. In this case, the cost refers to the risk that one's knowledge and expertise may be critiqued by others. This fear may act as a hindrance to knowledge sharing.

In this study we test the negative relationship between evaluation apprehension and knowledge sharing. We also consider the role of evaluation apprehension when other *benefits* of sharing (such as career or reputation enhancement) are perceived to be high versus low. In the following sections, we develop hypotheses regarding the relationship of knowledge sharing with evaluation apprehension and perceived benefits. We also discuss the differential effects of these variables in two knowledge sharing contexts: interpersonal versus database sharing.

EVALUATION APPREHENSION VERSUS PERCEIVED BENEFITS OF KNOWLEDGE SHARING

Evaluation apprehension has been described as a "person's active anxiety-toned concern" that he or she may be evaluated negatively (Rosenberg, 1969, p. 281). There are numerous situations that can engender evaluation apprehension, including giving a speech, taking a test or even competing in sport. The apprehension evoked by these situations may be caused by a fear of negative consequences, unwillingness to create an undesired impression among others, or attempts to protect self-esteem (Leary, Barnes, Griebel, Mason, & McCormack, 1987). Evaluation apprehension has been demonstrated to negatively affect performance in several contexts including salespersons performance (Pitt & Ramaseshan, 1990), brainstorming groups (Diehl & Stroebe, 1987), and on hidden-word tasks (Cohen, 1980). This evaluative component may exist in organizational knowledge sharing, as the

knowledge that is shared will be reviewed and assessed by the target audience in terms of its quality and usefulness. Although evaluation apprehension has never been assessed in organizational knowledge sharing context, there is indirect evidence of its role in impeding knowledge sharing. For example, Ardichvili, Page, and Wentling (2003) investigated factors affecting knowledge sharing in virtual communities of practice. They noted that one of the factors holding back knowledge sharing was that “many users fear possible criticism or ridicule of what they might post” (p. 70). Thus, knowledge sharing has the potential to evoke evaluation apprehension, which in turn may reduce the likelihood that employees will engage in such behaviours.

Hypothesis 1: Evaluation apprehension will be negatively related to knowledge sharing intentions.

On the other hand, knowledge sharing is more likely to occur if employees perceive that it will lead to positive outcomes, such as rewards, enhanced reputation, and career outcomes (Davenport & Prusak, 1998; Hinds & Pfeffer, 2003). For example, Ardichvili et al. (2003) found that members of virtual communities of practice were more likely to participate and share knowledge if they felt this helped establish them as experts. In other words, the knowledge “market” consists of buyers and sellers who exchange knowledge on the basis of its perceived value. The greater the perceived value or benefit of sharing certain knowledge, the more likely an individual will be to do so.

Hypothesis 2: Perceived benefit of sharing knowledge will be positively related to knowledge sharing intentions.

The social exchange framework also informs us about the possible interaction between perceived benefit of sharing and evaluation apprehension. Evaluation apprehension is a type of exchange cost and perceived benefit or recognition is an exchange benefit. If the perceived benefit of an exchange is great enough it could overcome the anticipated negative effects of evaluation apprehension (cost) upon knowledge sharing. That is, the benefit of sharing may outweigh the costs involved. In other words, the negative relationship between evaluation apprehension and knowledge sharing may be stronger when perceived benefits are low compared to when perceived benefits are high. In fact, there may be no relationship between evaluation apprehension and knowledge sharing when perceived benefits are high. Therefore, we predict that perceived benefit will moderate the relationship between evaluation apprehension and knowledge sharing.

Hypothesis 3: Perceived benefit of an exchange will moderate the relationship between evaluation apprehension and knowledge sharing intentions. Under conditions of low perceived benefit, there will be a negative relationship between evaluation apprehension and knowledge sharing intentions, whereas under conditions of high perceived benefit there will be no relationship between evaluation apprehension and knowledge sharing intentions.

ROLE OF KNOWLEDGE SHARING CONTEXT

Two types of knowledge management strategies have been identified: personalization and codification of knowledge (Hansen et al., 1999). Personalization strategies focus on facilitating knowledge sharing by enabling employees to share knowledge with one another through direct or mediated (e-mail, video-conferencing, phone) contact. In other words, personalization strategies are a person-to-person approach (Hansen et al., 1999) and the focus is on accessing and utilizing knowledge by connecting individuals (referred to as the interpersonal context in this study). On the other hand, codification strategies focus on capturing knowledge by identifying, codifying, and storing it for future use by the entire organization (Gray, 2001). The recipients are typically anonymous and may have different levels of expertise and work status. Importantly, knowledge shared through this context (referred to as the database context in this study) is also stored in a more permanent format than when shared in an interpersonal context. Organizations typically prefer their staff to share knowledge via database contexts so that organizational knowledge is permanently stored and not lost through events such as staff turnover. Thus, personalization and codification strategies target knowledge sharing in two very distinct contexts: interpersonal versus database, respectively. The interpersonal context is characterized by fewer recipients while the database context involves audience that is potentially larger in number, with more disparate levels of expertise, and greater permanence of record.

Research on the sociopsychological aspects of knowledge management needs to differentiate between the interpersonal and database contexts. The motivations and barriers to sharing within the individual and database context are likely to be very different. Anecdotal evidence suggests that employees prefer to share knowledge interpersonally rather than with a database. First, employees have more opportunities to engage in knowledge sharing in an interpersonal than database context. For example, Davenport (1994) noted that managers get over two-thirds of their information via interpersonal communication. Employees are more likely to seek out other

employees for advice and information instead of a database, as the interpersonal context provides the opportunity for additional interpretation and clarification (McDermott, 1999). Second, an interpersonal context facilitates the establishment of a sense of reciprocity and trust, which is particularly important for the effective transfer of tacit knowledge (Cross & Baird, 2000; Gray, 2001). Third, tacit knowledge is not always easy to articulate and codify, thus hard to share in a database context (Zack, 1999). Therefore, we predict that:

Hypothesis 4: Knowledge sharing intentions will be higher in the interpersonal context than in the database context.

The knowledge sharing context will also affect evaluation apprehension. The effect of context on apprehension can be interpreted in light of the fact that stress responses are strongest in situations of uncontrollability and social-evaluative threat (Dickerson & Kemeny, 2004). Thus, evaluation apprehension increases when individuals are unable to control the type (status/expertise) or size of the audience who will have access to their knowledge as it increases the probability that errors in performance will be detected (Kruglanski, Freund, & Bar-Tal, 1996; Seta & Seta, 1983). In the database context, individual contributions are typically accompanied by detailed information about the contributor and therefore the individual is identifiable to the audience. On the other hand, the contributor is confronted with the organization-wide audience and low levels of control over how the information is used. Therefore, the database context is likely to feel more threatening than an interpersonal context with smaller audience and greater control. Further, a situation that maintains a permanent record will evoke greater evaluation apprehension (Cohen, 1979). Again, information shared with a database is likely to have a greater permanency of record than interpersonal knowledge sharing. Therefore, we predict that:

Hypothesis 5: Evaluation apprehension will be higher when sharing knowledge in a database context than in an interpersonal context.

Perceived benefit may also vary as a function of the context (i.e., interpersonal or database) in which sharing occurs. In the database context, knowledge sharing involves a “generalized exchange” (Ekeh, 1974, p. 50) with multiple parties, in which a person will provide benefits to another individual, but actually receive benefits from a third party (e.g., organizational recognition or reputation). Interpersonal context sharing, however, involves a “restricted exchange” where two individuals exchange benefits (e.g., knowledge) with each other, while third parties are isolated from the

exchange process (p. 50). As a result of the unique exchange relationships, the potential benefits offered and likelihood of obtaining them may differ significantly between database and interpersonal contexts (Gray, 2001), which in turn may influence an individual's choice about which context to utilize when sharing knowledge. Given the absence of previous research on the levels of perceived benefits of sharing in the two contexts, we propose the following research question:

Research Question 1: Is there a significant difference in the level of perceived benefit of sharing between the two contexts (interpersonal versus database)?

METHOD

Participants and procedure

The empirical data to address these questions were collected from a multinational consultancy firm. Consultancy firms are knowledge intensive firms and previous research has also used such organizations for the study of knowledge management practices (Davenport & Prusak, 1998; Weiss, 1999). Two hundred and sixty employees were randomly selected from three Australian regional offices of this firm. The organization had knowledge management systems in place and encouraged knowledge sharing in both interpersonal and database contexts. Employees were encouraged to share market intelligence, contribute to the development of templates of best practice business processes, and capture lessons learnt. Participants included a cross-section of the various professional streams and hierarchical levels within the organization and all commonly used computer technologies at work. Questionnaires were distributed to staff via the company's internal mail system and were prefaced by a letter outlining the objectives of the study, the volitional nature of participation, endorsement from the national HR Manager, and a guarantee of confidentiality. Staff returned completed questionnaires via internal mail to the third author. Of the 260 questionnaires sent out, 119 completed questionnaires (73 males and 46 females, average tenure = 3 years 4 months) were returned representing a response rate of 46%.

Measures

The self-report questionnaire was designed to collect information concerning respondents' knowledge sharing intentions, evaluation apprehension, and perceived benefits of sharing in the two knowledge sharing contexts.

All items were measured on a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree).

Database and interpersonal context. The database and interpersonal contexts were described in introductory paragraphs to frame the context specific items for the respondent. These paragraphs were developed through interviews with three staff members, who provided feedback on the appropriateness of language, accuracy of information, and the realistic nature of the contexts described. The introductory paragraph for the database context was “Within this organization, knowledge/information (e.g., work deliverables) can be shared among staff through a variety of databases such as Knowledge Retainer and Lotus Notes. Such databases are widely accessible and knowledge contributions can be easily linked back to the individual author. Please take a moment to consider your feelings towards sharing knowledge/information via this database context and answer the following questions.” The name of the database has been altered to preserve organizational anonymity. The introductory paragraph for the interpersonal context was “Within this organization, knowledge/information (e.g., work deliverables) can be shared directly with individual staff through one-on-one communication, telephone contact or via e-mail. Please take a moment to consider your feelings towards sharing knowledge/information via this interpersonal context and answer the following questions.”

Tenure. Organizational tenure was measured using the following question: “Approximately how long have you been working at ‘this organization’ (in years and months)?”

Knowledge sharing intentions. The context specific knowledge sharing intention measures (sharing-database/sharing individual) consisted of two items: “I am very likely to share my work related knowledge via database/interpersonal context” and “I intend to use database/interpersonal context in the future to share my knowledge within the organization”. These two items were combined to form measures of knowledge sharing intentions in the database ($r = .81$) and individual ($r = .70$) contexts, respectively.

Evaluation apprehension. The evaluation apprehension items were adapted from Rehtien and Dizinno’s (1967) measure of writing apprehension. These two items were “I feel uncomfortable about sharing my knowledge via this database/interpersonal context because my contribution may be critiqued” and “I would worry about being negatively evaluated if sharing knowledge within this database/interpersonal context”.

These two items were combined to form measures of evaluation apprehension in the database ($r = .76$) and individual ($r = .85$) contexts.

Perceived benefit. The perceived benefit of sharing was assessed by the following two items: "Sharing knowledge through database/interpersonal context is beneficial to my career at this organization" and "Sharing knowledge through database context will enhance my reputation within this organization". The two items were combined to form measures of perceived benefit of knowledge sharing in the database ($r = .82$) and interpersonal ($r = .79$) contexts.

RESULTS

The means, standard deviations, and bivariate correlations for all variables are presented in Table 1. A significant positive relationship ($r = .34, p < .01$) was observed for organizational tenure and knowledge sharing in the interpersonal context but not in the database context. Tenure was also negatively related with evaluation apprehension in both contexts ($r = -.34, p < .01$ for interpersonal knowledge sharing and $r = -.20, p < .05$ for database knowledge sharing). Evaluation apprehension in an interpersonal context differed across genders, with post hoc *t*-tests indicating that females ($M = 2.30$) had higher evaluation apprehension than males ($M = 1.84$), $t(117) = 2.47, p < .05, \eta^2 = .05$. There were also significant gender differences for perceived benefit of sharing in both contexts. Females ($M = 5.78$ and 5.65) perceived a greater benefit in knowledge sharing than males ($M = 5.22$ and 5.12), in both the interpersonal, $t(117) = 2.55, p < .05, \eta^2 = .05$, and database context, $t(117) = 2.19, p < .05, \eta^2 = .04$, respectively.

The level of knowledge sharing intention was significantly higher in the interpersonal context ($M = 6.20$) than in the database context ($M = 5.21$), $t(118) = 6.97, p < .01, \eta^2 = .29$, supporting Hypothesis 4. The mean for evaluation apprehension in the database context ($M = 2.31$) was significantly higher than in the interpersonal context ($M = 2.02$), $t(118) = 3.28, p < .01, \eta^2 = .08$, supporting Hypothesis 5. However, in relation to Research Question 1, no significant difference was found for perceived benefit of knowledge sharing between the two contexts, $t(118) = -0.90, ns, \eta^2 = .00$.

We conducted two hierarchical regressions to test the relationship between evaluation apprehension, perceived benefit of sharing and knowledge sharing intentions in the two contexts. Gender and organizational tenure were entered in the first step, followed by evaluation apprehension and perceived benefit of sharing. Finally, an interaction term was entered in Step 3 to test for the moderating effect of perceived benefit of sharing on

TABLE 1
Descriptive statistics and bivariate correlations

Variable	Mean	SD	1	2	3	4	5	6	7
1. Gender	39.51	30.78	-.12						
2. Tenure									
Interpersonal context									
3. Knowledge sharing	6.20	0.91	.07	.34**					
4. Evaluation apprehension	2.02	1.01	.22*	-.34**	-.37**				
5. Perceived benefit	5.44	1.20	.23*	-.08	.03	.07			
Database context									
6. Knowledge sharing	5.21	1.39	.13	.09	.15	-.23*	.31**		
7. Evaluation apprehension	2.31	1.16	.06	-.20*	-.22*	.62**	.08	.18	
8. Perceived benefit	5.32	1.32	.20*	-.02	-.10	.18*	.41**	.43**	.17

$n = 119$.

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed).

the evaluation apprehension-knowledge sharing intention relationship. Aiken and West's (1992) guidelines for conducting moderated multiple regressions were followed (i.e., variables were mean-centred before the creation of interaction terms).

The results for interpersonal and database contexts are depicted in Tables 2 and 3, respectively. Evaluation apprehension and perceived benefit of sharing significantly predicted knowledge sharing intention above the effect of demographic variables in both the interpersonal ($R^2_{\text{change}} = .09$, $p < .01$) and database ($R^2_{\text{change}} = .23$, $p < .001$) contexts. Evaluation apprehension had a significant negative relationship with knowledge sharing intentions in both contexts, supporting Hypothesis 1. The relationship between perceived benefit of sharing and knowledge sharing intentions was found only in the database context. Hypothesis 2 was supported only for the database context.

The addition of the interaction term (between perceived benefit of sharing and evaluation apprehension) resulted in a marginal increase of variance explained in the database context, $R^2_{\text{change}} = .02$, $p < .10$ (indeed, this interaction was hypothesized a priori and we would be justified in using a one-tailed p -value, rendering the change in R^2 significant at $p < .05$). This interaction was plotted in accordance with Aiken and West's (1992) recommendations for displaying significant interactions (see Figure 1). The simple slope of evaluation apprehension on knowledge sharing intentions was significant when perceived benefit of sharing was low, $t(113) = -3.25$, $p < .001$, $\eta^2 = .09$, but nonsignificant when perceived benefit was high, $t(113) = -1.51$, ns , $\eta^2 = .02$. This indicates that the negative association between evaluation apprehension and knowledge sharing intentions in a database context is weaker when the perceived benefit of sharing is high, providing tentative supportive for the moderating effect of perceived benefit of sharing (Hypothesis 5).

DISCUSSION

Evaluation apprehension and perceived benefit of knowledge sharing

Organizations invest substantial resources in technologies such as databases or intranet sites specifically designed to facilitate the process of knowledge sharing among employees. When these technologies are not utilized by employees, a lack of training or nonuser friendly software applications are generally blamed, rather than employees' internal motivations. With regard to evaluation apprehension, this study showed that employees are less likely to share knowledge when they are apprehensive, and this evaluation apprehension is greatest when sharing through collective database-related

TABLE 2
Moderated regression results for knowledge sharing intentions in an interpersonal context

Predictor variable	Step 1			Step 2			Step 3		
	B	SE	β	B	SE	β	B	SE	β
Gender	.21	.27	.11	.31 [†]	.16	.16 [†]	.39*	.17	.21*
Tenure	.01***	.00	.35***	.01**	.00	.25**	.01**	.00	.26**
Evaluation apprehension (EA)				-.29***	.08	-.33***	-.33***	.08	-.37***
Perceived benefit (PB)				.03	.07	.04	.05	.07	.06
EA × PB							.10	.07	.13
Change in R^2							.09**		.01
F change							6.68**		1.98
R^2							.13		.23
Adjusted R^2							.11		.20
F							8.58***		6.89***

[†] $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

TABLE 3
Moderated regression results for knowledge sharing intentions in a database context

Predictor variable	Step 1			Step 2			Step 3		
	B	SE	β	B	SE	β	B	SE	β
Gender	.41	.43	.15	.18	.24	.06	.26	.24	.09
Tenure	.01	.26	.11	.00	.00	.06	.00	.00	.07
Evaluation				-.29**	.10	-.25***	-.34***	.10	-.28***
apprehension (EA)				.49***	.09	.46**	.50***	.09	.47***
Perceived benefit (PB)							.12 ^t	.07	.15 ^t
EA \times PB						.23***			.02 ^t
Change in R^2			1.76			17.59***			2.97 ^t
R^2			.03			.26			.28
Adjusted R^2			.01			.23			.25
F			1.76			9.93***			8.68***

^t $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

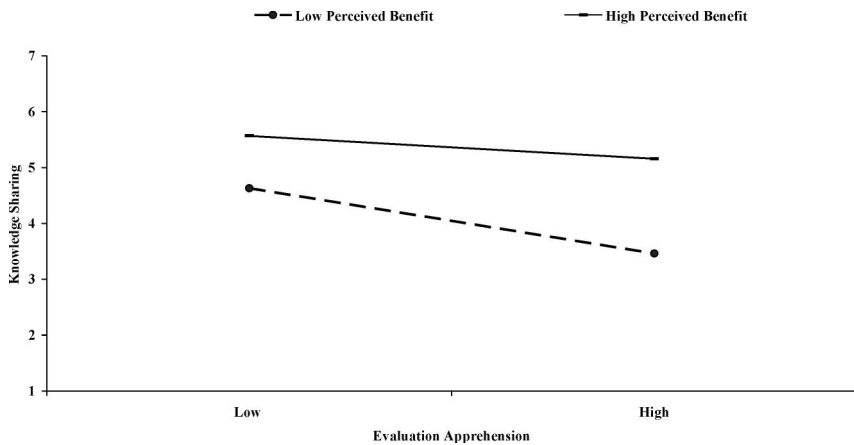


Figure 1. The effect of evaluation apprehension on knowledge sharing intentions in the database context at different levels of perceived benefit of sharing (high and low levels correspond to $+1$ and -1 *SD* values, respectively).

technologies. The database context evoked the higher levels of evaluation apprehension possibly due to the number and characteristics of people with access to the knowledge (Seta & Seta, 1983) and the permanency of the record (Cohen, 1979). If organizations intend to encourage knowledge sharing through a database context, then they must find ways to reduce employees' evaluation apprehension. Ensuring individual anonymity has been shown to be an effective means of reducing evaluation apprehension. For example, Aiken, Daeryong, Hwang, and Lu (1995) found that when communicating through a system that ensured anonymity, 85% of participants reported experiencing little or no evaluation apprehension. However, anonymous contributions could reduce the perceived benefit of sharing, as no recognition or credit could be assigned. Perhaps organizations can implement a system where a limited number of people (e.g., direct supervisors) are aware of the source of contributions, thereby ensuring recognition or rewards and managing the negative effects of evaluation apprehension.

Knowledge sharing has been conceptualized as occurring within a knowledge market, where knowledge is the commodity that is valued and exchanged (Davenport & Prusak, 1998). It was expected that employees would be more likely to share knowledge if they perceived a real benefit in doing so. Perceived benefit of sharing was positively associated with knowledge sharing in the database context but not in the interpersonal context. The benefit of sharing in the database context may be more explicit and formalized, with contributions attributed to authors. However, no

significant difference in the level of perceived benefits was found between the two contexts. Further work is warranted to examine whether individuals see qualitative differences in the benefits derived from the two contexts. For example, in the interpersonal context, sharing may earn goodwill and thereby generate social capital. On the other hand, by sharing on databases, employees may gain reputation as a knowledgeable source or derive other organizational rewards, such as enhancing promotional prospects.

Support was found for the moderating role of perceived benefit of sharing on the negative relationship between evaluation apprehension and knowledge sharing. In the database context, this negative relationship was weaker at high levels of perceived benefit. The size of the interaction effect in the interpersonal context was in the same direction and only marginally weaker than in the database context. This interaction between evaluation apprehension and perceived benefit provides another avenue for enhancing knowledge sharing. If an organization can increase its employees' perceptions about the benefits derived from sharing knowledge, then they may be able to overcome the detrimental effects of evaluation apprehension. The first step in accomplishing this goal is to identify how employees assess the benefit of engaging in a particular behaviour. For instance, do employees see reputation as being a sufficient benefit or reward for knowledge sharing, or would a financial incentive or some other form of organizational reciprocity be regarded as more beneficial? When these incentives or motivations are properly understood, the organization can provide them as an outcome of knowledge sharing behaviour, thus increasing employees' perceptions of the benefit of sharing knowledge.

The role of gender and tenure

Although no specific predictions were made for the role of either gender or tenure in the knowledge sharing process, the results of the study have provided some interesting discussion points. With regard to gender, females were shown to have significantly higher perceptions of the benefits associated with sharing knowledge for both the database and interpersonal contexts. Gender differences have been previously found on perceptions of organizational ownership of knowledge and information, with females perceiving greater organizational ownership than males (Jarvenpaa & Staples, 2000). Jarvenpaa and Staples explained these results in terms of females seeing "power arising more from non-threatening and non-controlling actions than men" (p. 173). Females may therefore derive greater benefits from knowledge that is shared with someone rather than retained (Rosener, 1990). Females also reported experiencing greater evaluation apprehension than male staff when utilizing the interpersonal

context to share knowledge. Qualitative research would enable additional explanations to be investigated including possible performance evaluation biases favouring males. However, more importantly, we did not control for level in organizational hierarchy. It could be that the female participants were at the lower levels (due to the glass ceiling effect; Morrison & von Glinow, 1990) and the results may be attributable to other contextual features and not gender.

Organizational tenure positively predicted knowledge sharing intentions in the interpersonal sharing context. This may be a reflection of the social networks that individuals form for themselves during the course of employment. These networks enable staff to engage in knowledge exchange with their colleagues, while those who have not established networks may not have the same opportunity. Organizational tenure was also negatively associated with evaluation apprehension in both contexts. Employees became less apprehensive about sharing their work-related knowledge the longer they have been with the organization. Geen (1983) demonstrated that a person's expectation of a successful outcome reduces the amount of evaluation apprehension experienced. Employees who have been in an organization longer are more confident or positive about the reaction to the knowledge they share and thus less apprehensive about doing so. Employees with longer tenure may also have greater expertise in organizational processes. Organizations may be able to reduce the evaluation apprehension caused by databases and the intranet, by providing employees with a "safe" forum in which they can test the reaction to their knowledge before having to commit to permanent, organization-wide sharing. For example, staff could be given the opportunity to discuss and receive feedback from a designated "knowledge coordinator" on the product they intend to share and in this way begin to feel more comfortable about the consequences of sharing.

Limitations and future directions

The primary limitation of this study is that it is a cross-sectional correlational study and therefore it is not possible to make firm conclusions about causal relationships. A second limitation of this study was that the conclusions reached are based on self-report measures, thereby exposing the study to a range of possible biases, namely common method variance and socially desirable response patterns. Future research would benefit from adopting a more robust methodological approach utilizing multiple methods such as objective measures or supervisor ratings of knowledge sharing. Also, the participants rated knowledge sharing in both interpersonal and database contexts. Their ratings in one context may be biased by ratings in the other context and future research should use between-groups design in comparing

the two contexts. Finally, several of the measures used in this study were generated for testing the hypotheses and future research needs to assess the validity of these measures.

In addition to addressing these concerns, future research needs to examine how psychological factors such as evaluation apprehension affect employees' participation in knowledge management. For example, how does evaluation apprehension impact upon technology acceptance variables (Davis, 1993) such as perceived usefulness, perceived ease of use, and attitude towards technology? Also, the interpersonal context in the current study included face-to-face and e-mail encounters. Given the differences in face-to-face and computer-mediated communication (Bordia, 1997), future research should test for differences in evaluation apprehension in mediated and face-to-face interactions. The effect of evaluation apprehension on technology utilization and acceptance may change over time (DeSanctis & Poole, 1994). However, unless cultural change occurs, greater familiarity with technology may not overcome evaluation apprehension. Indeed, organizational factors such as formal performance criteria and informal cultural norms (e.g., organizational trust) are much more likely to reduce evaluation apprehension.

CONCLUSION

The research reported here adds to the literature on knowledge sharing processes in organizations. Knowledge sharing occurs in a social context with relational and reputation-related consequences for employees. These consequences are very much taken into account, specifically when sharing is a discretionary act. Variables such as ownership of information, perceived benefits, evaluation apprehension, and trust in co-workers and the organization can have profound impact on knowledge sharing and successful implementation of knowledge management initiatives. Greater understanding of the barriers and facilitators of staff participation in knowledge sharing systems is required.

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