The rhetoric of 'knowledge hoarding': a research-based critique.

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Abstract

Purpose - Via a study of IT service professionals, this article responds to a recent trend towards reifying 'knowledge hoarding' for purposes of quantitative/deductive research. A 'rhetorical theory' lens is applied to reconsider 'knowledge hoarding' as a value-laden rhetoric that directs managers towards addressing assumed worker dysfunctionality.

Design/methodology/approach - A qualitative study of practicing IT service professionals (assumed within IT service management 'best practice' to be inclined to hoard knowledge) was conducted over a 34 day period. 20 workers were closely observed processing IT service incidents and 26 workers were interviewed about knowledge sharing practices.

Findings - The study found that the character of IT service practice is more one of pro-social collegiality in sharing knowledge/know-how than one of self-interested strategic knowledge concealment.

Research limitations/implications - The study concerns a single occupational context. The study indicates that deductive research that reifies 'knowledge hoarding' as a naturally-occurring phenomenon is flawed, with clear implications for future research.

Practical implications - The study suggests that management concern for productivity might be redirected away from addressing assumed knowledge hoarding behaviour and towards encouraging knowledge sharing via social interaction in the workplace.

Originality/value - Previous studies have not directly examined the concept of knowledge hoarding using qualitative methods, nor have they considered it as a rhetorical device.

1. Introduction

Over the last twenty years the Journal of Knowledge Management (JKM) has published over 100 articles that have referred to knowledge hoarding. This suggests that knowledge hoarding practices are well-established (Milne, 2007) and the concept is well understood by scholars of knowledge management matters. Alongside this, an assumption that workers are inclined to 'hoard' their knowledge has gained considerable traction in all manner of other academic outputs and advice for management practitioners, being commonly found in literature targeted at knowledge managers (e.g. Davenport and Prusak, 1998), IT managers (e.g. Rance, 2011), human resource managers (e.g. Cheese et al., 2008), quality managers (e.g. Bose, 2011) and business leaders generally (e.g. Stauffer, 1999; Robbins and Finley, 2004). Through this literature we have come to accept 'knowledge hoarding' as a term that symbolizes a particular form of dysfunctional organizational behaviour that is to be expected of workers, and that as such it presents a concern for managers.

Recently a number of research articles (e.g. Evans et al., 2015; Holten et al., 2016) have taken to reifying the concept of 'knowledge hoarding' in order that it might be studied quantitatively. By expanding the literature pertaining to knowledge hoarding in this way,

these articles have had the combining effect of implicitly bolstering the validity of knowledge hoarding as a commonly-occurring socio-behavioural phenomenon. In this article we provide an alternative perspective by applying, firstly, rhetorical theory to the concept and, secondly, practice theory to a qualitative study of IT service professionals who are subjected to management 'best practices' that espouse advice to managers to address 'knowledge hoarding' behaviours.

This article is structured as follows. In the next section we critically review the 'knowledge hoarding' literature. This is followed by a section in which we set out an argument that knowledge hoarding might more usefully be presented as a rhetorical device. In the section that follows after that, and in order to contextualize our study, we outline how the concept of 'knowledge hoarding' has been inscribed as a rhetorical device within IT service management (ITSM) 'best practice'. We then state our guiding inductive research question and outline the qualitative research methods employed for the study. After presenting and discussing our research findings we conclude by asserting our theoretical contribution and suggesting implications for management practice and future research.

2. Literature Review

In this section we survey the literature that employs the concept of knowledge hoarding, drawing particularly upon its prevalence in articles in JKM. Despite its recurrent use knowledge hoarding is typically referred to in the academic and practitioner literature in taken-for-granted terms that require the reader to apply an assumed common-sense meaning to the term as a worker behavioural trait that is dysfunctional and antonymous to 'knowledge sharing', thus presenting a management problem. Where such assertions are made they are

unsupported or weakly-supported by empirical evidence and not problematized. Typical examples are:

- Hoarding knowledge and looking guardedly at the knowledge offered by others are natural human tendencies (Gee-Woo et al., 2005).
- Personal knowledge is commonly perceived as a source of power, and people hoard this knowledge to show their expertise and competence (Pandey and Dutta, 2013).

More specifically, although Witherspoon et al. (2013) assert knowledge hoarding to be an important and under-investigated research area, they also concede that there is scant credible evidence to substantiate it. Our analysis of JKM articles reveals several articles suggesting a prevalence of knowledge hoarding where the empirical evidence is weak. In some studies individual workers (McDermott and O'Dell, 2001; Donnelly, 2008; Arling and Chun, 2011) or groups of workers (Bontis et al., 2003) are labelled as 'knowledge hoarders' without significant substantiating data being reported. Other studies interpret research data as supporting knowledge hoarding prevalence but similarly demand further scrutiny on the grounds that prior assumptions and beliefs about knowledge hoarding might be being taken into the research (i.e. that knowledge hoarding is prevalent and a management problem) (Silver, 2012). Examples include:

- Chawla and Joshi (2010) who do not specifically factor in knowledge hoarding to their quantitative study of knowledge management implementations but conclude that the study supports an argument that individuals tend to hoard knowledge;
- Yang (2004) who interprets a knowledge hoarding 'feature' at a hotel on the evidence of a manager saying: 'Why do I need to share with them? If they ask, I am willing to

tell them all I know', which might alternatively be interpreted to suggest a knowledge sharing 'feature'.

Three particular JKM studies, that implicitly carry an objectivist ontology in seeking to reify the social world (Bryman, 2001), have attempted to reify and measure knowledge hoarding behaviour using different research instruments comprising Likert-type scale questions. These are outlined and discussed in Table 1 along with another instrument for measuring knowledge hoarding recently employed by Evans et al. (2015). We suggest that none of these studies provides strong evidence to support the beliefs concerning knowledge hoarding that are implicit in their design. We particularly note that three of these four instruments refer to 'information' rather than 'knowledge', thus conflating the two; and that across all four studies the results can be interpreted to point more to a prevalence of knowledge sharing than knowledge hoarding.

Authors	Al-Alawi et al. (2007)	Goh and Hooper (2009)	Holten et al. (2016)	Evans et al. (2015)
Context	25 Bahraini Organizations	New Zealand Defence Force	52 Workplaces (Repeated two years later)	US Forest Service
Sample Size	231	70	1650 (for both)	297
Instrument for Measuring KH	2 X 5-point Likert-type scale questions (1=strongly disagree to 5=strongly agree)	1 X 5-point Likert-type scale question (1=never to 5=always)	1 X 5-point Likert-type scale question (1=to a very high degree to 5=to a very low degree)	4 X 7-point Likert scale questions (1=strongly disagree to 7=strongly agree)
Proxy Questions for measuring KH	1. 'The problem of people hoarding (keeping) knowledge does not exist and most staff members are willing to share their knowledge freely' 2. 'Co-workers commonly exchange their knowledge and experience while working'	1. 'Information hoarding exists'	1. 'Do employees withhold information?'	1. 'I keep news about what I am doing secret from others until the appropriate time' 2. 'I avoid releasing information to others in order to maintain control' 3. 'I control the release of information in an effort to present the profile I want to show' 4. 'information is a resource that needs to be carefully guarded'
Reported Results	1. 50% scored 4 or 5 (i.e. agreed); 32% scored 1 or 2 (disagreed) 2. 81% scored 4 or 5; 6% scored 1 or 2.	40% scored 4 or 5	Mean score of 2.2 reported on both occasions.	Average score of 2.14 with confirmatory factor analysis indicating four factors load onto one factor.
Critical Observations	The first question is rhetorically-loaded, implying that knowledge hoarding might exist and is 'a problem'. Nevertheless, the data points more to knowledge sharing	The question concerns information rather than knowledge. The authors acknowledge the significance of the context in which inappropriate knowledge sharing might have personal	The question concerns information rather than knowledge and is open to wide interpretation which is particularly relevant given the breadth of the contexts, some of which might consider the	Information is mentioned in three of the questions and knowledge is not mentioned in any. The average score on a scale of 7 points to a lack of prevalence of knowledge hoarding. Nonetheless, the measure is used in producing a finding that individual

	behaviours being prevalent.	security implications.	withholding of information as appropriate for privacy, security or managerial reasons. Nonetheless, the measure around the mid-point on the scale is used to claim evidence for knowledge hoarding as an antecedent and a consequent of negative acts.	knowledge hoarding diminishes unit performance.

Table 1: Published instruments for measuring Knowledge Hoarding

Implicitly countering claims made in the literature for knowledge hoarding prevalence, several studies in JKM (Sieloff, 1999; Ardichvili et al., 2003; Gururajan and Fink, 2010; Larkin, 2014) and the wider academic literature (e.g. Morris, 2001; Hew and Hara, 2007; Lee et al., 2011) report in passing an absence of knowledge hoarding thus further questioning the utility of it as a management concept. Further, Ford and Staples (2010) have challenged the common assumption that 'knowledge hoarding' and 'knowledge sharing' are anti-theses of each other and called for them to be avoided as categorical terms. Similarly, Hislop (2013, p. 139) argues that presenting workers' behaviour and decision-making in the dichotomous terms of knowledge-sharing/hoarding presents 'an over-rational view of how people think and act'. In line with this critical thinking we propose that 'knowledge hoarding' as a 'relatively new and under-researched topic in knowledge management research' (Holten et al., 2016, p.216) will benefit from reconsideration from a rhetorical theory perspective.

3. Knowledge Hoarding: From Rhetoric to Reification.

In this section we consider knowledge hoarding as a rhetorical device and discuss the implications of looking upon it as such for the study of knowledge hoarding; specifically studies (such as those in Table 1) that take a positivist perspective in order to acquire the essence of scientific legitimization (Lyotard, 1984).

Rhetoric, as here used, is characterized as a persuasive assertion, rather than a rational argument aimed at truth. It addresses the emotions rather than logical thought, employing metaphor and imprecise language that might be adaptable for a particular audience (O'Neill, 1998). From this perspective knowledge hoarding implies an act of a 'hoarder' who metaphorically might be associated with the selfish miser who 'hoards' (verb) money or possessions (Collins Dictionary and Thesaurus, 1991), gathering a protected personal

objective 'hoard' (noun). We note here the diachronic linguistical change in the application of the verb 'to hoard' from tangible objects to 'knowledge' as a non-tangible object, i.e. hoarding is metaphorically applied (Bloomfield, 1933) as a behavioural trait without necessarily entailing the collection of physical objects but nonetheless retaining the implication of deliberately attempting to be secretively selfish. Thus, the worker (i.e. every worker) is rhetorically cast as a self-interested collector of non-tangible knowledge 'objects'.

Within rhetorical theory, Bitzer (1968) argues that rhetorical discourse occurs as a response to a rhetorical situation that comprises: an exigence (or problem) to be addressed; an audience of those who might address it; and identifiable constraints to it being addressed. By way of example, let us consider the following rhetoric by Davenport (1997, p.189): 'we would be better off as knowledge managers assuming that the natural tendency is to hoard our knowledge and look suspiciously upon that from others'. The exigence here is the managerial need to assert control over 'knowledge' entities; the audience are knowledge managers; and a constraint is the idea that for workers, 'sharing… knowledge [is] often unnatural'.

While taking a lead from such rhetorical assertions, there is no universally accepted definition of knowledge hoarding in the literature. While specific definitions are rare, different JKM authors emphasize different features. Some characterize it as cultural or traditional (e.g. Bender and Fish, 2000; Labedz et al., 2011) with some particularly stressing ethical dimensions (Rechberg and Syed, 2013; Anand and Walsh, 2016). Many characterize it as an individualistic trait (e.g. Serenko and Bontis, 2016; Holten et al., 2016), while others regard it as a communal trait (e.g. Ali, 2001; Villasalero, 2014). Rai (2011, p.797) is one of few who offer a definition: 'this phenomenon of not sharing information'; thus again conflating 'information' with 'knowledge' while also synonymizing 'not sharing' with 'hoarding', both of which are contestable. The definition of Evans et al. (2015, p.495) is more considered: 'an individual's deliberate and strategic concealment of knowledge and information or the fact

that they may possess relevant knowledge or information'. This definition implies a binary conflict between the organization under responsible management and workers as 'active and strategic agents able to hoard knowledge, as a card player holding an ace, until they stand to personally gain from sharing it' (Evans et al, 2015, p.495). There is here an implicit accusation, perhaps revealing an underlying values-based bias, that self-interested workers pose a saboteurial risk to the organization and must therefore be managed into disclosing their imagined personal 'hoards' of knowledge.

Recently, researchers coming from a similar positivist perspective (e.g. Connelly et al., 2012; Serenko and Bontis, 2016) have cast a softer light upon 'knowledge hoarding' by differentiating it from intentional, and implicitly more dysfunctional, 'knowledge hiding'. However, across the literature the implication of dysfunctionality remains embedded in the rhetorical use of 'knowledge hoarding' as an academically-useful phenomenon. Thus, while Holten et al. (2016) conceptualize knowledge hoarding as a less intentional form of concealment [than knowledge hiding] they nonetheless identify it as a behavioural trait that negatively acts against organizational competitiveness. We are reminded here that a body of research that reifies and labels a concept, i.e. here, 'knowledge hoarding' (or indeed 'knowledge hiding' or 'knowledge withholding' (e.g. Stenius et al, 2016)) relies upon commonly-accepted linguistical comprehension if the body of research is to be compared, contrasted and built upon (Ford et al., 2015). Such consistency is not apparent in the literature.

We identify from the literature an apparent recent subtle shift from 'knowledge hoarding' being a widely-employed rhetorical device to being reified for positivist research. This suggests that it is timely to consider the extent to which the concept is founded upon robust, substantiating evidence for it being a prevalent phenomenon and therefore worthy of

academic attention, rather than a phenomenon that should be approached with scepticism because it is based upon contestable assumptions and beliefs (Silver, 2012).

Drawing upon rhetorical theory, we might consider 'knowledge hoarding' to be an assumption (King, 2008) within a broader rhetorical managerial discourse that typically conceives management as a systemic technology of control over everything (Hauser, 1991; Parker, 2002) necessitating: (i) the adoption of a predominantly objectivist epistemology, or what Cook and Brown (1999) refer to as an 'epistemology of possession' with 'knowledge' conceived as a commodity either in the possession of the organization (i.e. under control) or workers (i.e. uncontrolled); and (ii) the separation of the knowledge-containing communication of workers into antonymous conceptual categories of virtuous knowledge sharing and dysfunctional knowledge hoarding (Zerubavel, 1991). From this perspective the recipients of and participants in such a broader rhetorical discourse become inclined to adhere to the value-laden convictions of the discourse (Vatz, 1973; O'Neill, 1998), i.e.:

1. knowledge has to be understood from an objectivist perspective;

2. knowledge sharing and knowledge hoarding are antonymous concepts;

3. knowledge sharing behaviour is virtuous;

4. knowledge hoarding behaviour is dysfunctional;

5. knowledge hoarding behaviour is expected;

6. knowledge hoarding behaviour results from a human predisposition to prioritize self-interest over organizational-interest; and

7. it is an important management responsibility to militate against knowledge hoarding behaviour.

While recent studies have begun to challenge such arguments (e.g. Larkin, 2014; Trusson et al., 2014; Ford et al., 2015), by conceptualising 'knowledge hoarding' as a rhetorical (i.e.

non-rational) device that is underpinned by an objectivist epistemology, this study is positioned to scrutinize the concept from an alternative practice-based perspective on knowledge (Newell, 2015). In the next section we contextualize this study of IT service professionals practising their 'craft' by reflecting upon knowledge hoarding as a rhetorical device employed within the 'best practices' that are widely diffused across the realm of IT service management.

4. Knowledge Hoarding in the ITSM Context

ITSM is a management specialism concerned with the implementation and control of interacting components within complex IT systems designed to meet business requirements. Although the ITSM 'best practices' (e.g. Steinberg, 2011) that have evolved have largely been developed from within the ITSM community, they take their inspiration from the systems rationalization ideology of managerial control (Johnson, 2009). By conceiving business IT from a systems perspective, management continuously seek to reduce complexity in order to militate against loss of control. Thus workers and 'knowledge' are cast as independent system assets. The assumption is that workers must bend to the changing demands of the system and/or be disciplined into adhering to management demands, including the ceding of 'their' knowledge to the organization (e.g. Scholtes, 1998, p.23).

Indeed ITSM 'best practice' barely acknowledges the importance of people management, sometimes equating it with technology management (Russell et al., 2016). By institutionalized convention, managers are expected to assert control over the system and all its component parts, including 'human resources' and 'knowledge assets', by technocratic methods that aggrandize commodification (Sigala and Chalkiti, 2014) and quantitative measurement (Brooks et al, 2006). Further, ITSM 'best practice' (i.e. ITIL) embraces a

systems thinking-oriented approach to organizational learning (Rance, 2011), being informed by Senge's (1992) concept of the Learning Organization (Taylor, Iqbal and Nieves, 2007). For Senge (1992), it is management's role to seek efficiency improvements by facilitating the transfer of what is assumed to be defensively-retained knowledge from the less rational human/individual level to the more rational and controllable team level. Specifically, ITIL rhetorically warns managers that 'knowledge hoarding is a dangerous behaviour' (Lloyd, 2011, p.121) and advises managers to 'reward the contribution of valuable knowledge assets… to encourage members to… move past the old paradigm that knowledge is power and job security and therefore needs to be hoarded' (Rance, 2011, p.242). The rhetorical assumption we discussed earlier is therefore found in the context of our study: i.e. that all workers are inclined to act anti-socially out of self-interest, implicitly rather than pro-socially out of communal-interest. In the next section we detail our guiding inductive research question that was designed to consider this assumption in the light of qualitative data that reflects the practices of workers assumed to be 'knowledge hoarders' by the management best practices they are subjected to.

5. Research Question and Methods

Thus far we have suggested that the notion of knowledge hoarding has been routinely and uncritically employed in the academic and practitioner literatures. We have alternatively repositioned it as a rhetorical device. The research reported here opens up the discussion by considering it in the context of IT service work in which workers are assumed by management 'best practices' to hoard knowledge. As such our guiding inductive research question is as follows:

- Within organizational contexts in which knowledge hoarding by IT service professionals is assumed within management best practices, what behavioural traits concerning knowledge sharing are observable in the practices of those IT service professionals?

To conduct this research, qualitative data was collected with the objective of revealing something of the nature of IT service professionals' experiences with regard to their individual relationships to the knowledge/know-how employed in the fulfilment of their work: specifically, their experiences of working knowledgably and how they experienced and spoke of 'sharing' knowledge.

The specific qualitative research techniques employed were semi-structured interviews conducted with 26 IT service professionals, triangulated with overt, non-participant observation of 20 IT service professionals engaged in the task of processing service incidents and requests within 'best practice' process structures. Over several months ten different teams of IT service professionals, across five UK-based organizations that managed their IT services in line with ITIL, were visited by a single researcher over a combined period of 34 days. These organizations are referred to here as: Shire County Council (SCC), a public-sector service provider (10 workers interviewed, 9 workers observed); Stoneworks, a multi-national aggregates company (6, 4); Server Control, a multi-national IT security services company (4, 3); Poyet Systems, a niche provider of military software (3, 2); and Midlands University (MU), a medium-sized university (3, 2). By researching across organizations we were able to apply cross-case analysis, thus providing greater assurance of generalizability and reliability of findings (Miles and Huberman, 1994) within the context of IT service work.

Observation data was collected by sitting alongside 20 different IT service professionals as they worked individually within an ITSM incident management process and, with their

permission, overtly observing what they did. Comprehensive notes were taken to formulate a dataset of records of the researcher's interpretations of the small actions each worker took while processing each service incident or request. The single researcher legitimately presented himself to each organization as an experienced IT service professional. This experience is considered to be important as it helped to establish a degree of acceptance amongst the practising community (May, 1993) and better enabled valid in situ interpretations to be made of what was being observed and spoken about. This shared lifeworld perspective (Schutz, 1953) also offered benefits when analysing data after collection, thus adding to the study's validity and reliability (Brannick and Coghlan, 2007).

The detailed micro-level observation data, comprising chronologically sequenced records of what IT service professionals were observed doing during their practice of processing service incidents and requests, were analysed after the observations. During this analytical process, particularly attention was applied to interpreting: (i) specific knowledge/know-how that had been identified as having been applied by workers during the observational period, and (ii) how IT service professionals communicated with each other about work activities they were undertaking.

Additionally semi-structured interviews were conducted with 25 IT service professionals to gain insight into their relationships to the knowledge they created, used and shared in their working practice, and to develop a rich 'picture' of their everyday experiences. All interviews were recorded and fully transcribed. The analysis of the transcriptions focused on workers' discussions or allusions to 'knowledge sharing' at their workplaces as identified through an iterative process of immersion in the transcripts, re-reading and comparison (Padgett, 1998) and open coding (Emerson et al., 1995).

In the following section the findings of the research applied to the research question are reported upon.

6. Findings

In this section we firstly describe how work was typically performed. We then expand upon a particular theme that emerged from the data: an identifiable common behavioural trait of collegial knowledge sharing.

6.1 The performance of IT service work

By observation, IT service work was generally shown to be an individualized practice typically performed under time pressures. Although the observed professionals were situated within team settings, they typically worked individually, processing incidents or service requests sequentially in accordance with defined incident management processes that mandated the use of integrated ITSM applications comprising various technologies including work queues, workflow management systems, and incident record databases. Their work was shown to be variable in terms of complexity: often the worker processed the issue in a straightforward fashion because they had encountered similar incidents/service requests previously and learned experientially. Such work was, with very few exceptions, performed without recourse to commoditized 'knowledge' such as those written for and stored within a knowledge management database system (KMDBS) implemented by management for rationalized 'knowledge sharing' purposes in line with ITSM 'best practice' (Rance, 2011), even though such KMDBSs were available in all five organizations. Other times, issues faced by workers were revealed to be more complex. These required working creatively while drawing upon technical know-how, experience of related issues previously encountered, and

occasionally commoditized 'knowledge', notably resolution notes from similar incidents recorded on the incident logging tool or Internet forums.

Two particularly notable themes, characterising the work of IT service professionals, emerged from observing them in practice and from interviewing them: (i) in large part the work requires concentration and self-reliance, but (ii) it also relies upon the collegial sharing of knowledge/know-how and mutual peer support on an 'as required' basis. Significantly, we found no qualitative data that would point to this practice being characterized as entailing the strategic concealment of knowledge. We argue that this undermines the assumption/premise upon which the 'knowledge hoarding' rhetoric rests: that workers are predisposed to act out of self-interest.

6.2 Observed collaboration and collegiality in practice

The data revealed that across all sites there was a general ethic of collaboration in evidence with IT service professionals often drawing upon the experiential knowledge of colleagues considered most likely to be able to help in particular circumstances. There was no indication from the observational data that, when asked for information/knowledge, colleagues were pre-disposed to decline requests, i.e. to 'hide' knowledge according to some definitions (e.g. Connelly et al., 2012), or 'hoard' knowledge according to others (e.g. Evans et al, 2015). Rather, the evidence from this study indicated that not only was a typical response one of unselfish cooperation, but also workers often listened in to their colleagues' conversations and contributed knowledgably to those conversations without being asked. By way of example Asghar (Stoneworks) overheard his colleague Joe (sitting across from him) advising a user: 'you can't edit a pdf file, that's why people save as a pdf'. Asghar intervened by standing up, leaning across the divide and saying: 'If they put in an install request for Acrobat Pro they could', thus not only enhancing the advice provided to the user but also developing

Joe's individual knowledge. Similarly, one observation report remarks upon Sandra (SCC) overhearing a colleague mention that she could not find a particular school in the database, and her intervening to inform the colleague that it was not stored as 'Bernard School' but rather 'The Bernard School'. Later, in interview, Sandra commented thus: 'It's like that all the time. Your hear something and think 'Oh, I know that'. It's really good, there's always someone who will know.' Such a collaborative spirit within practice was evidential across the observational data. Two extracts from the observation records are provided at Table 2 to illustrate how this collegiality manifests itself in various forms.

Extract 1: Darren and Lionel (Server Control)	Extract 2 Lauren and Adam (Stoneworks)
….Darren searched for previous occurrences of similar incidents within the ITSM tool. He found nothing. He accessed the Instant Messaging software application and engaged in silent 'conversation' with a colleague: • Darren: Should suppressed=1 work? • Lionel: Only on GMS. You need to disable… *[unclear]* • Darren: Ah, I'll do that. Darren re-edited the file and refreshed the customer's monitoring panel, noting that the red light was no longer showing. Darren coded onto the file the following comment line to inform anyone working on the file in the future that the red light warning of overheating had been suppressed: *'Health check disabled. Appears to be a false positive. To check later.'* Darren accessed Outlook and set a reminder to himself for Friday to check the server's temperature during the interim period.	….Lauren accessed the original customer order document on the Enterprise Resource Planning system. This showed the erroneous pricing that had been queried by a system user in response to a communication from the customer. She noted that the 'primary' price was for 'units' of stock but that the pricing was shown as 'per pack'. She turned to her colleague, Adam, seated to her left, asking him what he knew about how the pricing database was set up. After a short conversation, Adam got up and came over to look at the order document on Lauren's screen. They discussed the issue further and then Adam returned to his desk and carried out some further investigation on the issue. The following conversation then ensued: Adam: What's the order number? Lauren: *[number provided]* I can't see how it *[i.e. merging of data into the order template]* would work differently. Adam: It works for me *[i.e. the order created by him showed the correct pricing]*. Lauren: Did you just go into 'job order' and do 'create merge'? I've just done it on V.1 and V.2

	and both aren't working.
	Adam: What version is she [i.e. the user] using?
	Let's shadow her…

Table 2: Observation record extracts illustrating knowledge sharing collegiality.

In Extract 1 we might particularly note how Darren used instant messaging software to ask a specific colleague, Lionel, who he knew had specific expertise, to share his knowledge; which Lionel did. Interview data revealed that the instant messaging software had been coded by technicians in the team and implemented as a shop-floor initiative which was subsequently endorsed by management. The technicians reported on how it facilitated knowledge sharing without unduly distracting them from the state of concentration or 'flow' (Kahneman, 2011) they needed to be in to resolve complex 'deep work' technical problems (Newport, 2016). Whereas this example of collegial knowledge sharing occurred in the moment, to support a task-in-progress, later in Extract 1 we encounter an example of collegial thoughtfulness in Darren's practice. After making program code changes Darren added a comment line (i.e. a line of non-functional text within the code) so that if anybody was subsequently required to work on this program they would know what changes had been made and why. He was not required to add this comment line out of technological necessity or obedience to managerial demands, but rather chose to do so, implicitly for pro-social and pro-organizational reasons.

In Extract 2, collegial knowledge sharing is apparent in a different form. Neither Lauren nor Adam had specific knowledge to provide the solution to the problem. Lauren implicitly acknowledged that Adam's experientially-acquired knowledge/know-how was different to hers and that the required outcome would be more likely by working together, combining and sharing knowledge/know-how.

6.3 Perceptions of non-sharing of knowledge

In interview IT service professionals were explicitly asked why and in what circumstances knowledge might not be shared. The answers provided revealed IT service professionals having, between them, multiple circumstantial interpretations as to why 'knowledge' might not be 'shared'. Most of these factors do not have the essence of 'knowledge hoarding' as defined by Evans et al. (2015): i.e. of workers deliberately and strategically concealing knowledge. Indeed, there was no specific use of the words 'hoard' or 'hoarding' and only two workers alluded to it, in both cases speaking non-specifically about theoretical job insecurity.

> I guess if there is ever again any mention of redundancies people might tend to keep stuff to themselves more. (Lauren, Stoneworks)

> A lot of people, especially in IT areas, think that if they're the only person that knows something that's good when really they're a single point of failure. (Jonathan, MU)

Through the lens of rhetorical theory, an interpretation of these assertions is that these particular IT service professionals of some experience had themselves assimilated the rhetorical concept of 'knowledge hoarding' into their common-sense understandings, through processes of rhetorical diffusion and institutionalization within an ITSM environment (Green, 2004; DiMaggio and Powell, 1983), and that in interview they were imitating the institutionalized discourse of their managers. Indeed, Jonathan's use of the term 'single point of failure' is taken directly from the ITSM 'best practice' guidelines (Steinberg, 2011).

Other explanations were more pragmatic, noting the centrality of time-related workload pressures to the IT service professional experience. Thus, for Judy (SCC): 'it's always a time thing for me'. And similarly, Navinda (MU) commented:

There is expert knowledge within the team… which is a little bit hard

to share because you need that little bit of time out to sit with

somebody… At the moment… there's too many calls coming in.

6.4 Perceptions of collaboration and collegiality

The aforementioned 'real world' approach to knowledge sharing taken by IT service

professionals with pragmatic regard for organizational efficiency concerns (e.g. ensuring

service incidents are dealt with in a timely fashion, typically to meet service level agreements

(SLAs)) was similarly indicated by Stephen (SCC) who suggested that 'general run-of-the-

mill stuff is probably not shared at all'. Interestingly, in interview, Stephen added to this

comment by remarking upon the collegial culture at play within his team (a culture similar to

that observed by Orr (1996) in his study of photocopier engineers) in which 'a tricky problem

or a new problem tends to get shared'. It is of note here that Stephen's focus was on knowing

about the problem rather than knowing about a solution in instructive detail. The implication

is that as a technician he might be able to apply this prior knowledge of the problem in

performing 'his own' solution to a similar issue in the future. Such cultures of everyday

collegiality, reciprocal helpfulness and collaborative learning, all of which counter an

assumption of 'knowledge hoarding', were apparent across all of the teams observed with the

interview dataset supporting this finding. Indicative samples from the interview dataset are

shown at Table 3, divided to emphasize a differentiation between learning that results from

worker-to-worker teaching and shared experiential learning that results from working

collaboratively.

Teaching and Learning	Collaborative Learning
Sometimes it's just 'oh did you know'. It's not something that you would write down. (Navinda, UKHEE)	If somebody is struggling or doesn't understand we are all quite happy to help each other out. (Barbara, UKHEE)

We just talk and make things known what needs to be known. (Sajit, UKHEE)	If you've got a problem that you can't solve there is someone there that is ready to help you. (Sajit, UKHEE)
We all tend to know some customers better than everybody else. So for example, one of the **FE** colleges that I have spent the best part of my three years here working with… I'd like to feel that any of the other guys, even if they were only slightly unsure about what was going on, that they would come to me and ask me because I could tell them off the top of my head without looking at their configuration. (Lionel, Server Control)	When you are facing a brick wall and you can't fix it usually you can just turn around and openly say to the room I'm having a problem and usually… you'll get a variety of opinions and it's a solution you haven't come across before and nobody else has come across, and you can have an instantaneous brainstorm. (Darren, Server Control)
If we do come across something we usually turn around and say to each other 'oh I've just had this and this fixed it' or 'we tried this and that didn't work'… It's highly important that you share what you do know or what you do find out because there's four of us taking calls and we can be taking similar calls. (Sandra, SCC)	I've been doing [the job] for nearly 3 years now and I still don't know a lot of stuff. I have to ask Neil or someone else who has been here a lot longer than me, or I might know stuff that he doesn't know. (Lauren, Stoneworks
There is a culture in which what they will tend to do is just e-mail round or just shout 'This is how you do it'. (Ravi, Stoneworks)	We quite often help each other out with stuff if one of us doesn't know how to fix something… We'll all collaborate on fixing stuff… It's all very supportive… Because we support each other a lot we are very effective. (Roger, SCC)

Table 3: Interview data sample: reciprocal helpfulness and collaborative learning.

A uniting feature of the comments in Table 3 is the pragmatic advocacy of the collegiate experience. The general consensus expressed in interviews, and supported by observational data, was that interpersonal sharing of knowledge/know-how is a 'crucial' (Stephen, SCC), 'invaluable' (Lionel, Server Control), 'unbelievably important' (Mike, Poyet) and an integral

aspect of IT service work. In contrast, the concealment of knowledge would not appear to play any significant part in personal strategies for practice.

In this section we have illustrated that a characteristic of IT service professional practice is collegial knowledge sharing behaviour. Although not expanded upon, we also noted that this behaviour was typically exercised within a stream of work activity that for efficiency purposes necessarily depended upon workers primarily operating independently and self-reliantly, using their own knowledge/know-how. In the following discussion section we consider the pertinence of these findings for the study of knowledge hoarding.

7. Discussion

By analysing the data presented in the previous section we might reflect upon the validity of a rhetorical assumption that knowledge hoarding is prevalent in the workplace thus requiring management action (e.g. to facilitate knowledge capture). Previously we identified seven value-laden convictions of the knowledge hoarding rhetoric. We refer to these in this section, with an over-riding suggestion that they are somewhat flaky when scrutinized using extensive qualitative data collected across several organizations in which the rhetoric is espoused in the 'best practices' adopted by management.

7.1 The limitations of an objectivist epistemology

We previously indicated that the knowledge hoarding rhetoric is implicitly associated with an objectivist epistemology that (i) holds that knowledge can be made explicit and (ii) is typically inscribed within KMDBSs designed to retain knowledge in organizational memory for potential reuse. Such systems have often disappointed in practice for various reasons (e.g. Newell, 1999; Butler and Murphy, 2007) including difficulties associated with objectification

of complex tacit knowledge into useful explicit forms (Panahi et al., 2013). Indeed, the authors of this paper have previously reported on how the managements at the five organizations studied here had made KMDBSs available to their workforces but that engagement with them was limited: notably, (i) IT service professionals prioritized their core responsibility to resolve service incidents over writing up knowledge to send into a database, and (ii) when engaged in investigating service incidents they tended to preference self-reliant problem-solving, drawing on colleagues and other knowledge resources as they considered most appropriate for their needs (Trusson et al., 2014). Thus, drawing on rhetorical theory (Billig, 1996, p. 231), the 'common sense' of the workforces about efficient working and knowledge sharing conflicted with the managerial 'common sense' of the 'best practice' guidelines that rhetorically accused the workforces of knowledge hoarding because they tended to not use the KMDBSs imposed by management.

The qualitative nature of this study has highlighted the importance of the subjective and limitations of adopting an objectivist epistemology (Hislop, 2002). By illustrating that knowledge sharing behaviour is an integral part of the practice of professionals assumed by 'best practices' to be 'knowledge hoarders', we suggest that 'knowledge hoarding' emerges as a confrontational managerial rhetoric that might illegitimately accuse workers of acting dysfunctionally by failing to do something (i.e. objectifying their knowledge/know-how) that is impractical within the context of a time-pressured, highly contingent and dynamic working experience (Trusson and Woods, 2017), and of dubious organizational value if done.

7.2 The institutionalized misinterpretation of pro-organizational behaviour as dysfunctional knowledge hoarding

While the knowledge hoarding rhetoric implies dichotomies between knowledge sharing and knowledge hoarding, and 'knowledge sharers' and 'knowledge hoarders', the findings of this

research suggest that this is unhelpfully reductive. From the data we can see that workers, in an occupational arena in which they are expected to be inclined to hoard knowledge (i.e. ITSM (Rance, 2011)), routinely exhibit pro-social knowledge sharing behaviour as an integral part of their everyday practices. We suggest that such behaviour reflects these workers' innate human propensities to be pro-socially cooperative (Jenson et al., 2014) while also showing their innate sensitivity to an implicit organizational expectation that they optimize their performance. That is, they demonstrate behaviour that is predominately pro-organizational, countering the concealed premise of the 'knowledge hoarding' rhetorical argument that workers are predisposed to prioritize self-interest over organizational-interest.

It is also clear that these primarily self-reliant workers only share some aspects of their knowledge/know-how with colleagues, not all of it. In individual time-pressured practice efficiency is achieved through knowledgeable self-reliance. Knowing how to do what is required, or knowing enough to be able to use professional inference (Abbott, 1988) to do what is required, enables knowledge workers to optimize their individual efficiency and thus optimize their productivity. Supporting previous studies (e.g. Ford and Staples, 2008; Thursfield, 2015) this research has also shown that such self-reliant practice generally requires disengagement from others for performance optimization. Our argument here is that, if all workers changed their practices such that they prioritized sharing everything they knew with everyone in the organization who might ever need to know it (i.e. rather than self-reliantly get on with processing incidents) then this would negatively impact upon productivity. Further, as discussed above, codifying and capturing such knowledge/know-how in detail for knowledge sharing purposes is fraught with difficulties (as indeed is interpersonal knowledge sharing). It has long been accepted that a common characteristic of technical experts is the inability to verbalize their knowledge used in problem-solving without ambiguity that might prohibit its usefulness for another worker (Hart, 1992); indeed,

the data from this study illustrates how knowledge/know-how used in practice typically 'exists' only as an ephemeral flow of fleeting mental activity performed in a state of 'deep work' concentration (Kahneman, 2011; Newport, 2016) in which some pathways taken are an unproductive yet integral part of the problem-solving process. As such workers are inevitably in the invidious position of being unclear about what knowledge/know-how they should share, and to what degree of detail, in order for management to regard them as 'good' knowledge sharers. As such, we reason that it is inevitable that workers, however pro-social they are in practice, will not share all their knowledge/know-how, and as such might readily (and unfairly) be cast in the role of dysfunctional anti-social knowledge hoarder, even though the 'not sharing' was unintentional rather than deliberate (Ford and Chan, 2003) or resulted from a pro-organizational decision to prioritize SLA targets. As such, we argue that any observable social disengagement by workers should not be conflated by management with dysfunctional 'knowledge hoarding', nor indeed with 'anti-work resistance' (Taskin and van Bunnen, 2015; Thursfield, 2015). Rather, it might alternatively be understood as a pro-organizational tactic for optimising individual productivity.

Following Cruickshank's (1999) writing from the field of political science, we argue that the knowledge hoarding rhetoric generates a double bind for the individual worker. To accept an accusation that they are inclined to hoard knowledge is to implicitly incur the wrath of their management, yet to deny it is to accept the unexpressed premise (or enthymeme) of the accusation that there are workers at large who do hoard knowledge and therefore management need to militate against such behaviour. We therefore concur with the sentiment of Ford and Staples (2010) that using knowledge hoarding as a reductive categorical term is unhelpful if that term is then going to be used in the framing of research designed to support the development of better knowledge management practice.

Our suggestion in specific regard to ITSM practice, which draws upon Cruickshank's (1999) arguments pertaining to stereotyping, is that the knowledge hoarding rhetoric has been inscribed within 'best practices' in such a way that it justifies the mythologizing and stereotyping of workers as dysfunctional 'knowledge hoarders'. As that myth has been diffused (Green, 2004) and become institutionalized (DiMaggio and Powell, 1983) across the community of IT service managers, so those managers might, with implicit moral superiority, assert their managerial prerogative to address the dysfunctional behaviour that they imagine to be taking place. Adapting Cruickshank's (1999) thinking, in such circumstances any denials of knowledge hoarding behaviour proffered by IT service professionals, or any individual claims of not fitting the 'knowledge hoarder' stereotype, implicitly acknowledges that others (but not them personally) are 'knowledge hoarders'. It follows then that such denials buttress rather than challenge the rhetorical discourse concerning knowledge hoarding.

In this section we have linked our findings to the earlier sections that reviewed the knowledge hoarding literature and reconsidered the concept through the lens of rhetorical theory. Specifically, we have challenged value-laden assumptions/convictions that are inscribed within the knowledge hoarding rhetoric. We have followed others in challenging the idea that organizational knowledge must necessarily be understood from an objectivist perspective in order to be controlled. While knowledge might be subjected to control mechanisms if conceived of in this way, productivity might be enhanced if management were more relaxed in their concern for controlling the knowledge/know-how of those they manage (McAfee, 2010). We have also challenged the idea that knowledge sharing is essentially virtuous and knowledge hoarding essentially dysfunctional: spending time sharing knowledge in time-pressured environments might negatively impact upon organizational performance against key performance indicators. This brings us to our challenge to the idea that knowledge

hoarding behaviour results from a human predisposition to prioritize self-interest over organizational interest. Our study provides copious evidence of knowledge sharing behaviour within time-pressured settings in which individual decisions to not share knowledge are likely to have been pro-organizational: i.e. time that might have been spent sharing knowledge was spent on work that better served organizational outcomes. As such, institutionalized managerial 'best practices' such as ITIL that suggest managers should interpret such pro-organizational non-knowledge sharing behaviour as knowledge hoarding are likely to be counter-productive in their implied objective of driving efficiency.

In the following concluding section we reflect on how this study contributes to the knowledge management literature. We then consider the implications for researchers and management practitioners, and, in specifying the limitations of this study, suggest further research that might usefully be conducted.

8. Conclusion: Theoretical Contributions, Implications, and Limitations

This article makes two significant theoretical contributions to the knowledge management literature, each of which has consequential implications for management practice and future research.

As a first contribution we argue that IT service professionals, as exemplars of workers who are according to 'best practices' inclined to hoard knowledge, are pre-disposed to share knowledge as an integral part of practice, and do so regularly. As such, we suggest that the characterization of such workers as 'knowledge hoarders' is an unreliable myth created via rhetorical discourse rather than reliable truth founded on convincing empirical evidence. This has implications for management practice; specifically, we argue, that managerial 'best practices' such as ITIL that peddle this rhetorical myth should be amended. Rather than

direct managers to militate against a behavioural trait perceived to be commonly shared across a self-interested workforce, more useful advice might be to embrace and encourage the innate human pro-social collegiality of employees, with a particular concern for optimising and sharing the knowledge/know-how of the most experienced workers.

Specific 'knowledge-sharing friendly' advice to managers that might replace advice associated with the knowledge hoarding rhetoric might take various forms dependent upon prevailing organizational cultures and the nature of the work. Examples of such advice might include:

- identifying key workers with specific technological and creative expertise akin to those classified by Martin (2005) as 'Priests' and/or by Goffee and Jones (2009) as 'Clevers' so as to proactively facilitate knowledge sharing with colleagues via collaborative working;

- promoting the use of job secondments, buddying, and shadowing (Stewart and Rigg, 2011);

- sanctioning and encouraging informal meetings to share 'war stories' (Orr, 1996); and

- introducing tools, such as the instant messaging software used at Server Control (Table 2), to support collaboration rather than knowledge capture (Hislop, 2002).

This advice is not to denigrate the important role that a KMDBS, as a repository of corporately-controlled objectified knowledge, might play in organizational efficiency. However, we do suggest that the association made in 'best practices' such as ITIL between a KMDBS and the knowledge hoarding rhetoric is unhelpfully specious.

As a second contribution, the study suggests that in order for research that attempts to reify knowledge hoarding to be 'legitimized' by its 'scientific criteria' research design (Lyotard, 1984), further work is required on determining a definition and an instrument for

measurement that are not inscribed with a values-based bias towards a presumption of knowledge hoarding as a naturally-occurring and prevalent phenomenon. As a further critique of such research, we draw upon the theorizing of Zerubuval (1991) to argue that this study illustrates how it is unhelpful to categorize 'knowledge sharing' and 'knowledge hoarding', and 'the (virtuous) knowledge sharer' and 'the (dysfunctional) knowledge hoarder', as antonymous concepts separated from each other. As Zerubuval (1991, p. 122) writes: 'The world can be so much richer than the rigid mind with its either/or logic would allow us to realise… We must stop reifying the lines we draw and remember that the entities they help define are, after all, only figments of our own mind.'

While this study adds to the previously mentioned studies that have not found evidence of knowledge hoarding, the study remains limited in its context and the theoretical perspectives adopted. Our research has drawn upon rhetorical theory in developing our own rhetorical argument that casts doubt upon the legitimacy of 'knowledge hoarding' as a useful concept. This argument has been constructed via our analysis of qualitative data collected in a single occupational context, albeit one that adheres to the idea that 'knowledge hoarding' is a behavioural trait to be militated against. The debate needs further consideration from multiple perspectives and across multiple contexts, with, perhaps, the greatest challenge remaining to provide convincing evidence to substantiate 'knowledge hoarding' as a valid phenomenon.

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