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Who owns the knowledge that I share?

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Abstract

A significant proportion of the collective wisdom of any organisation comes from its employees. However, organisations are still struggling with ways to compel their employees to share their best knowledge. The paper introduces the concept of knowledge ownership as a major building block in theorising knowledge sharing in the firm. A distinction is made between organisational ownership which refers to the organisation's rights to knowledge and individual ownership which refers to the individual's rights to knowledge. On the basis of this, the paper examines the relationship between employee ownership perceptions and their willingness to share their knowledge assets, both tangible and intangible. In conjunction, the paper also examines the influence of the work environment on fostering employee ownership beliefs. The paper proposes a model to examine the relationship between knowledge sharing and the perceptions of knowledge ownership in the context of codified and tacit knowledge assets.

Keywords: knowledge ownership, knowledge management, knowledge sharing

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INTRODUCTION

Organisational knowledge has been described by theorists and practitioners alike as the key competence of the enterprise. It is found in people, processes and data stores and it is defined as stocks of expertise that the organisation possesses and capitalizes on much in the same way as they would capitalize on their physical assets such as machinery [1]. According to [3], organisational knowledge is described as comprising the firm's collective wisdom which is inimitable, scarce, path dependent and hence unique and profitable as a strategic asset.

In order to benefit the organisation, knowledge is a resource which should be shared amongst those that will make profitable use of it. However, the case in the majority of organisations is that vital strategic and operational information is locked away in the heads of key staff [5]. It is apparent across industry that knowledge has become key 'organisational currency' and is too valuable for most managers to just give away [6].

The *raison d'être* for this is rooted in the fact that knowledge is generated and controlled by the individual. The employee is the source of much knowledge in the organisation because employees generate, discover and assimilate knowledge as they carry out their jobs. Some of this knowledge is distributed to groups and individuals elsewhere in the organisation, but much of it remains in the control of the individual employee who initially created and acquired it [7]. Herein the conflict lies, even though organisational knowledge constitutes a strategic corporate asset, it is controlled at the level of the individual employee. We advocate that this issue of control lies at the heart of driving effective knowledge exchange.

Theorists and practitioners alike recognise knowledge sharing as a key process underlying the firm's collective wisdom and as a result, critical for the leverage of its most valuable asset. It is argued by many that the aptitude and willingness of individuals to share their knowledge is a key capability crucial to the organisation's competitive advantage [8, 9]

Past approaches to the management of organisational knowledge have to a large extent been based on technological solutions [2,10]. Such approaches focus on the development of computer systems that facilitate the documentation, storage, access and transfer of organisational knowledge [2,10]. Although technologies (e.g. groupware, discussion forums, etc) exist which provide a platform that allows people to communicate with each other, share ideas and engage in discussions, technology is yet to be developed which can cause a knowledge worker to share his or her ideas. As a result, there is an identified need to understand the factors that influence individual employees who have complete discretion over how they handle their knowledge assets to use them for the benefit of the firm by sharing what they know openly and freely.

We advocate that ownership presents a principal motivating influence on knowledge sharing and provides an instrument for devising incentives for encouraging knowledge sharing due to the fact that it demarcates rights to control. Ownership perceptions of employees regarding their knowledge products are assumed to influence their attitudes towards its sharing.

This paper explores the ownership perceptions of employees towards the knowledge they have created or acquired. In particular, we explore employee perceptions of their organisation's ownership rights to knowledge they have created or acquired in the workplace (termed *organisational ownership perceptions*) and we also explore employee perceptions of their individual rights to knowledge they have created or acquired in the workplace (termed *individual ownership perceptions*). Furthermore, the influence of the work environment on fostering employee organisational and individual

ownership perceptions is also explored to identify the work environment factors which help determine whether an employee perceives the knowledge they create or have acquired to be owned by the organisation or indeed as a personal asset. In so doing, we explore the influence of organisational and individual ownership perceptions on knowledge sharing.

OWNERSHIP AND ORGANISATIONAL KNOWLEDGE

Overview

In order for the firm to harness the competitive power inherent in its collective wisdom, there is the fundamental need for the transfer of individual knowledge to the collective level. It is this knowledge, encoded in explicit format (i.e. standards, specifications, software programs, white papers, emails etc) or embedded in practice that constitutes a property of the firm [11]. Hence a distinction is inevitably made between the knowledge an employee possesses and that of the organisation's which is present in the collective level. This distinction is key to the development of our framework because it recognises the presence of individual and organisational dimensions of knowledge ownership.

The concept of ownership has been dealt with extensively in the legal, economics and psychology disciplines. The legal definition of ownership assumes that all rights to assets that are not expressly assigned in a contract accrue to the person called the "owner of the asset" [7,12,13] Thus the 'owner' has the right to control all aspects of the asset that have not been explicitly given away by contract [12,13].

Ownership is associated with a number of rights: rights to use, rights to transfer and rights to exclude others from access or use [14]. The exclusive right to exclude others from using or profiting from their assets is apportioned solely to the asset owner [13,15]. The legal instruments of copyright, trademark, trade secret and patent all provide clauses that reinforce and protect the owner's control rights [13,16]. In the economic sphere, ownership takes a slightly different meaning, being synonymous with the ability rather than right to control an asset [14,16]. For example a thief has the economic rights to the stolen item even though he/she does not have the legal rights to the stolen property. Thus, it is evident that across the economic and legal definitions, ownership is synonymous with the power to exercise control [12,13,16].

If majority of the firm's knowledge is held and/or created at the individual level as argued by theorists, then organisational members emerge as the de-facto owners of the firm's knowledge [21,22].

However, in practice and literature, the firm is solely recognised and accredited with the ownership of its knowledge assets [7,11,21,24]. Corporate law stipulates the firm's financiers as the owners of its core assets; its employees treated as property and recorded as costs [2]. Thus it is the general observation that ownership rights are granted to financiers rather than providers of intellectual capital [25].

The Implications of Ownership

The issue of control and hence ownership is important because it amplifies the fact that knowledge is controlled by its 'holder'. The 'holder' controls access to the knowledge in his/her/their keeping. It is no wonder that literature confirms the presence of turf wars and politics surrounding knowledge [6,26]. Theorists in psychology argue that ownership has strong consequences for people's behaviour and attitudes towards the target asset [20]. One such consequence is the sense of responsibility which can lead to people being protective of the asset. This can have the positive effect of taking steps to enhance the asset's value or the negative effect of impeding co-operation in the effort to protect ownership rights at the expense of others [17, 20]. As such, it can be argued that ownership has important implications for the exchange of asset.

Considering individual employees as the de facto owners of the firm's knowledge has important implications for knowledge transfer or sharing. Knowledge is described as a resource which cannot be coerced out of people [27]. As a result, it follows that the transfer of individual knowledge to the collective level and hence the organisation as a whole can only be effectively achieved by the employee voluntarily allowing another party access to personal knowledge within his/her keeping. Thus, the firm's collective knowledge base is built as employees permit each other access to their individually held knowledge. The treatment in practice of knowledge as the property of the firm without adequate consideration for the ownership stake of its carriers, (i.e. employees) represents a discrepancy. Employees are designated as knowledge creators and applicators with the responsibility of handing over their personal knowledge to the employing entity, the firm. It is assumed that as employees work together, it is invariable that the transfer of individually held knowledge takes place as they engage in shared practices [21]. This viewpoint cultivates a false assumption that employees will share useful knowledge willingly to those it might benefit. This view contrasts with the observation in practice that individually held knowledge constitutes a valuable asset through which employee roles, prestige, status and power bases are defined. [7,23]. As such, it is observed that personal knowledge is not always shared.

We argue that the underlying issues of control both at the organisational and individual levels influence the inclinations of employees to contribute their personal knowledge to each other and hence to the firm as a whole. A clear understanding of ownership issues provides an instrument for devising the organisational contexts that are favourable to knowledge sharing. Thus, we argue that creating favourable organisational contexts for knowledge exchange begins with recognising the roles that both organisational ownership and individual ownership perceptions play in motivating knowledge sharing in employees. Hence it follows that critical to the building of the firm's knowledge is the management of employee ownership perceptions regarding the knowledge they create or apply as part of their work. The work environment is identified as a medium through which employee ownership perceptions regarding the knowledge they create is shaped and thus plays an important role in encouraging or inhibiting knowledge exchange.

Facilitating Knowledge Sharing

The term 'knowledge management' refers to managerial practices with the sole aim of creating, storing, disseminating and exploiting organisational knowledge [2,,4]. They argue that knowledge management practices are diverse in nature and include information technology, changes to organisational structure and introduction of new human resource policies [2,8]. In actual fact, knowledge management projects are most likely to be funded and hence led by the IT department

(22%) in contrast to marketing (16%), human resources (5%) and operations (4%) [10]. This confirms that current approaches to the problem of knowledge exchange are predominantly based on technological solutions. Technology led approaches focus on the development of computer systems which facilitate the codification, access and transfer of organisational knowledge. Technologies used include the internet, intranet, data warehousing systems, data mining systems, document management systems, decision support systems, groupware and extranets [10]. The majority of technology led approaches tend to focus on the acquisition of knowledge and also the dissemination of codified knowledge but to a lesser extent on the actual knowledge sharing between individuals.

Although technologies (e.g. groupware, discussion forums, bulletin boards) exist which provide a platform that allows people to communicate with each other, share ideas and engage in discussions, technology is yet to be developed which can cause a knowledge worker to share his or her ideas. It is no wonder then that despite the prevalence of technological solutions, organisations are still failing to realise the full benefits of their knowledge management initiatives. Reasons given include lack of user uptake (20%), failure to integrate KM into everyday working practices (19%), and a sense that there was little benefit in it for the user (13%) [10]. Thus, we conclude that knowledge management is a dynamic activity that is intrinsically linked to human and organisational factors and to be effective should incorporate technology as a facilitative rather than driving factor. There is a need for a shift in focus towards an understanding of the organisational and human facets of knowledge sharing. The sharing of knowledge among employees is a key process underlying the firm's collective wisdom, without which a company may not be able to leverage its most valuable asset for competitive advantage [2]. It is argued by many that the aptitude and willingness of individuals to share their knowledge is a key capability crucial to the organisation's competitive advantage [9]. Hence it comes as no surprise that the factors which motivate people to codify and share their knowledge for the benefit of others have been identified as a priority area for individual companies [8]. As a result, there is an identified need for organisations to find ways to encourage individuals who have complete discretion over how they handle their knowledge assets to use them for the benefit of the firm by sharing what they know openly and freely.

While much of earlier knowledge management literature was biased towards technological issues, there is emerging a body of work that recognises the importance of the human and social dimension. A consistent thread throughout this body of work is the application of sociological and psychological concepts to model the dynamics of knowledge sharing. For example, knowledge sharing is described as a type of social co-operation in which knowledge is perceived as a 'public good' [2]. On the other hand, social exchange theory is used to explain knowledge sharing and perceives knowledge as a 'private good' [7,8,9]. Cabrera, Collins and Salgado [4] look at the impact of individual's psychology measures for example personality on knowledge sharing. Psychological theories of expectancy and planned behaviour were also used to describe motivation for participation in knowledge sharing. In their most recent work, Cabrera and Cabrera [3] apply social capital, social dilemma and social exchange theories to the theorising of knowledge sharing. Hislop [28] on the other hand provides the psychological component of organisational commitment (the measure to which employees are psychologically attached to their employers) as a determinant of knowledge sharing behaviour. Constant, Kiesler and Sproull [24] however focus on the influence of organisational norms on knowledge sharing attitudes and base their theory on Kelley and Thibaut's interdependence theory [29]. This argument is also followed by McDermott and O'Dell [30] which describes corporate culture as a key determinant in knowledge sharing.

This emerging body of work is deficient in two respects. Firstly and most importantly, a substantial amount of the available knowledge sharing models in knowledge management literature is not empirically tested which means that their validity and effectiveness cannot be vouched for. Secondly, even though it is now widely recognised that knowledge sharing in organisations is a complex social interaction, there is a lack of empirical studies that investigate the impact of organisational conditions on the practice of knowledge sharing. This is clearly a disparity on this topic since the workplace is the key medium in which organisational knowledge exchange takes place and employees interact with each other and their work environment. Thirdly, the impact of organisational culture on facilitating or impeding knowledge exchange is well acknowledged, but the factors influencing the organisational culture and their resulting impact on knowledge sharing is still an open issue.

This work tries to correct this evident disparity by investigating the influence of employee perceptions of organisational ownership on subsequent knowledge sharing. Perceptions of organisational ownership relate to whether knowledge created by an individual employee is perceived to be owned by the organisation. Perceptions of organisational ownership will directly impact the sharing of knowledge in the workplace. Such perceptions of ownership relates to the belief that organisations own the labour of their employees. As a consequence, any knowledge which is a by-product of employee labour is owned by the organisation and hence is not his or hers to give or withhold selfishly but must be used for the greater organisational benefit [7]. Constant et al. [24] found that beliefs in organisational ownership caused a transformation of motivation in the exchange of knowledge whereby employees weigh the social good of sharing more heavily than the personal cost. Hence, key to understanding the motivation for knowledge sharing is an investigation into the factors that influence employee perceptions of organisational ownership. We propose that organisational conditions have an influence on employee perceptions of organisational ownership, which consequently will influence knowledge sharing. As a result, we investigate the influence of workplace components on employee perceptions of organisational ownership and the resulting effect on knowledge sharing. In so doing, we provide an exploration of the motivating factors for knowledge sharing in the workplace.

The sharing of two types of knowledge, *explicit* and *tacit*, is investigated in this study. Explicit knowledge refers to codified knowledge which can be transmitted in formal systematic language [31]. It is comprised of employee expertise captured in written, video or audio format. Examples include reports, white papers, podcasts, software programs, engineering plans, functional specifications, presentations etc. Tacit knowledge is that which is intangible, less formal and embodied in human memory. Hence, it consists of personal expertise and skill gained from experience which employees possess, for example how to write a software program [31].

THE PROPOSED MODEL

The previous sections outlined the underlying theory for the proposed model that looks at the motivating factors for knowledge sharing in the firm. The concept of knowledge ownership is introduced as a major building block in theorising knowledge sharing in the firm. The acknowledgment of the 'ownership' concept acts as a linchpin for this model, and hence its overall premise is: "knowledge sharing is influenced by the motivation to accede organisational ownership of individually owned knowledge". We have also presented the intertwined mechanisms of economic and social exchange as dynamics behind knowledge sharing in the firm. Perceptions of justice were also introduced as key

factors in determining the perceptions of organisational ownership which we believe, influences employee willingness to share.

Based on these principles, the proposed model is comprised of eleven variables as illustrated in Figure 1. Three of the variables, “Organisational Ownership”, “Individual Ownership” and “Propensity to Share” are dependent variables. This means that their values are dependent on the values of the other seven variables: “Reward”, “Work Nature”, “Work Outcome”, “Performance Evaluation”, “Policies/Procedures”, “Superior-Subordinate Relationship” and “Co-Worker Relationship”. The variable “Propensity to Share” is associated positively with “Organisational Ownership” and it is associated negatively with “Individual ownership”.

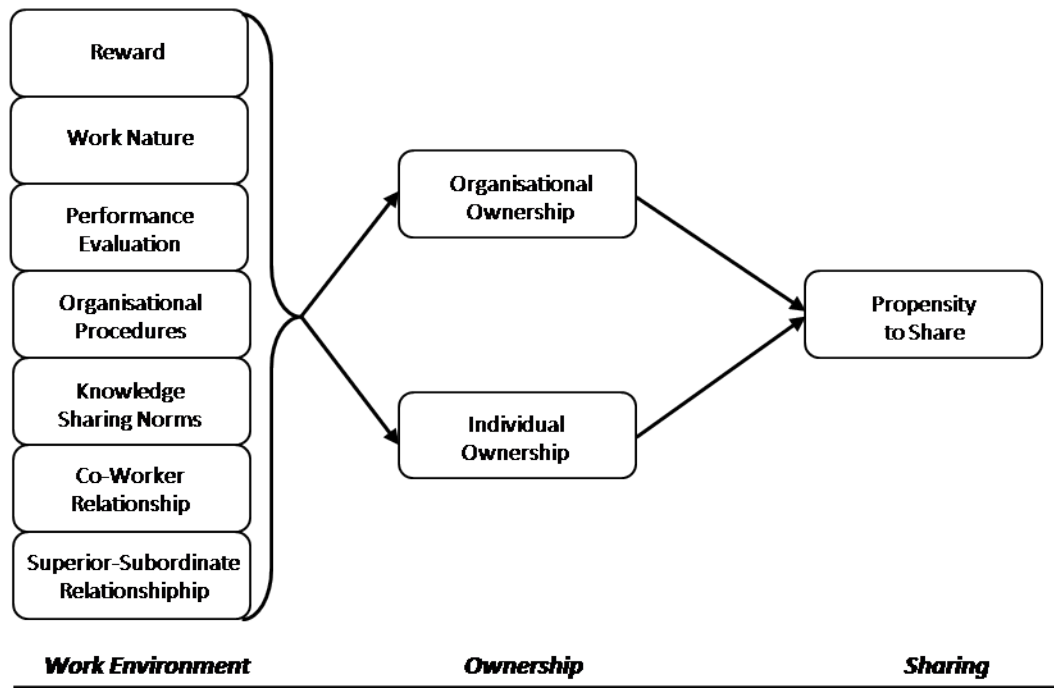


Figure 1: The Proposed Model for Organisational Knowledge Ownership

Organisational Ownership of Knowledge

Organisational ownership is best described as the belief that organisations own the labour of their employees and as such implies that the knowledge outcome of work such as an idea, process, invention, document or computer program that an employee creates or acquires at work or using organisational resources belongs to the employer rather than the employee [24]. Beliefs about organisational ownership of work encourages attitudes favouring sharing of tangible knowledge products [7,24]. It follows that because the labour outcome is tangible it is assumed to belong to the organisation’s capital stock rather than the employee [24]. However, the same did not hold for the sharing of tacit knowledge. Thus, tacit knowledge was perceived less as an organisational possession than codified knowledge. This can be explained by the fact that tacit knowledge is less discernible and ambiguous. According to Jarvenpaa et al [7], sharing of tacit knowledge is related to general organisational benefit and expected future return, but unlike its codified counterpart is also related to self esteem and self identity. Thus people do not treat the sharing of tacit knowledge as a commodity

product [24]. As a result, sharing expertise directly reflects on their identity and self worth, having direct implications for the expression and consistency of the possessor's identity and value [24]. This links in with past work of Cabrera et al [4] which highlighted the influence of self-efficacy as a determinant for knowledge sharing behaviour. The strength of self expression as a motivational force has been demonstrated empirically [32]. People want to express their sense of self-consistency between past and present and between their self concept and behaviour [32]. As a result, sharing tacit knowledge becomes an expression of self and self-consistency thus providing personal benefits such as heightened self esteem, pride, self efficacy, increased personal identification with co-workers or the organisation, more respect from others, a better reputation, reduced alienation and stronger feelings of commitment [24].

Based on the discussion above, we propose the following hypotheses:

H1: Organisational ownership is more closely associated to codified knowledge than tacit knowledge.

H2: Individual ownership is more closely associated to tacit knowledge than codified knowledge.

Propensity to Share Knowledge

Since organisational knowledge is comprised of the collective wisdom of her employees, then the organisation's knowledge stock can only be built up through employees voluntarily giving up their best personal knowledge. In this way organisational ownership is acceded to personally owned knowledge. This is achieved through sharing. Knowledge sharing is the process whereby knowledge is given by one party and received by another. Propensity to share can be defined as the tendency of an individual to divulge his/her knowledge under any given circumstance. It is classified as a prosocial attitude which captures the general tendency of employees to strive for and maintain the wellbeing of other employees and the organisation rather than just themselves. It goes above and beyond the contractual and job requirements, is voluntary in nature, is not directly or explicitly rewarded and contributes positively to the organisation's well being.

We propose that the belief in the organisational ownership of work outcomes causes a transformation of attitudes regarding the exchange of knowledge in favour of the firm whereby people weigh the social good of sharing rather than self interest. This is in line with the stance of Constant et al [24] which is the belief that organisational ownership of work outcomes causes a transformation of motivation in exchange of information whereby people weigh the social good of sharing more heavily than their personal cost or displeasure of sharing with a previously unhelpful employee. We expect that an employee's propensity to share could be influenced by the perceived ownership structure (i.e. organisational or individual) in place and fairness perceptions. Perceptions of organisational ownership of knowledge engender greater tendency to share codified knowledge. This is because based on its definition, the organisation has the rights to the knowledge and it is not up to the individual to withhold. Once ownership rights have been given to the organisation, the work in a sense has been made public and it is easier for such knowledge to be shared by the employee. Individual ownership on the other hand inhibits tendency to share because it works to protect self interest and not the general organisational well being. Perceptions of fairness affect tendency to share by removing the fear of exploitation. As a result, where agents perceive that their organisation and its work environment are fair, they are more likely to reciprocate their employers by sharing their knowledge. Following from that, we assume that perceptions of fairness heavily influence the propensity to share knowledge. In this way, a fair work environment is more likely to be associated with

organisational ownership by increasing the individual's propensity to share, thus increasing the tendency of employees to give ownership of personal knowledge to their employing organisation.

Based on the discussion above, we propose the following hypothesis (in three parts):

H3a Organisational ownership is positively associated with propensity to share knowledge.

H3b Individual ownership is negatively associated with propensity to share knowledge.

H3c Propensity to share is positively associated with perceptions of fairness.

Reward/Promotions/Bonuses/Perks

Depending upon the kinds and amounts of rewards they receive, people make decisions relative to the organisations they want to work for, the intellectual and physical effort they will expend, the responsibilities they will accept and the whether or not they will remain with the organisation [33]. An employer-offered reward is anything that will influence an employee to behave in a manner that will benefit the organisation [33]. Knowledge sharing is one of such behaviours and as such we examine here the role of rewards in facilitating knowledge exchange. Rewards employed by organisations fall into two categories; *compensation rewards* and *noncompensation rewards*.

Compensation rewards are those rewards that the organisation pays for and provides to the employee in terms of money and in terms of goods and services that are considered desirable by the employee [33]. The total compensation is made up of base compensation (the fixed pay), pay incentives (e.g. bonuses and profit sharing), benefits (e.g. health insurance, holidays) and perquisites or perks (e.g. company car, gym membership) [34]. Noncompensation rewards are non-utilitarian rewards that satisfy an employee's intellectual, psychological, emotional and social demands. They are most commonly present in the form of recognition and promotion. Based on the concept of reciprocation, if employees feel they are fairly recompensed by their employers, they will tend to reward this behaviour by performing extra role knowledge exchange.

Based on the discussion above, we propose the following hypothesis (in two parts):

H4a If employees believe that their remuneration package, including promotions is fair, they are more likely to ascribe organisational ownership to their knowledge.

H4b If employees believe that their remuneration package including promotions is unfair, they are more likely to ascribe individual ownership to their knowledge.

Work

The fairness perceptions of the work itself refer to the fairness of the ends received, which in this case is the work the employee is contracted to carry out. The impact of the work itself is significant to knowledge sharing on two levels: the nature of the work (i.e., the job characteristics) and the work outcomes (i.e., the work conditions).

Regarding the nature of the work, organisations provide individuals with opportunities to meet their personal needs and aspirations [33]. An important aspect of the employer-employee relationship is the nature of the work the employee is called upon to do. The employer requires the employee to perform a particular set of tasks while at the same time, the employee has certain expectations concerning the kind of tasks he can legitimately be asked to undertake [35]. According

to Mumford [35], with specialist jobs, it is particularly important to ensure that the work content fits with the employer's personal needs for variety, interest, control, and tasks which are meaningful and important. These relate to the unique human need for achievement and in attaining this, experiencing psychological growth. [36]

The core job characteristics which satisfy the human needs for growth are as follows:

- **Variety:** The degree to which the job requires the person to do different things and involves the use of different skills, abilities and talents. This includes the degree to which a job requires employees to perform a wide range of operations and/or the degree to which employees must use a variety of equipment and procedures [34,35,37].
- **Task Identity:** The degree to which a person does a job from start to end with a visible outcome. This is the extent to which employees do an entire or whole piece of work and can clearly identify the result of their efforts [34,35,37].
- **Autonomy:** Autonomy signifies control and choices by the worker. The amount of freedom, independence and discretion the employee has in areas such as scheduling the work, making decisions and determining how to do the job. This includes the extent to which employees have a major say in scheduling their work, selecting the equipment they will use and in deciding on procedures to be followed. [34,35,37].
- **Feedback:** The degree to which the job provides employees with clear and direct information about job outcomes and performance. This comprises of the degree to which employees receive information as they are working which reveals how well they are performing on the job [34,37].
- **Task Significance:** The degree to which the job has a significant impact on others inside and/or outside the organisation [34,38].

A job that covers the above characteristics provides internal rewards which the employee can reciprocate by performing knowledge sharing as extra-role behaviour.

Based on the discussion above, we propose the following hypothesis (in two parts):

H5a If employees believe that the nature of work is fair, they are more likely to ascribe organisational ownership to their knowledge.

H5b If employees believe that the nature of work is unfair, they are more likely to ascribe individual ownership to their knowledge.

Depending upon their work outcomes, employees make decisions about the organisations they work for, the intellectual and physical effort to be expended, the responsibilities they will accept and whether or not they will remain with the organisation. Work outcomes play a role in the employee's perception of how the organisation values him/her. As a result, where perceptions of work outcomes are fair, employees will tend to reward the organisation by participating in knowledge sharing. The unfairness of work outcomes plays a role in perceptions of exploitation by employees. Where employees feel exploited, they are less likely to engage in extra role behaviour such as knowledge sharing.

Based on the discussion above, we propose the following hypothesis (in two parts):

- H6a If employees believe that their work outcomes are fair, they are more likely to ascribe organisational ownership to their knowledge.*
- H6b If employees believe that their work outcomes are unfair, they are more likely to ascribe individual ownership to their knowledge.*

Performance Evaluation

The fairness perceptions of performance evaluations are closely related to the evaluation of system or institutional characteristics [39]. In making leadership or institutional evaluations, people are taking a long term perspective on membership within the group [40]. Organisation procedures play a role in reflecting organisational values. Employees evaluate organisations based on the values reflected and base their extra role decisions on such. Hence, employees' perceptions of the fairness of decision making process will have implications on their tendency to share or withhold knowledge. Fair procedures can indicate that an appraiser respects the dignity of an appraisee, hence treating them with respect and concern. In looking at the fairness of procedures, we look closely at performance evaluations. Because performance evaluations are a key part of the reward system, they are a key variable in knowledge sharing. Procedures used to make decisions about rewards have a substantial impact. The reward system is an unequivocal statement of the organisation's values and beliefs [39]. A key aspect of reward systems involves not only the 'what' of rewards but also the 'how'. Fair procedures have great practical value in enhancing the positive evaluations of organisations.

Based on the discussion above, we propose the following hypothesis (in two parts):

- H7a If employees believe that their evaluations are fair, they are more likely to ascribe organisational ownership to their knowledge.*
- H7b If employees believe that their evaluations are unfair, they are more likely to ascribe individual ownership to their knowledge.*

Organisational Procedures/Policies

The fairness perceptions of organisational procedures/policies signal that the employer values their employees, in particular that their concerns and points of view are paid attention to. This surmounts to the sense of being treated with respect and dignity. As a result, fair organisational procedures play a role in signalling to employees that they can contribute in a discretionary fashion without thinking it will make them vulnerable to exploitation. Hence employees will tend to reciprocate this sense of fairness with the extra role behaviour of knowledge sharing.

Based on the discussion above, we propose the following hypothesis (in two parts)

- H8a If employees believe that the organisational procedures and policies are fair they are more likely to ascribe organisational ownership of their knowledge.*
- H8b If employees believe that the organisational procedures and policies are unfair they are more likely to ascribe individual ownership of their knowledge.*

Superior – Subordinate Relationship

Actions indicating positive regard for employees attributable to the supervisor purportedly create feelings of obligation that serve to increase functional behaviour [41]. Previous empirical research has found extra role behaviour to be associated with actions on the part of the organisation's representatives that seemingly demand reciprocity [41]. The quality of the supervisor-subordinate relationship has an impact on the extra-role behaviours exhibited by organisational members [41]. As leader-member exchanges increase in quality, supervisors enlist the help of subordinates on various tasks by offering valued inducements such as influence and support [41]. Such supervisor contributions create obligations to reciprocate. By participating in extra-role behaviour such as knowledge sharing, subordinates directly reciprocate benefits received and maintain a high quality exchange [41].

The leader-member exchange (LMX) model introduced in the mid-1970s has been used to conceptually describe the superior-subordinate relationship. [42]. The LMX model suggests that a type of exchange develops between a supervisor and a subordinate, ranging from low to high quality. In addition, the theory contends that a supervisor will develop different quality exchange relationships with each of his or her subordinates which remain relatively stable over time [42]. Employees with high-quality exchanges have been referred to as the 'in-group' and those with low-quality as the 'out-group'. In essence the LMX model describes the working relationship between supervisor and subordinate. High quality LMX relationships involve mutual exchanges that go beyond those fundamental to the employment contract. Hence high quality LMX seems to be characterized by high levels of trust, interaction, support and formal/informal rewards [43]. Conversely, low relationships involve exchanges basic to the employment contract. LMX has a substantial impact on employee behaviour. When the supervisor engages in helping behaviour towards the employee, the employee incurs the obligation to repay the supervisor so that the exchange is mutually beneficial [42]. One of the ways the employee can reciprocate is by participating in knowledge sharing.

The nature of the superior-subordinate relationship will have an impact on the subordinate relations [44]. This is because high quality superior-subordinate relationships cultivate a co-operative rather than competitive work environment. Rather than attempt to carry favour from superior or dread the opprobrium of their work group for doing a job too fast or too well, subordinates will feel a strong concern for the well being and the performance of the group [44]. As a result, it is likely that employees in high quality superior-subordinate relationships will be able to exchange their knowledge without the costs of loss of status and prestige associated with knowledge sharing.

Based on the discussion above, we propose the following hypothesis (in two parts):

- H9a If employees believe that they have a high quality relationship with their superiors, they are more likely to ascribe organisational ownership of their knowledge.*
- H9b If employees believe that they have a low quality relationship with their supervisors, they are more likely to ascribe individual ownership of their knowledge.*

Co-Worker Relationship

Previous research has reported that good co-worker relations are positively associated with employee work attitudes [43,45]. Similarly to the supervisor-subordinate relationship, the quality of the co-worker relationship is characterised by

mutual respect, trust and obligation between co-workers [43]. Group members provide each other with social support and feelings of personal worth [43]. Trust, respect and obligation have been stipulated as the key components of quality relationships [46]. As a result, we conceptualized a high quality relationship between co-workers as one in which a member's relationship to his or her team as a whole is characterized by mutual respect, trust and obligation.

Past research on small groups and teams make it clear that relationships among team members can affect how those members feel about their team and their jobs. High quality exchange relationships provide members with the environment to exchange knowledge and so employees possessing such relationships could be rated as more likely to give away their knowledge. The higher the quality of co-worker relationships the more likely peers enlist the help of each other in the hope that provided assistance will be reciprocated in the future. By participating in knowledge contributions, peers create obligations to reciprocate. In so doing, an environment is created which is conducive to knowledge exchange.

Based on the discussion above, we propose the following hypothesis (in two parts):

H10a If employees believe that they have a high quality relationship with their peers, they are more likely to ascribe organisational ownership of their knowledge.

H10b If employees believe that they have a low quality relationship with their peers, they are more likely to ascribe individual ownership of their knowledge.

CONCLUSIONS

In this paper, we have proposed a theoretical model for motivating knowledge sharing amongst employees. We began by highlighting the importance of organisational knowledge as a strategic resource for the firm's competitive advantage. We then looked briefly at the driving role technology has played in the past both in research and practice in the formulation of solutions to the problem of motivating and facilitating knowledge sharing amongst employees. This was followed by an observation of the increasing role that human and social factors are playing in current work dealing with motivating employee knowledge sharing. Such work applies sociological and psychological theories to model the dynamics of knowledge sharing.

We have identified that the current body of work is limited in its treatment of this subject due to a lack of empirically tested work. This acts as the motivation for the development of our theoretical framework which looks at the influence of organisational ownership and justice perceptions on employee willingness to share their knowledge. Social and economic exchanges were identified as mechanisms through which knowledge sharing occurs.

We also presented the theoretical underpinnings for the development of a number of hypotheses based on the relationship of seven factors to employee propensity to share their knowledge. The factors identified include reward, work nature, work outcome, performance evaluation, organisational policies/procedures, superior-subordinate relationship and co-worker relationship.

The work reported in this paper is part of a research project carried out at the Manchester Business School with the aim to develop a framework which tackles the problem of knowledge sharing by investigating what affects the willingness of workers to share their knowledge [47]. This 'willingness to share knowledge' is increasingly being recognised by

theorists as fundamental to the success of any knowledge management initiative. Past work has failed to fully investigate the impact of organisational conditions on the worker's intrinsic motivation to share their knowledge. However this project ventures into this territory by proposing employee perceptions of organisation ownership and justice as defining forces in motivating knowledge sharing behaviour. According to the results of the project [47], perceptions of the organisation's rights to knowledge created by the employee (*organisational ownership*) were found to encourage knowledge sharing. On the other hand, perceptions of the individual's rights to knowledge he/she creates (*individual ownership*) was found to discourage knowledge sharing. Employees perceived the ownership of different knowledge assets differently, with codified knowledge assets more likely to be perceived as the organisation's property. Tacit knowledge assets on the other hand, were perceived equally as both organisational and individual property. The influence of the work environment on employee ownership perceptions differed according to knowledge type (codified or tacit). The ownership perceptions of codified knowledge assets were influenced by work environmental variables of an institutional nature such as reward, performance evaluation, organisational procedures and the presence of knowledge sharing norms. Ownership perceptions of tacit knowledge assets on the other hand, were largely influenced by work environment variables of a relational nature such as co-worker relationship quality and supervisor relationship quality.

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