Motivation in organisational online knowledge sharing

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Abstract

Purpose – This paper aims to examine the influence of intrinsic motives (self-efficacy, reputation and reciprocity) on online knowledge sharing behaviour. Additionally, this research investigates the moderating role of individual innovation capability and top management support.

Design/methodology/approach – The methodology adopted was a questionnaire survey of employees working in Vietnamese telecommunications companies. A total of 501 employees completed a self-administered anonymous survey using a cross-sectional design. Confirmatory factor analysis and ordinary least squared – based hierarchical regression was used to test the conceptual framework.

Findings – Self-efficacy, reputation and reciprocity significantly impact online knowledge sharing behaviour. Specifically, self-efficacy has an inverted U-shape association while reputation and reciprocity have a positively, returns-to-scale association with online knowledge sharing behaviour. Individual innovation capability moderates the effect on these associations as does top management support, but to a lesser extent.

Research limitations/implications – Data were obtained at a single point in time and self-reported. Furthermore, this study was conducted in a specific industry in Vietnam, i.e. telecommunications, which limits the generalisability of the research.

Practical implications – Organisations need to create a favourable environment for online knowledge sharing to foster reciprocal relationships and interpersonal interactions of employees. Encouraging and rewarding employees to actively engage in knowledge exchange will help facilitate reciprocal online knowledge sharing behaviour.

Originality/value – This study contributes to knowledge-sharing behaviour by uncovering an inverted U-shape association and positively, returns-to-scale associations between intrinsic antecedents and online knowledge sharing behaviour. Additionally, individual innovation capability was an important moderator which has been overlooked in past research.

Keywords Motivation, Knowledge sharing, Self-efficacy, Reputation, Innovation capability, Reciprocity

Paper type Research paper

Introduction

Online knowledge sharing is the backbone of the knowledge management process. With the advent of the virtual workplace and new technologies to share information, managing the knowledge sharing process within and across online platforms has become a significant business focus for organisations (Pi *et al.*, 2013). In addition, the COVID-19 pandemic has rapidly exacerbated the adoption of such a virtual workplace and technologies 'nice-to-do' to 'must-do' status to enable employees to work remotely (Rimold, 2020). Online platforms, such as weblogs, Zoom, Skype and Microsoft Teams, offer forums for employees to connect and share thoughts and ideas in the process of problem-solving business tasks (Hsu and Lin, 2008; Nguyen *et al.*, 2021). Importantly, organisational online platforms for knowledge sharing are valued for their capacity to not only facilitate the distribution of knowledge but also to enable collaborative environments within single and/or across multiple organisational locations where employees actively build social capital and connect with others (Arpaci and Baloglu, 2016; Chen *et al.*, 2018).

One downside to online knowledge transfer is that employees tend to be reluctant to share knowledge due to the fear of losing their competitive advantage or the threat of job security. Employees' unwillingness to share knowledge may waste organisations' resources to create the knowledge that already exists in the organisation. Panopto (2018) notes that in 2018, American workers wasted approximately 5.3 h every week waiting for important information from their co-workers or recreate existing organisational knowledge. Such wasted time slows down organisational creativity and development, leads to missed opportunities and impedes collaboration among employees (Kwahk and Park, 2016). Therefore, identifying issues with the motivation of employees to share knowledge online has been one of the mainstreams in the knowledge sharing literature.

Recent reviews on motivation of knowledge sharing behaviour (Nguyen, 2020b; Bibi and Ali, 2017) indicate that there are many determinants that drive knowledge sharing behaviour, such as trust, social norms and management support, all of which lead to an increase in employee innovation capacity. These reviews emphasised that self-efficacy and rewards are the most dominant determinants that drive knowledge sharing behaviour. Previous studies have found that self-efficacy is crucial in online knowledge sharing in organisations because employees need to have the confidence to provide valuable knowledge to others (Nguyen, 2020b). The significantly positive association between self-efficacy and knowledge sharing behaviour has been supported by many researchers such as Chen et al. (2009) and Kumar and Rose (2012). However, recent research did not support the influence of self-efficacy on knowledge sharing behaviour (Tan, 2016), raising concern about whether self-efficacy always positively affects knowledge sharing behaviour. Some evidence (Tan, 2016; Lin, 2007a) suggests that an excess of self-efficacy also entails several drawbacks for online knowledge sharing, which can hinder it. Thus, there is a need to examine self-efficacy in the context of online knowledge sharing to determine whether there are other moderating factors coming into play.

Rewards are also very important in engaging employees in online knowledge sharing. According to social exchange theory, employees need to have incentives to motivate them to share knowledge online. Employee's resources, such as time, are limited; thus, they often consider if their knowledge sharing behaviour is rewarded (Hung et al., 2011; Nguyen, 2020b). Prior scholars have tended to examine the influence of extrinsic rewards (e.g. bonus or salary) on online knowledge sharing behaviour because measuring extrinsic rewards seems relatively easier than intrinsic rewards (Choi et al., 2008; Nguyen and Malik, 2020; Wasko and Faraj, 2005). On the other hand, some argue that intrinsic rewards, which refer to non-monetary incentives such as reputation and reciprocity, are even more crucial than extrinsic rewards to motivate employees to share knowledge (Nguyen and Malik, 2020; Choi et al., 2008). The shortage of studies on reputation and reciprocity in the knowledge sharing literature require researchers and practitioners to further study the impact of such crucial intrinsic incentives on knowledge sharing behaviours.

The recent review of the knowledge sharing literature identifies that the variation in the impact of determinants on online knowledge sharing behaviour may stem from the moderating effects of individual and organisational factors (Nguyen, 2020b; Nguyen et al., 2019). Individual factors such as individual innovation capability may affect employees' perception of their values in the organisation. Innovation capability has often been examined as the outcome of knowledge sharing behaviour (Akhavan and Hosseini, 2016), but it may affect employee cognition about the value of knowledge, thus, may moderate the effect of determinants on knowledge sharing behaviour. Additionally, top management support has been widely investigated as a determinant of knowledge sharing behaviour but recent research such as Nguyen (2020b), which indicate that management support may create a favourable environment in which employees feel that their effort to share knowledge is recognised and their knowledge sharing behaviour contributes to the

development of the organisation. Therefore, more attention needs to be placed on these possible moderators.

To address the identified gaps in the current literature, the objective of this research is threefold:

1. to deepen our understanding of the impact of self-efficacy on knowledge sharing behaviour;

2. to examine the influences of crucial intrinsic incentives (reputation and reciprocity) on knowledge sharing behaviour; and

3. to investigate the moderating role of individual innovation capability and top management support.

The paper is organised as follows: firstly, the knowledge sharing literature is presented; hypotheses are developed, followed by research methods to test hypotheses; the results are presented to test the hypotheses; finally, the finding discussion and theoretical and practical implications are offered along with directions for future research (Prentice and Nguyen, 2020).

Literature review

With the increasing interest of organisations to shift work environments to an online or virtual platform, the role of online knowledge sharing in organisations has paid considerable attention. Online knowledge sharing within organisations and work teams have been seen more fundamental to improve effectiveness (Davenport *et al.*, 1998; Nguyen and Malik, 2020). Employees share knowledge online, which is essential for project management when employees work remotely (Nguyen and Malik, 2020). Increasingly, employees together generate a knowledge pool that can be used by every employee of the organisation (Nguyen and Malik, 2020). The challenge in knowledge management in this new online project environment is that employees are reluctant to contribute their knowledge and make it available for others because this would require time and effort with non-obvious rewards (Nguyen and Malik, 2020). Employees' reluctance may stem from their individual interest to minimize individual costs and maximize their own payoff (Nguyen and Malik, 2020). The issue in this situation is that if all employees hold their knowledge, then nobody can make use of the others' knowledge and organisations end up reinventing the wheel so to speak, where employees waste time to create existing knowledge, which is hidden or unshared (Nguyen and Malik, 2020).

In the knowledge sharing literature, there are many factors that have been found to motivate knowledge sharing behaviour (Table 1). Trust is one typical determinant of knowledge sharing behaviour (Akhavan and Hosseini, 2016). If employees trust each other, they tend to share more of their useful knowledge (Chai *et al.*, 2011; Nguyen, 2020b). When trust exists among employees, they tend to listen to and absorb one another's knowledge and have no worry (Akhavan and Hosseini, 2016; Nguyen, 2020b). In addition, the relationship between organisational climate, structure or goal and employee knowledge sharing has been studied by various researchers. Employees with a strong sense of culture, structure and shared goals with their organisations are inclined to act in ways consistent with these underlying or core values of an organisation and tend to share knowledge to contribute to the development of the organisation (Akhavan and Hosseini, 2016; Bock *et al.*, 2005). Leadership and job autonomy are indicated as crucial predictors of knowledge sharing (Lin *et al.*, 2009; Nesheim and Gressgård, 2014). Employees often regard their supervisors or leaders as a role model because they will provide guidance in the knowledge sharing process (Nesheim and Gressgård, 2014; Nguyen, 2020b). Employees are often motivated if their supervisors or leaders recognise the contribution of employees in knowledge sharing (Nesheim and Gressgård, 2014). Furthermore, when it comes to online knowledge sharing,

Table 1	Table of literature review on organisational knowledge sharing		
Author(s) and year	Study/sample description	Main and interaction variables studied	Control variables
Akhavan and Hosseini (2016)	Employees in multiple companies in Iran	Reciprocity	Social interaction ties; trust; identification; shared goal
Akhavan et al. (2015)	Employees from 22 high-tech companies (including companies in pharmaceutical, nano technological, biotechnological, aviation and aerospace industries) in Iran	Reputation	Self-enjoyment; perceived loss of knowledge power; social interaction ties; trust; organisational climate; shared goal; information technology
Al-Busaidi et al. (2010)	Employees in a major private petroleum organisation in Oman	Management support	Trust; extrinsic reward; system quality
Amayah (2013)	Civil service employees at a mid-size public academic institution	Reciprocity; management support	Social interactions; reward; consideration; personal benefits; courage; empathy
Aslam et al. (2013)	Students in universities	Reciprocity	Social interaction ties; trust; identification; shared goal
Aulawi et al. (2009)	Employees in an Indonesian telecommunication company	Self-efficacy; management support; individual innovation capability	Trust; extrinsic reward
Bartol et al. (2009)	Information technology professionals and their supervisors working in the information technology industry in China	Management support	Job security
Bock et al. (2005)	Employees from 27 organisations	Reciprocity	Subject norms; extrinsic reward; organisational climate
Borges (2013)	Information technology professionals	Management support	Social interaction ties
Cavaliere and Lombardi (2015)	Employees from six Italian subsidiaries	Management support	Self-enjoyment; organic structure; leadership; information technology
Chai et al. (2011)	Students who were business majors at two large universities in the midwest and northeastern parts of the USA	Reciprocity	Social interaction ties; trust
Chen et al. (2009)	Full-time senior college students and master of business administration students who enrolled in two courses (enterprise resource planning and electronic business) that were conducted over a Web-based learning platform and physical classrooms	Self-efficacy	Social network ties
Cho et al. (2007)	Working adults taking evening classes in the part-time master of business administration programs of Hanyang University	Reciprocity; self-efficacy	Agreeableness; conscientiousness; expertise; tenure; rewards; subjective norm
Chuang et al. (2015)	Middle management employees in 50 Taiwanese ISO 9001:2000-certified firms in the information technology industry	Self-efficacy	Reciprocity; perceived ethics; subjective norm
Fathi et al. (2011)	Employees in a manufacturing company	Self-efficacy	Trust; social network; shared goal; incentive systems; individualism; collectivism
Ford and Staples (2010)	Employed workers from various industries and organisations within North America	Management support	Trust; propensity to share knowledge
Gross and Kluge (2014)	Employees working in a steel mill	Self-efficacy; management support	Subjective norms; communication; social ties; perceived appraisal
Hassandoust et al. (2011)	Multimedia University students	Reciprocity	Trust; competition; willingness; identification; collectivism; organisational culture; subjective norms
Hau et al. (2013)	Employees in multiple industries	Reciprocity	Rewards; self-enjoyment; social tie; trust; social goals
Huang et al. (2008)	Master of business administration students from a university of different organisations	Reciprocity	Loss of knowledge power; codify effort; image; self-worth; extrinsic reward; subjective norm; face-saving; face-gaining; Guanxi orientation
Hung et al. (2011)	Upper division undergraduate and MBA students from a university	Reputation; reciprocity	Economic reward; Altruism
Jeon et al. (2011)	Individuals in four high-tech production Korean companies	Reciprocity	Image; enjoyment in helping; need for affiliation
Kang et al. (2008)	Public employees in South Korea	Management support	Organisational learning culture; organisational structure; employee training; reward systems; openness;

(*continued*)

Table 1			
Author(s) and year	Study/sample description	Main and interaction variables studied	Control variables
Kim et al. (2015)	Social networking sites users	Self-efficacy	cooperative relationships; clarity of knowledge; usefulness of knowledge Social outcome expectations; sharing enjoyment; social ties; social network
Kumar and Rose (2012)	Administrative and Diplomatic Service from the Malaysian public sector organisations	Reciprocity; self-efficacy	Enjoyment in helping others; trust; pro-sharing norms; self-image; organisational reward
Kwahk and Park (2016)	Employees working in various organisations	Self-efficacy; reciprocity	Enjoyment of helping; social interaction ties; Tertius iungens orientation
Lin (2007b)	Employees from 50 large organisations	Self-efficacy; reciprocity	Expected organisational rewards; enjoyment in helping others
Lin (2007a)	Employees from 50 large organisations	Self-efficacy; management support	Enjoyment in helping others; organisational rewards; information technology
Lin et al. (2009)	Employees from 50 large organisations	Self-efficacy; Reciprocity; Reputation; Management support	Social networks; trust; sharing culture; learning orientation; organisational rewards; enjoyment in helping others; vision and goals; leadership; information technology
Lo and Tian (2020)	Academics from higher education institutions in Hong Kong	Innovation capacity	Absorptive capacity
Lu et al. (2006)	Part-time master of business administration student in Shanghai and Shenzhen and middle-level employees from five firms	Self-efficacy; management support	Greed; co-worker collegiality
Nesheim and Gressgård (2014)	Employees/consultants of the operator firm and employees of eight main subcontractors	Management support	Training; autonomous motivation; job autonomy; short-term goals
Olatokun and Nwafor (2012)	Respondents across six ministries in the state's Civil Service Commission	Self-efficacy; reciprocity	Expected organisational rewards; enjoyment in helping others
Pai (2006)	Employees in large companies	Management support	
Papadopoulos et al. (2012)	Employees in Thai organisations registered in the Thai Stock Exchange	Self-efficacy; reciprocity; reputation	Subjective norm; social identity; group norm; perceived usefulness; perceived ease of use; perceived enjoyment; altruism
Quigley et al. (2007)	Undergraduates enrolled in upper-level management courses at a large mid-Atlantic university	Self-efficacy	Incentive condition
Safa and Von Solms (2016)	Employees of several Malaysian organisations whose main activities were in the domain of banking, insurance, e-commerce and education	Reputation; management support	Promotion; satisfaction; subjective norms; trust
Tan (2016)	94 professors, 154 associate professors and 173 senior lectures	Self-efficacy; reciprocity; management support	Trust; organisational rewards; organisational culture; information technology
Tohidinia and Mosakhani (2010)	Employees from oil companies	Self-efficacy; reciprocity	Extrinsic rewards; organisational climate; subjective norms; information technology
Tsai and Cheng (2010)	Software engineers and workers	Self-efficacy	Organisational climate; outcome expectancy
Tsai and Cheng (2012)	Information technology professionals from information technology companies and departments	Self-efficacy	Trust; organsational justice; oragnisational commitment
Watson and Hewett (2006)	Employees who regularly use knowledge, through either creation of new knowledge or the reuse of existing knowledge	Self-efficacy	Ease of knowledge access; training; trust; value of knowledge; oraganisational tenure
Wu and Zhu (2012)	Employees from 10 companies	Reciprocity; reputation	Organisational incentives; perceived loss of knowledge power; perceived enjoyment in helping others; perceived organisational climate; subjective norm
Yang (2010)	Employees working in international tourist hotels	Management support	Leadership roles; oraganisational learning
Zhang et al. (2014)	Postgraduate students in engineering and business in the innovative virtual class	Self-efficacy; reciprocity; reputation	Economic reward; enjoyment of helping

technological factors also need to be mentioned (Nguyen, 2020b). Advanced information technologies facilitate new methods of working and collaborating among employees in an organisation and are widely regarded as beneficial in knowledge sharing. To encourage knowledge sharing behaviour, an online platform needs to include suitable functions and qualities such as accessibility or user-friendliness (Nguyen, 2020b; Tan, 2016). It is anticipated that if an online knowledge platform has a high level of quality, more employees will use it to share knowledge (Nguyen, 2020b; Tan, 2016). Based on social exchange theory, one solution proposed to enhance the knowledge sharing process in organisations is the knowledge-market idea (Davenport and Prusak (1998). A knowledge market is a place where knowledge providers and receivers exchange knowledge. The knowledge gained from the exchange of knowledge is regarded as a reward for knowledge sharing behaviour (Ba *et al.*, 2001). Incentives can be extrinsic economic motivations such as bonuses or promotions (Bock *et al.*, 2005; Hau *et al.*, 2013) or intrinsic rewards such as reputation and reciprocity (Ba *et al.*, 2001). Prior studies have paid more attention to extrinsic economic rewards due to the relative ease in measuring the acquisition of extrinsic rather than intrinsic rewards (Choi *et al.*, 2008; Nguyen and Malik, 2020). Few studies have examined intrinsic rewards although they have been identified to be essential, even more important than extrinsic economic ones in eliciting knowledge sharing behaviour (Choi *et al.*, 2008; Nguyen and Malik, 2020). This leads to a need to examine intrinsic rewards in motivating knowledge sharing behaviour. Among intrinsic rewards, reputation and reciprocity can be considered the most important ones that motivate employees to share knowledge online (Nguyen and Malik, 2020).

To participate in the online knowledge sharing process, in addition to considering the costs and benefits, employees need to have self-efficacy about their knowledge (Nguyen *et al.*, 2019; Nguyen, 2020a). They need to be confident that they can provide knowledge useful or valuable to others (Nguyen *et al.*, 2019). It is hard to join a discussion if employees do not know about the topic and do not think they can contribute anything (Nguyen *et al.*, 2019). A lack of self-efficacy may impede the participation of knowledge sharing. For example, Kankanhalli *et al.* (2005a) and Hew and Hara (2007) reported that a lack of self-efficacy was one of the most important reasons people refrain from sharing knowledge. Additionally, Van Acker *et al.* (2014) argue that the main reason for non-participation in online knowledge sharing is that members believe they lack sufficient self-efficacy to contribute to the discussion. Therefore, this study extends the knowledge-market idea by examining the impact of three important intrinsic factors (self-efficacy, reputation and reciprocity) on knowledge sharing behaviour.

Hypotheses development

Main effects of self-efficacy, reputation and knowledge sharing reciprocity

Olatokun and Nwafor (2012) argue that self-efficacy is a condition because without self-efficacy, employees may be not able to share knowledge. Self-efficacy involves the confidence in providing valuable knowledge to others (Bock *et al.*, 2005; Nguyen and Prentice, 2020). Amayah (2013) and Nguyen *et al.* (2019) believe that self-efficacy motivates employees to share knowledge because it empowers employees with confidence in their work activities. When employees have self-efficacy, they are more likely to share their knowledge, leading to knowledge sharing behaviour (Bock and Kim, 2002; Kankanhalli *et al.*, 2005b; Nguyen *et al.*, 2019; Wasko and Faraj, 2005).

Having too much self-efficacy, however, can backfire and negatively influence knowledge sharing behaviour. When employees think that the knowledge they have is so much greater than that of others, they tend to hesitate to share with others (Lin, 2007a). Instead, they are likely to keep it for themselves and just share part of the knowledge to maintain their competitive advantage and job security (Tan, 2016). To acquire such valuable expertise or unique skills, employees may perceive the time and effort was great; thus, they may not

want to share it freely with others who have not put in the time and effort to obtain it (Kuo and Young, 2008). This is partially based on the fact that knowledge sharing behaviour may lead to losing job security when the unique skills are shared and obtained by others (Kumar and Rose, 2012). Additionally, as employees often regard exceptional skills or valuable knowledge as their competitive advantage, they naturally tend not to have willingness to share due to the fear of losing valuable information that may threaten their status and job security in the organisation (Ba et al., 2001). These findings suggest that low self-efficacy leads to lower knowledge sharing due to lack of perceived meaningful contribution made by the employee. Contrary to this, too high self-efficacy may lead to lack of knowledge sharing based perceived time/costs of obtaining that knowledge, as well as threats to job security and status. This suggests there may be an optimal point of self-efficacy that leads to the greatest amount of knowledge sharing. Based on this discussion, the following hypothesis is offered:

H1. Self-efficacy has an inverted U-shaped association with online knowledge sharing behaviour.

Another intrinsic motivation to engage in online knowledge sharing is the reputation, which is generated or enhanced from knowledge sharing behaviour (Davenport et al., 1998; Nguyen et al., 2019). It is not expected that employees are willing to share their valuable knowledge but do not consider that they gain and lose (Al-Alawi et al., 2007; Nguyen and Malik, 2020). Previous research suggests that employees tend to share knowledge if their knowledge sharing behaviour is recognised (Carrillo, 2004; Nguyen and Malik, 2020). An employee may share knowledge to show off or let colleagues know that he/she is knowledgeable and possesses valuable expertise to improve reputation as an expert in the mind of co-workers (Ba et al., 2001; Nguyen and Malik, 2020). Despite being an intangible concept, reputation often leads to tangible benefits including promotion (Ba et al., 2001). Therefore, if employees perceive that their reputation might be improved, they will share knowledge (Ba et al., 2001; Nguyen and Malik, 2020).

However, employees need time to build up a reputation and connection with others. When they perceive that they have a low-to-moderate reputation, they still share knowledge but do not have much pressure to maintain reputation (Ba et al., 2001). However, when they perceive that their knowledge sharing behaviour could significantly increase their reputation, they are inclined to actively share knowledge to achieve this goal (Choi et al., 2008). The more recognition from others about their expertise, the more pressure they put on themselves to maintain their reputation and meet the expectations of colleagues within the organisation (Choi et al., 2008). When employees attain a perceived high level of reputation, they tend to think that their sharing has a strong impact and they are more likely to increase the quality and frequency of knowledge sharing behaviour (Ba et al., 2001). Therefore, based on this argument, the following hypothesis is proposed:

H2. Reputation has a positive, increasing returns-to-scale association with online knowledge sharing behaviour such that this effect gets stronger with a higher level of reputation.

Reciprocity involves the perception of employees that their current knowledge sharing behaviour will lead to future knowledge sharing by others (Chang et al., 2015; Davenport and Prusak, 1998; Lai and Chen, 2014). When employees share knowledge, they may expect that others will transfer equivalent knowledge back (Schulz, 2001; Nguyen et al., 2019; Nguyen, 2020a). This means that knowledge donators often expect their knowledge sharing to be reciprocated (Lai and Chen, 2014; Nguyen et al., 2019). If the reciprocal knowledge exchange relationship can be increased, employees tend to have more willingness to share their valuable knowledge (Lin, 2007a; Nguyen et al., 2019).

When employees have a low-to-moderate level of reciprocity, their knowledge sharing behaviour will still increase but at a lower pace (Lee et al., 2006). It often takes time for an

employee to build trust and confidence that when he/she shares knowledge, others will reciprocate (Hsu and Lin, 2008). Employees need to receive the knowledge shared in return from others to consolidate the belief that their knowledge sharing behaviour will be reciprocated. From the beginning, employees are more inclined to not actively share knowledge (Akhavan and Hosseini, 2016). When they recognise others to reciprocate, they build up the confidence in knowledge sharing reciprocity, and they tend to share knowledge actively (Lin, 2007a). In other words, reciprocity is heavily influenced by the experience an employee has in the knowledge exchange process (Kwahk and Park, 2016). If employees share knowledge and they receive knowledge shared by others in return, they tend to have a high level of reciprocity (Nguyen et al., 2019). When employees have a high level of reciprocity, they tend to think knowledge sharing reciprocity as a moral obligation based on normative social pressure and tend to share knowledge to contribute to knowledge exchange (Cho et al., 2010). As a result, employees with high knowledge sharing reciprocity tend to share knowledge with others actively. Based on this logic, the following hypothesis is proposed:

> *H3.* Reciprocity has a positive, increasing returns-to-scale association with online knowledge sharing behaviour such that this effect gets stronger with a higher level of reciprocity.

Moderating effects of individual innovation capability and top management support

Recent studies on the moderators of the determinants of knowledge sharing behaviour focus heavily on individual capability (Nguyen et al., 2019). Individual innovation capability, for instance, influences the perception of an individuals' value; thus, it accentuates the impact of self-efficacy, reputation and reciprocity on knowledge sharing behaviour.

When employees have high innovation capability, if they are confident about the value of the knowledge they hold (high self-efficacy), they may share knowledge more freely because they believe that their knowledge sharing behaviour is unlikely to reduce their competitive advantage (Ho et al., 2011; Nguyen and Malik, 2020). Employees, who have confidence in their ability to innovate new ideas, often rely on their skill and ability to consolidate their position in the company because of the high degree of confidence in the knowledge they hold (Chuang et al., 2015). For these employees, sharing valuable knowledge with others often does not diminish their job security (Chen and Hung, 2010). A highly innovative employee with high levels of self-efficacy tends to display helpful behaviour, such as suggesting the advice that is useful to others in the organisation even though it is not mandated in their contract (Kumar et al., 2009; Nguyen and Malik, 2020). They may view online knowledge sharing behaviour as one crucial element of their tasks and think that knowledge sharing is effective that creates a bond among employees (Borges, 2013; Nguyen and Malik, 2020; Wang and Yang, 2007). Hence, for those with high innovation capability, they tend to share knowledge more if they know the knowledge is valuable to others (Lin, 2007b).

When employees have high innovation capability, they often want to gain recognition from others (Ba et al., 2001). Therefore, they may wish to gain recognition through knowledge sharing behaviour, as well as to consolidate their important position in the company (Choi et al., 2008). Their reputation could be enhanced from a wide range of innovative contributions, from the products they helped to innovate to new ideas on how to increase job performance (Davenport and Prusak, 1998). Online knowledge sharing behaviour is yet another way they can increase their reputation. The better the reputation they can get, the more knowledge they want to share (Ba et al., 2001) and vice versa. In contrast, those who have low innovation capability are less inclined to engage in online knowledge sharing behaviour (Al-Alawi et al., 2007) as they see no benefit of gains in reputation.

While employees with high innovation capability tend to engage in online knowledge sharing to enhance their reputations, there tends to be much less impact from reciprocity on knowledge sharing behaviour (Jeon et al., 2011). For high innovation capability individuals, they are likely to see others' knowledge as less valuable; therefore, the expectation for the knowledge shared in return (reciprocity) is less (Lin, 2007a). Employees who have the ability to innovate or create new ideas, tend to have the capability to work independently and need less help from others in their thinking (Lin et al., 2009). Therefore, they have less expectation of reciprocity (Suh and Shin, 2010). Everything being equal, those who have high innovation capability tend to have less knowledge sharing behaviour when they expect knowledge will be shared in return (Wasko and Faraj, 2005). Based on this notion, the following hypothesis proposed:

> H4. Individual innovation capability is a moderator in that it (a) positively influences the association between self-efficacy and online knowledge sharing behaviour, (b) positively influences the association between reputation and online knowledge sharing behaviour and (c) negatively influences the association between reciprocity and online knowledge sharing behaviour.

Top management support plays a crucial role in creating a favourable environment for online knowledge sharing (Nguyen et al., 2021). Top management support has been examined as a moderator on the impact of individual determinants on online knowledge sharing behaviour (Nguyen, 2020a). Top management support helps to encourage employees who have high confidence in their knowledge (high self-efficacy) to think more about the outcome of share knowledge on the company (Gross and Kluge, 2014). Top management support also helps employees care other colleagues and help each other to address work issues and to build up social capital for the company (Kang et al., 2008). Thus, in an environment with great support from top management, employees with higher self-efficacy tend to share knowledge more frequently (Ford and Staples, 2010).

Top management support also motivates employees to share knowledge online to gain recognition. With the support of top management, employees may feel more appreciated if they share more knowledge (Nguyen, 2020a). Employees are more likely to be motivated to share knowledge when they know that their knowledge sharing behaviour is recognised by top management. This is because they perceive their effort is rewarded by recognition and enhanced reputation by the organisation. Recognition from top management may not bring direct tangible rewards but can lead to job security and promotion. Thus, employees may have more motivation to share knowledge to increase reputation if their efforts are noticed and supported from top management.

With strong top management support, employees have greater confidence that the company values the knowledge they share to build up social capital that benefits all employees (Lin et al., 2009; Nguyen 2020a). They tend to have a stronger belief that if they share knowledge, others will reciprocate, leading to knowledge sharing behaviour (Hsu and Lin, 2008). Top management support helps to create a culture of knowledge exchange to help each other and increase the social capital of the company (Kang et al., 2008). Employees are more likely to share knowledge because they know that their knowledge sharing is observed and cared by top management, others will be more responsible for knowledge sharing reciprocity (Lin et al., 2009; Nguyen 2020a). Therefore, the following hypothesis is proposed:

> H5. Top management support is a moderator in that it (a) positively influences the association between self-efficacy and online knowledge sharing behaviour, (b) positively influences the association between reputation and online knowledge sharing behaviour and (c) positively influences the association between reciprocity and online knowledge sharing behaviour.

Figure 1 depicts the conceptual model and summarises the research hypotheses.

Figure 1 Conceptual framework
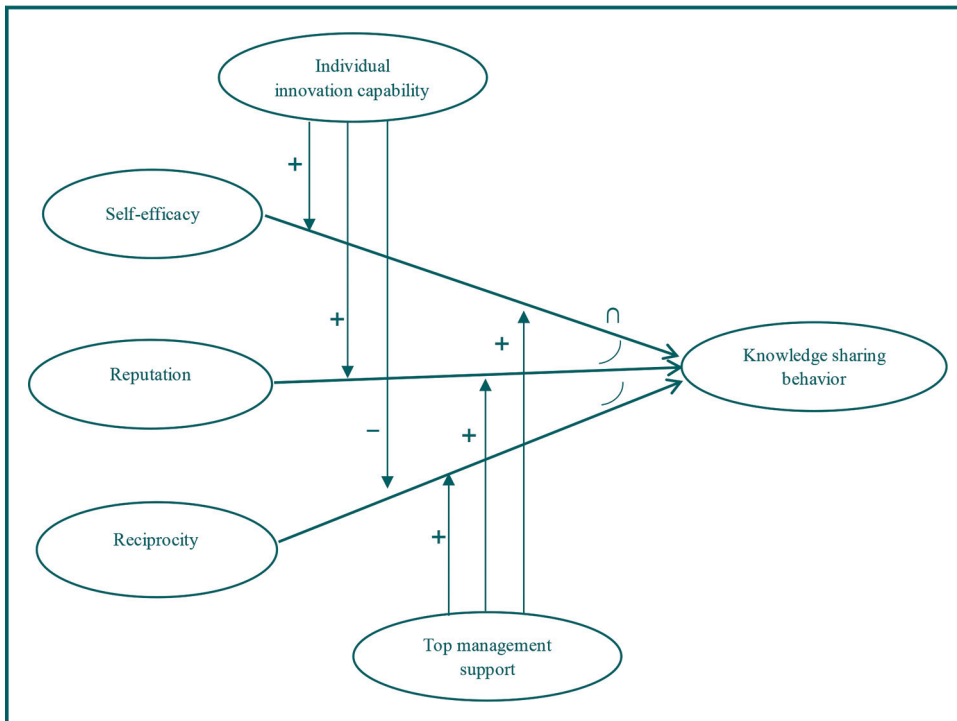
Methodology

Measurement

The construct measures in this study are adopted from previous research and were anchored on a seven-point Likert scale from 1 = 'strongly disagree' to 7 = 'strongly agree'. Self-efficacy was adapted from the self-efficacy scale in Bock *et al.* (2005) and Nguyen and Malik (2020) to assess employees' ability to share knowledge to contribute to an. Two reverse coded questions were deleted due to low factor loading. The Cronbach's alpha value for this adapted scale is 0.94. A sample item is: "I feel confident in my ability and knowledge to help colleagues to solve their problems".

Reputation was adapted from Choi *et al.* (2008) and Nguyen and Malik (2020), which assessed the increase in reputation obtained when employees share knowledge online with their colleagues. The Cronbach's alpha value for this adapted scale is 0.95. A sample item is: "The more I share my own knowledge, the more my reputation would be enhanced".

Reciprocity was adopted from Kwahk and Park (2016) and Nguyen (2020a) to assess employees' expectations of reciprocal benefits in online knowledge sharing. The Cronbach's alpha coefficient for this adapted scale is 0.91. A sample item is: "I believe that it is fair and obligatory to help others because I know that other people will help me someday".

Knowledge sharing behaviour was adapted from Akhavan and Hosseini (2016), Kim and Lee (2013) and Nguyen and Malik (2020) to assess employees' online knowledge sharing behaviour. The Cronbach's alpha coefficient for this adapted scale is 0.91. A sample item is: "I often share my information, skills and experiences with my colleagues online".

Individual innovation capability was adopted from Hurt *et al.* (1977) to assess employees' current capability in innovation. Cronbach's alpha value for this adapted scale is 0.95. A sample item is: "I seek out new ways to do things".

Top management support was measured by adapting the top management support scale in Kang *et al.* (2008) and Nguyen (2020a), which focussed on the support of top management in encouraging online knowledge sharing between work units or the effort to create a favourable culture. The Cronbach's alpha value for this adapted scale is 0.94. A sample item is: "The top management in my company makes consistent efforts to foster a culture of online knowledge sharing".

Table 2 presents all construct measure items used along with reliability and confirmatory factor analyses.

Demographic factors of gender, education, age, years of employment and participating in online knowledge sharing were examined as control variables following the suggestion of Luu and Ngo (2019). Although the literature points to numerous other potential controlling variables such as economic rewards (e.g. bonuses or promotions) or system quality, they were not controlled in this study.

Data collection

The data were collected from Vietnamese telecommunications companies using a three-stage process. The first stage involved qualitative in-depth interviews with companies that regularly hold online knowledge sharing activities with its employees. Following Luu and Ngo (2019), five interviews with managers who had experiences online knowledge sharing in organisations in Vietnam were conducted to assess their understanding of the questions in the questionnaire and the relevance of the questionnaire to workplace practices. Based on these findings, a preliminary questionnaire was developed and revised to enhance face validity and clarity. Stage two of data collection involved a pilot survey of 30 Vietnamese employees, which was conducted to check the reliability of variable scales and clarity of the questions in the questionnaire following Nguyen and Malik (2020). Further refinements were made, and a final questionnaire was developed to be used in the main survey. Stage three involved translation from English to Vietnamese and backtranslation by bilingual researchers fluent in both English and Vietnamese. Additional corrections were made to improve clarity and consistency of items and descriptions to produce a final instrument.

Next, following Nguyen and Malik (2020), an email was sent to employees in Vietnamese telecommunications companies to ask those who shared knowledge online to answer the questionnaire. Two filtering questions were put at the beginning of the questionnaire to make sure the eligibility of the respondents based on the suggestion of Nguyen and Malik (2020). Employees were then asked "To think about your belief, the online platform/s you use in your organisation, and your behaviour when sharing knowledge online, and then respond to items by indicating to what extent do you agree or disagree with the following statements". Subjects responded to questions about their knowledge sharing behaviour followed by self-efficacy, reputation, reciprocity, individual innovation capability, top management support and demographic questions. By the end of Stage 3, a total of 501 completed questionnaires were received and used for data analysis. Of the total sample, 54.1% were male and 45.9% were female. Most respondents were between 21 and 40 years old (86.8%). Regarding education qualifications, more than 85.8% of participants had a bachelor's degree or higher.

To control for possible common method bias, the ex ante procedure and ex post statistical remedies suggested by Podsakoff *et al.* (2003) were taken. For the ex ante procedure, the questionnaire was made sure of the simplicity and conciseness for all construct scales (Prentice and Nguyen, 2020). Participants were informed that complete confidentiality was made during and after data collection (Luu and Ngo, 2019). Their answer was based on their opinion with no right or wrong answers; thus, they should answer truthfully and honestly (Luu and Ngo, 2019). Reverse coded questions were included and spread throughout the questionnaire. For ex post statistical remedies, the marker-variable technique was used

Variable	Source	Measures	Factor loading
Self-efficacy (α = 94, CR = 95, AVE = 80)	Bock et al. (2005)	When sharing knowledge online, I feel confident in my ability and knowledge to….	
		(1) help colleagues to solve their problems	0.84
		(2) create new business opportunities for my organisation	0.83
		(3) help my organisation to improve work processes	0.93
		(4) help my organisation to increase productivity	0.94
		(5) help my organisation to achieve performance objectives and outcomes	0.94
Reputation (α = 95, CR = 95, AVE = 84)	Choi et al. (2008)	(1) People honour my job when I teach or share my own skills online	0.89
		(2) The more I share my own knowledge online, the more my reputation would be enhanced	0.94
		(3) When I share my knowledge online, I can get more chance to show my skills to the other colleagues	0.93
		(4) When I share my knowledge online, people apprate of me as an expert in our company	0.90
Reciprocity (α = 0.91, CR = 0.93, AVE = 0.77)	Kwahk and Park (2016)	When I share knowledge online with colleagues, I believe that…	
		(1) it is fair and obligatory to help others because I know that other people will help me someday	0.79
		(2) other people will help me when I need help to share my knowledge through the organisational online preferred platform/s	0.89
		(3) other people will answer my questions regarding specific information and knowledge in the future	0.92
		(4) people who are involved will develop reciprocal beliefs on give and take based on other people's intentions and behaviour	0.84
Individual innovation capability (α = 0.95, CR = 97, AVE = 92)	Hurt et al. (1977)	(1) I often seek out new ways to do things	0.91
		(2) I frequently improvise methods for solving a problem when an answer is not apparent	0.96
		(3) 1 consider myself to be creative and original in my thinking and behaviour	0.93
Top management support (α = 0.94, CR = 0.95, AVE = 0.87)	Kang et al. (2008)	The top management in my company…	
		(1) emphasises the importance of online knowledge sharing between work units	0.93
		(2) highly encourages employees to share knowledge online	0.94
		(3) makes consistent efforts to foster a culture of online knowledge sharing	0.89
Online knowledge sharing behaviour (α = 0.91, CR = 0.91, AVE = 0.73)	Akhavan and Hosseini (2016) and Kim and Lee (2013)	(1) I often share my information, skills and experiences with my colleagues online	0.90
		(2) When I have learned something new, I often tell my colleagues about it online	0.93
		(3) I regularly tell my colleagues online what I am doing	0.74
		(4) Online knowledge sharing among my colleagues is considered normal	0.83

Table 2 Construct measurement and CFA[a][b]

Notes: [a]Fit of measurement model: χ^2(215) = 712.22, χ^2/df = 3.31, CFI = 0.96, IFI = 0.95, NFI = 0.94, RMSEA = 0.068; [b]All estimates are significant at $p < 0.001$

(Lindell and Whitney, 2001; Luu and Ngo, 2019) to examine common method bias, using firm operation period as a marker variable (r_m = −0.005, p = 0.91). The mean change in correlations of all constructs when partialling out the effect was less than 0.001 following the suggestion of Luu and Ngo (2019). Following the recommendation of Podsakoff et al. (2003) and Prentince and Nguyen (2020), the effect of an unmeasured latent factor was controlled, and the comparison between the item loadings with and without this factor. The results showed no significant difference with a value smaller than 0.01. Based on these findings, common method bias is not an issue in the data (Luu and Ngo, 2019).

Results

Reliability and validity

Following Luu and Ngo (2019), confirmatory factor analysis (CFA) was conducted for a thorough validation of the measurement model, with their corresponding measures, loadings, t-statistics, composite reliabilities (CRs), average variances extracted (AVEs) and fit indices (Table 2). The CFA results indicate a reasonable fit of the measurement model to the data, such that the comparative fit index (CFI), incremental fit index (IFI) and the normed fit index (NFI), all exceed 0.90 (χ^2 = 712.22, df = 215, root mean square error of approximation (RMSEA) = 0.068) (Anderson and Gerbing, 1988; Luu and Ngo, 2019). The item loadings for all constructs were above 0.70 and their CRs exceeded the acceptable level of 0.70, indicating acceptable reliability (Fornell and Larcker, 1981; Hair *et al.*, 2014; Luu and Ngo, 2019). Table 2 also presents all constructs with AVEs over 0.50, indicating a good level of convergent validity (Fornell and Larcker, 1981). Table 3 with correlations shows satisfactory discriminant validity because all value square roots of the AVEs were consistently larger than the off-diagonal construct correlations (Fornell and Larcker, 1981; Luu and Ngo, 2019). Multicollinearity was not diagnosed as the variance inflation factor (VIF) was well below the threshold of 3.0 (Johnson and LeBreton, 2004; Prentice and Nguyen, 2020).

Data analysis and findings

The hypotheses were tested using ordinary least squared (OLS) – based hierarchical regression. Table 4 summarises the results of the analysis following Homburg *et al.* (2011) and Luu and Ngo (2019), whereby all indicators of self-efficacy, reputation and reciprocity were mean-centred and then squared to estimate the quadratic terms to enable model convergence and to interpret the coefficients, but did not change the relationship.

We added gender, age, education, year employed and years of using organisational platforms for knowledge sharing as control variables following the suggestion of Luu and Ngo (2019), Carmeli *et al.* (2009) and Tarcan *et al.* (2017). Model 1 was performed to examine the impact of the control variables. Model 2 (base model) examined the linear terms of self-efficacy, reputation and reciprocity and showed that each construct had a positive and significant effect on online knowledge sharing behaviour (β = 0.19, $p < 0.001$, β = 0.21, $p < 0.001$, β = 0.28, $p < 0.001$, respectively). Model 3 included the quadratic terms of self-efficacy, reputation and reciprocity, and demonstrated significant improvement when compared to Model 1 (ΔR^2, = 0.21; ΔF = 7.49, $p < 0.001$). Model 3 showed that the quadratic term for self-efficacy had a negative relationship with online knowledge sharing behaviour (β = −0.49, $p < 0.01$). Further analysis at low, medium and high levels of self-efficacy show an inverted U-shaped association (Figure 2); thus, providing support for *H1*.

For *H2* and *H3*, to examine whether reputation and reciprocity had a positive, increasing returns-to-scale association with online knowledge sharing behaviour, it was necessary to

Table 3 Correlations						
Variable	*1*	*2*	*3*	*4*	*5*	*6*
1. Self-efficacy	*0.89*					
2. Reputation	0.56**	*0.92*				
3. Reciprocity	0.45**	0.61**	*0.88*			
4. Online knowledge sharing behaviour	0.69**	0.68**	0.54**	*0.85*		
5. Individual innovation capability	0.68**	0.69**	0.60**	0.70**	*0.96*	
6. Top management support	0.63**	0.59**	0.67**	0.66**	0.58**	*0.93*

Notes: **$p < 0.05$; the italic numbers in the diagonal row are the square roots of AVE

Table 4 Hierarchical results

	Model 1		Model 2		Model 3		Model 4	
	β	t-value	β	t-value	β	t-value	β	t-value
Control variables								
Gender	−0.31**	−2.82	−0.21*	−2.53	−0.01	−0.08	−0.01	−0.16
Education	0.10	1.30	−0.08	−1.38	−0.04	−0.71	−0.04	−0.79
Age	−0.16	−1.70	0.08	−1.38	−0.04	−0.66	−0.05	−0.83
Year employed	0.04	0.58	−0.18***	−3.60	0.04	1.13	−0.01	−0.15
Years of OKS	0.12	0.94	0.02*	2.05	0.04	0.13	0.01	0.66
Main effects								
Self-efficacy (SEF)			0.19***	4.65	0.86***	5.66	−0.42	−0.93
Reputation (REP)			0.21***	4.78	−0.02	−0.15	0.40	0.75
Reciprocity (REC)			0.28***	7.34	−0.28	−1.85	−0.40	−0.60
H1: SEF^2					−0.49**	−3.00	0.09	1.41
H2: REP^2					0.37*	2.08	−0.02	−0.30
H3: REC^2					0.46**	2.64	0.11	1.50
Moderating effects								
Individual innovation capability (IIC)							0.38**	2.58
SEF × IIC							−0.24*	−2.35
REP × IIC							−0.15	−1.15
REC × IIC							0.35**	2.66
H4a: SEF^2 × IIC							0.03*	2.23
H4b: REP^2 × IIC							0.02*	2.13
H4c: REC^2 × IIC							−0.05**	−3.01
Top management support (TMS)							0.18	0.89
SEF × TMS							0.43***	4.47
REP × TMS							−0.01	−0.10
REC × TMS							−0.29**	−2.34
H5a: SEF^2 × TMS							−0.05***	−4.15
H5b: REP^2 × TMS							−0.00	−0.20
H5c: REC^2 × TMS							0.04*	2.68
R^2/ΔR^2	0.15/0.15		0.43/0.28		0.64/0.21		0.84/0.20	
F/ΔF	2.42/2.42		47.05/44.63		85.29/7.49***		45.19/8.72***	

Notes: ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Figure 2 Main effects of self-efficacy, reputation and reciprocity
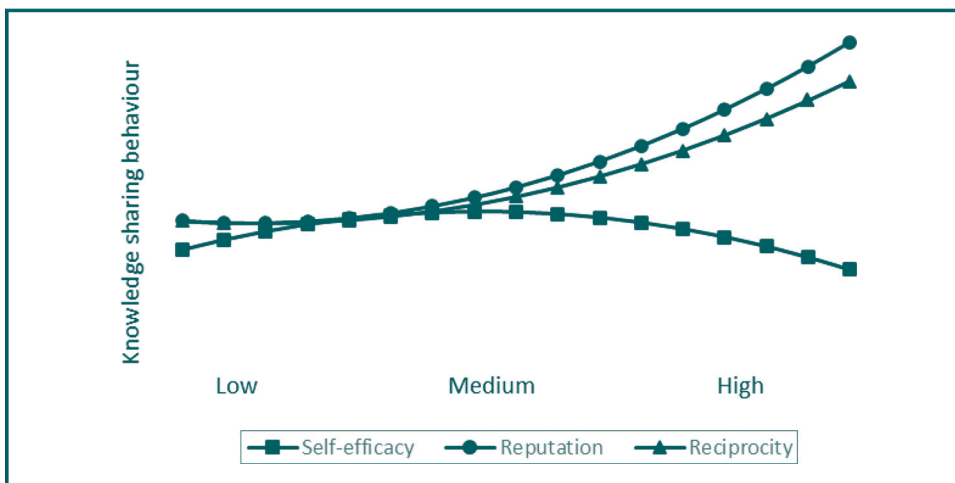
test whether both the linear and squared terms were significantly positive in the model with online knowledge sharing behaviour as the dependent variable (Cohen *et al.*, 2003; Luu and Ngo, 2019). The linear term of reputation and reciprocity is positive and significant (reputation: $\beta = 0.21$, $p < 0.001$; reciprocity: $\beta = 0.28$, $p < 0.001$) and their quadratic term also had a positive and significant β-coefficient (reputation: $\beta = 0.37$, $p < 0.05$; reciprocity: $\beta = 0.46$, $p < 0.01$). Additional analyses plot the increasing returns-to-scale effects as levels of both reputation and reciprocity increase. At lower levels of reputation and reciprocity, there are little to no effects on online knowledge sharing behaviour. However, as each reputation and reciprocity increase to medium and high levels, there appears to be a sharp increase in effects (Figure 2). These results confirm that there is a positive and increasing returns-to-scales association between reputation and reciprocity and online knowledge sharing behaviour, supporting *H2* and *H3*.

To examine *H4* and *H5*, Model 3 was assessed with the inclusion of the moderators, individual innovation capability and top management support, interaction terms between these moderators and self-efficacy, reputation and reciprocity, as well as the interaction terms between these moderators and the quadratic terms of self-efficacy, reputation and reciprocity. Compared to Model 3, Model 4 showed significant improvement ($\Delta R^2 = 0.20$; $\Delta F = 8.72$, $p < 0.001$). The results show that all hypotheses under *H4* were supported. Individual innovation capability positively moderated the impact of self-efficacy and reputation on online knowledge sharing behaviour (self-efficacy: $\beta = 0.03$, $p < 0.01$; reputation: $\beta = 0.02$, $p < 0.05$). Furthermore, individual innovation capability negatively moderated the association between reciprocity and online knowledge sharing behaviour ($\beta = -0.05$, $p < 0.01$); thus, providing full support for *H4a*, *H4b* and *H4c* (Table 4).

The results for *H5a* show that top management support negatively moderated the impact of self-efficacy ($\beta = -0.05$, $p < 0.001$) on online knowledge sharing behaviour and for *H5b* the predicted moderation of the impact of reputation on online knowledge sharing behaviour was non-significant ($\beta = -0.01$, $p = -0.54$); thus, both *H5a* and *H5b* could not be supported. However, top management support positively moderated the impact of reciprocity on online knowledge sharing behaviour ($\beta = 0.04$, $p < 0.05$); thus, providing support for *H5c*. To visually depict how moderating variables affect the link between independent variables and on-line knowledge sharing, we have plotted the significant effects of our moderators on self-efficacy and reciprocity (Figure 3).

Discussion

The study provides some key findings and contributes to the online knowledge sharing literature. The findings of this study show that self-efficacy enhances online knowledge sharing behaviour to a certain point beyond which this effect diminishes. Being aligned with the extant literature (Lin, 2007a; Luu and Ngo, 2019; Nguyen, 2020a; Nguyen and Malik, 2020), the findings confirm that self-efficacy is an important predictor of knowledge sharing behaviour. However, the results of this study extend the literature (Luu and Ngo, 2019) by demonstrating that when self-efficacy increases from moderate to high levels, too much confidence about holding valuable knowledge will make employees reluctant to share such knowledge. These findings also emphasise moving beyond the simplistic linear regression between self-efficacy and knowledge sharing behaviour (Luu and Ngo, 2019). Employees may want to share knowledge if they think the knowledge is valuable to others, but after a certain point those who have unique skills or valuable knowledge tend to keep for themselves.

Secondly, the study indicates the positive and increasing returns-to-scale effect of reputation on knowledge sharing behaviour, similar to previous studies such as Luu and Ngo (2019). While past research findings argue that the expectation of increasing reputation motivates employees to share knowledge online, the findings of this study, aligning with Luu and Ngo (2019), suggest that reputation motivates a small increase to knowledge sharing behaviour until a certain point where the relationship between reputation
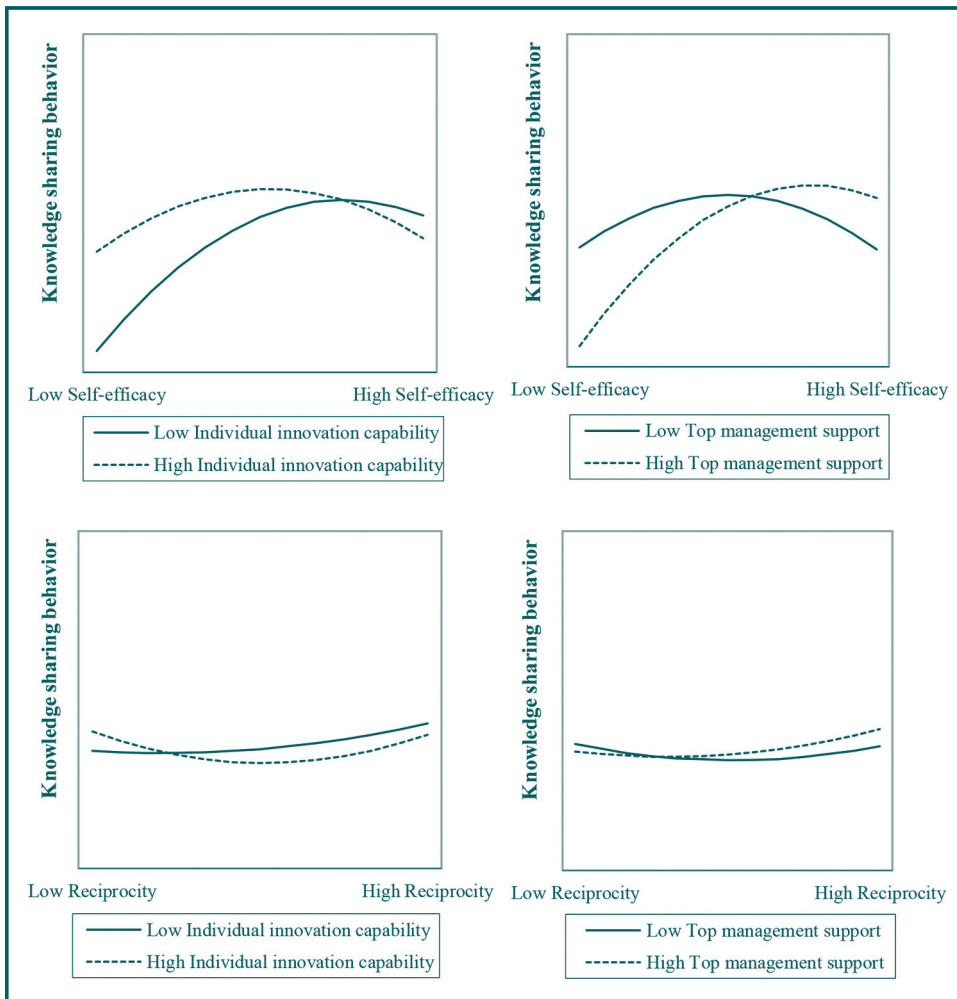
and knowledge sharing behaviour follows an increasing returns-to-scale trajectory. This suggests that while the expectation to enhance reputation does little to encourage employees to share knowledge, the incremental increase in online knowledge sharing behaviour is larger when the level of reputation is higher than when it is low because employees need to frequently share knowledge to maintain their high-level reputation. This result extends the literature, which mainly pays attention to the impact of reputation on knowledge sharing behaviour but does not examine the differential impact at different levels of reputation.

Thirdly, in this study, reciprocity was found to have a positive and increasing returns-to-scale influence on knowledge sharing behaviour. Reciprocity needs to have time to build up, and employees need time to examine whether others reciprocate their knowledge sharing. At low to moderate levels of reciprocity, employees share knowledge with the expectation that others will reciprocate. When employees receive knowledge shared by others, they tend to increase trust in the knowledge exchange process, and with high reciprocity, they are likely to frequently share knowledge. This finding extends the knowledge sharing literature, which provides support for the association between reciprocity and knowledge sharing behaviour but overlooks the increasing effects at different levels of reciprocity.

Fourth, individual innovation capability was found to moderate the impact of self-efficacy and reciprocity on online knowledge sharing behaviour, which was in line with the findings of Nguyen and Prentice (2020). The effect of self-efficacy squared multiplied by individual innovation capability on online knowledge sharing behaviour was positive and statistically significant; thus, innovation capability flattened the relationship between self-efficacy and online knowledge sharing behaviour (Haans et al., 2016; García-Villaverde et al., 2020). This result indicates that individual innovation capability makes employees want to share knowledge more when they have high self-efficacy. Highly innovative employees tend to know that they can bring value to the company through their innovation capability; therefore, they feel secure and confident in their job. However, they are inclined to have fewer expectations when it comes to others to share knowledge in return. The findings of this study extend previous literature, which mainly examines individual innovation capability as the outcome of knowledge sharing behaviour (Wang et al., 2017; Yeşil and Hırlak, 2013) rather than as a facilitator/moderator.

Finally, this study found that top management support negatively moderates the influence of self-efficacy on knowledge sharing behaviour. This means that top management support steeps the slope of the inverted U-shaped relationship (Haans et al., 2016; García-Villaverde et al., 2020). This result indicates that top management support can make employees think about the benefits of the company more and want to share knowledge if they have high self-efficacy to contribute to the development of the company. This finding is aligned with those by Nguyen et al. (2019) and Nguyen and Prentice (2020), who found that organisational support can create a bond with employees, motivate them to help the organisation to achieve goals. In addition, this study found that top management support moderates the influence of reciprocity on online knowledge sharing behaviour. Top management support can create higher expectations in online knowledge sharing reciprocity. They likely believe that due to the encouragement of top management for online knowledge sharing, if they share knowledge online, others will reciprocate. In an online environment, work behaviours are far more transparent and trackable, and so there may be pressures for reciprocity when top management supports and facilitates online work. These findings consolidate those by previous researchers such as Nguyen (2020a), who confirm that top management support has a moderator role in online knowledge sharing in organisations.

Implications

Theoretical implications

The study has some crucial theoretical implications. This study extends social exchange theory and the knowledge-market idea by adding a prerequisite that employees need to have self-efficacy to fully engage in the knowledge exchange process. Furthermore, while prior literature such as Lin (2007a) and Akhavan et al. (2015) has explored the importance of self-efficacy, reputation and reciprocity to knowledge sharing behaviour, the present study extends the literature by examining the impact of these factors at the different levels on online knowledge sharing behaviour. The insights from the paper would be specifically applicable to explain online knowledge sharing behaviour as it varies across different levels of self-efficacy, reputation and reciprocity. Previous studies have investigated the relationships between these factors and knowledge sharing behaviour, but they simplify their impact by expecting the linearity in these associations. For example, Kwahk and Park (2016) and Choi et al. (2008) found that self-efficacy, reputation and reciprocity positively influenced online knowledge sharing behaviour. This study goes beyond that and confirms that self-efficacy has an inverted U-shaped while reputation and reciprocity has a positive, increasing returns-to-scale association with online knowledge sharing behaviour.

Previous studies such as Akhavan and Hosseini (2016) often examine individual innovation capability as the outcomes of online knowledge sharing behaviour. To the best of the

author's knowledge, individual innovation capability has not been examined as a moderator in the association between determinants and online knowledge sharing behaviour. This study is the first one which shows that individual innovation capability plays a moderator role because it affects the way employees position themselves in the organisation and perceptions of the costs and benefits in online knowledge sharing. The results of this study indicate the necessity to examine individual innovation capability in online knowledge sharing in organisations not only as a direct determinant but also as an intervening construct.

Top management support has been mainly examined as direct determinants of knowledge sharing behaviour. However, the growing body of knowledge sharing literature has shown that top management support has a moderating effect on the relationships between motivators and knowledge sharing behaviour (Nguyen, 2020a; Nguyen and Prentice, 2020). This study consolidates the moderating role of top management, especially to make employees think about the benefits of the company to share their valuable knowledge, create a favourable environment for online knowledge sharing to recognise the contribution of employees through knowledge sharing behaviour and the exchange of knowledge process. Future research needs to consider examining top management support in the online knowledge sharing process and how it interacts with other individual determinants.

Practical implications

From the findings of the effect of self-efficacy, reputation and reciprocity on online knowledge sharing behaviour and the moderating effects of individual innovation capability and top management support, this study provides several implications for practitioners. Firstly, this study confirms that self-efficacy is an important condition that enhances employees' confident to participate in the online knowledge sharing process. Management should consider providing training workshops to increase employees' self-efficacy. For those who hold valuable knowledge or unique skills, especially those with high innovation capability, top management needs to show their support for the online knowledge sharing process. By doing so, employees will be more inclined to appreciate and think about the benefits for the company in the knowledge sharing process. In the recruitment process, management should choose candidates who are confident about their knowledge that can contribute to the development of the company (Nguyen and Malik, 2020).

Organisations also need to be aware that employees may share knowledge, especially those who have high innovation capability, to increase their reputation and be recognised as an expert in the organisation. Management could establish a system in which employees rank the knowledge shared based on the relevance and usefulness (Nguyen and Malik, 2020). This system can highlight the importance of knowledge sharing, and, in turn, employees can see that the company values their effort in sharing knowledge. In addition, management needs to create a favourable environment for online knowledge sharing and a positive and proactive culture to foster reciprocal relationships and interpersonal interactions of employees (Nguyen et al., 2019; Nguyen and Prentice, 2020). Encouraging and rewarding employees to actively engage in online exchange knowledge will help facilitate reciprocal online knowledge sharing. Organisations need to continue to investigate the individual determinants (motivations and deterrents) to online knowledge sharing along with the intervening variables that either facilitate or hinder this process.

Limitations and directions for future research

There are several limitations with this research that warrant future considerations. Firstly, this study was conducted in a single country, Vietnam. Future research should consider collecting data in other emerging countries, as well as make comparisons across countries/ cultures to determine if such relationships hold true. Secondly, the context of this study was

in a single industry, telecommunications. While this industry represents an ideal scenario of online knowledge exchange (e.g. high-tech, innovative, wide dispersion of employees), other industries should also be investigated to see if the patterns of online knowledge exchange occur in different industry settings. Thirdly, this study was conducted at a single point in time (e.g. cross-sectional). Future research should evaluate online knowledge exchange over time to assess patterns (Nguyen *et al.*, 2021). Fourth, this research investigated a finite set of individual determinants (self-efficacy, reputation and reciprocity). Future research should investigate additional determinants such as personal values, personality, culture or other country/industry-based constructs that may influence the conditions under which online knowledge exchange occurs. Given the recent changes in workplace information exchange, future research should focus more on online knowledge exchange as most countries and industries around the world are shifting much of their work to the online environment. Finally, we acknowledge the limitation in this study that only demographic factors were treated as control variables while ignoring other control variables such as economic rewards or system quality which were identified to also affect knowledge sharing behaviour in the literature. Caution needs to be taken in interpreting or replicating this study. Researchers may wish to add control variables to address this limitation in future studies.

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