Leadership styles and employee creativity: The interactive impact of online knowledge sharing and organizational innovation

Purpose: This study examines the differences in the impact of three leadership styles (transactional, transformational, and creative) on intra-organizational online knowledge-sharing and employee creativity. Specifically, we use *self-determination theory* (SDT) to examine the impact of these three leadership styles on four aspects of online knowledge sharing (knowledge donating, knowledge collecting, lurking, and active lurking) and the moderating role of organizational innovation on these relationships.

Methodology: Data collected from 361 employees of B2B organizations in Vietnam support all our hypotheses. Structural equation modelling was used for data analysis.

Novelty/Originality: This paper extends the current knowledge management research on online knowledge sharing by studying two new behaviors (lurking and active lurking), linking diverse leadership styles to these behaviors and employee creativity, and exploring the moderating role of organizational innovation. Our findings shed light on the complexity of the relationship between leadership and online knowledge sharing. This study also provides useful implications for practitioners to help them choose the most appropriate leadership style for their digitalization process to ensure optimal outcomes.

Findings: Transformational, transactional, and creative leadership were found to affect online knowledge sharing, in which creative leadership had the strongest effect. Online knowledge sharing was found to mediate the impact of three types of leadership on employee creativity. The results also showed that organizational innovation moderates the influence of leadership on online knowledge sharing.

Keywords: digitalization; online knowledge sharing; self-determination theory; knowledge management; innovative technology

Introduction

Technology diffusion has led to rapid digitalization in business-to-business (B2B) organizations (Kask and Öberg, 2019). One aspect of digitalization in B2B organizations is online knowledge sharing which uses digital tools for sharing knowledge among employees (Kask and Öberg, 2019). The disruption caused by the COVID-19 pandemic has accelerated the application of information technologies to facilitate remote work (Leipämaa-Leskinen et al., 2022). Online platforms, such as Microsoft Teams, are effective in intra-organizational collaboration, connecting employees and enabling a mobile digital workforce (Nguyen *et al.*, 2022). However, in the digitalization process in B2B organizations, employees generally do not willingly share knowledge (Chaker *et al.*, 2021).

The pervasiveness of evasive knowledge hiding or holding in the digitalization process of B2B organizations is often attributed to the fear of job loss (Chaker et al., 2021). The hurdles to knowledge sharing lie in job insecurity when automation and artificial intelligence (AI) can reduce human's work (Li et al., 2021), though recent research has identified several antecedents for an AI-mediated knowledge sharing social exchange to effectively manage people (Malik *et al*., 2022) and free up their time for other more productive tasks (Malik *et al*., 2021). The repeated tasks that used to be done by humans can now be taken by machines (Li et al., 2021). In addition, information technology can do some tasks even better than humans. For instance, B2B organizations often need to store big data, AI helps with pattern recognition, analysis, and prediction, facilitating decision-making (Li et al., 2021).

Knowledge is regarded as a valuable resource in the knowledge-sharing and management domain; without motivation, employees may not want to share their knowledge (Oyemomi *et al.*, 2016). Few studies have examined how to motivate employees in B2B organizations to share knowledge online in the digitalization process. Self-Determination Theory (SDT) emphasizes motivation in online knowledge sharing (Nguyen et al., 2022; Ryan and Deci,

2000). Recently, leadership has been viewed as a predictor of online knowledge-sharing as it provides an environmental condition and culture to foster information flow among employees (Dai *et al.*, 2013). Most effective leaders encourage followers to coordinate and integrate their knowledge in the exchange of knowledge to continuously discover and define issues, solve problems, and implement new solutions (Le and Lei, 2019; Lythreatis et al., 2022).

In addition, leaders act as role models to drive employee behavior (Dai et al., 2013). Conventional leadership theories have mainly focused on cognitive traits, personality, and behavior to match "right" traits or behavior with the "right" context (Le and Lei, 2019). This study views leadership from a different angle involving leadership styles and their effect on employees' thinking and behavior to drive creativity. Especially, creative leadership has not received sufficient attention from scholars although, in B2B digitalization, creative leadership is crucial (Puccio *et al.*, 2011).

Organizational innovation has mainly been viewed as an outcome of online knowledge-sharing behavior. However, the recent study by Nguyen and Malik (2020) indicates that organizational innovation plays a role as a moderator. Organizational innovation race burdens leaders to continuously find and solve problems and implement new solutions (Le and Lei, 2019). Under such pressure, leaders are more inclined to bring their followers together in barnstorming and discussion to propose and evolve initiatives (Le and Lei, 2019). Communication and the exchange of knowledge effectively increase employee creative performance (Wang *et al.*, 2016).

This study has two objectives: (1) to investigate different leadership styles and their impact on online knowledge-sharing behavior and creativity, and (2) to examine the moderating effect of organizational innovation in the relationship between leadership and online knowledge sharing behavior. Underpinning SDT, this study contributes to the literature by bringing three leadership styles in the same context and including different dimensions of

online knowledge-sharing in the digitalization process at the workplace. Organizational innovation is also covered as a moderator in the impact of leadership styles on online knowledge-sharing behaviors. The findings of this study offer a blueprint for the management of B2B organizations to consider their leadership styles to drive online knowledge-sharing behavior and employee creativity.

Literature review

Self-determination theory and leadership

The Self-Determination Theory (SDT) explains that individuals often have psychological needs for growth and development (Ryan and Deci, 2000). The necessary conditions for growth and development are competence, autonomy, and relatedness, which are crucial to their psychological health and well-being (Ryan and Deci, 2000). In addition, individuals tend to transform intention into action if their needs are fulfilled (Nguyen et al., 2022).

SDT focuses on human motivation and differentiates autonomous motivation from controlled motivation (Lee and Yeung, 2021). Individuals with autonomous motivation often experiences "out of free will" with a sense of willingness, volition, and choice (Lee and Yeung, 2021). Controlled motivated individuals tend to feel pressure to work on an activity or avoid punishment or guilt/shame (Minbaeva and Santangelo, 2018). Controlled motivation relates to external rewards, which motivate individuals in even those tedious tasks (Minbaeva and Santangelo, 2018). In the workplace, SDT, from the knowledge management perspective, specifically suggests that employee behavior is affected by leadership styles that relates to autonomous or controlled motivation (Nguyen et al., 2022). Leadership will flourish if it meets psychological needs, which is are preconditions for individuals' growth and development (Nguyen et al., 2022).

Leadership refers to the social influence between leaders and followers (Dai et al., 2013).

Different leadership styles fulfil the needs of subordinates in different ways. In the leadership literature, a full range of leadership styles have been studied; however, transformational and transactional leadership have been dominant (Panagopoulos and Avlonitis, 2010). Transformational leadership involves individualized consideration and empowerment by articulating a clear vision; this leadership style is closely identified with autonomous motivation, which provides followers with a value-laden vision and empowers them to make changes (Le and Lei, 2019). In addition, transformational leadership help align followers' identification with organizational goals and leaders' vision (Le and Lei, 2019). As B2B organizations often have a large-scale network of B2B firms; thus, the alignment between the goals of employees and these organizations' goals is crucial. Therefore, transformational leadership is very important to tailor employees in the same direction of the organization (Panagopoulos and Avlonitis, 2010).

Transactional leadership is related to external rewards which motivate individuals to take action (Hussain *et al.*, 2017). Transactional leadership is often identified with controlled motivation (Chang *et al.*, 2015). Transactional leadership often links expectations and responsibilities with rewards and recognition (Hussain *et al*., 2017). This leadership style focuses on the exchange in which leaders satisfy followers' needs when the goals are met (Masa'deh *et al.*, 2016). The leaders who employ this leadership style often foster the commitment of their followers for online knowledge sharing to propose new ideas and to achieve rewards or recognition. Masa'deh et al. (2016) argue that the transactional leadership style is essential to motivate them in online knowledge sharing. As B2B organizations have many employees, not every member knows each other; thus, the lack of incentives has been recognized as the reason for knowledge hiding or holding due to weak connections or social interaction ties (Chaker et al., 2021).

In the context of digitalization in B2B organizations, creative leadership is indispensable.

Creative leadership is a leadership style that deliberately engages individuals in a novel goal – a new direction (Puccio *et al.*, 2011). Digitalization with the use of new technologies makes tasks that were used to be done by humans are to a large extent now done by machines (Li et al., 2021). However, technologies and AI cannot come any closer to substituting humans for tasks requiring creativity (Li et al., 2021). Creative leadership was featured many years ago, and creative leadership is an option. Today's context makes it no longer optional, as leaders cannot afford to lack in creativity (Mainemelis *et al.*, 2015). Creative leadership often drives employees to different thinking skills (Puccio et al., 2011). Creative leadership is crucial to the sustainable development of an organization (Mainemelis et al., 2015). However, creative leadership has not been placed focus in the B2B digitalization process.

Research on different leadership styles in the same context is scarce. Although some previous studies have linked supervisors' leadership, such as transformational leadership, and subordinates' behavior, little is known about different leadership styles that drive extra-role behavior and which leadership styles fit more to motivate individual behavior changes in their extra-role tasks like online knowledge sharing. Especially, creative leadership has not been placed in the same context with other leadership styles to compare their impact.

Online knowledge-sharing behavior

Online knowledge sharing involves transferring expertise and skills through online platforms (Nguyen and Prentice, 2022). As digitalization continues to advance, online knowledge sharing has been expected to become even more prevalent and important in organizations (Nguyen and Prentice, 2022). The adoption of digital technologies has led to major changes in the way employees work and communicate with each other (Li *et al.*, 2017). The rise of digital technologies has facilitated online knowledge sharing, allowing people to access and share information and ideas more easily and efficiently (Akhavan and Hosseini, 2016).

Intra-organizational online knowledge sharing is often viewed as a crucial component of knowledge management, as knowledge is often viewed as a powerful resource (Li *et al.*, 2017). Intra-organizational online knowledge sharing benefits employees through enhanced learning from each other and improved decision-making (Nguyen and Prentice, 2022). In online knowledge-sharing literature, two mainstreams to capture online knowledge-sharing behavior are dominant (Nguyen and Prentice, 2022). The first approach examines online knowledge sharing as a holistic behavior with one directional perspective where knowledge goes from the provider to the recipient (Nguyen, 2021). This approach has received criticism due to its oversimplifying measure of online knowledge-sharing behavior (Nguyen and Prentice, 2022). The second approach was recently employed, which views online knowledge-sharing behavior from two dimensions: knowledge donating and knowledge collecting (Akhavan and Hosseini, 2016). The former refers to the supply of knowledge where individuals share their expertise, skills, and experience with others (Akhavan and Hosseini, 2016). The latter involves the demand for knowledge when an individual requests others to share knowledge (Akhavan and Hosseini, 2016).

With the bidirectional perspective, the second approach has captured more dimensions of online knowledge-sharing behavior; however, emerging studies (e.g. Nguyen et al. (2022) and Nguyen and Prentice (2022)) argue that another dimension of lurking needs to be included. Lurking is related to reading and accumulating the knowledge shared by others (Nguyen, 2021). Lurking was seen as negative, as lurkers just read the knowledge shared without contributing themselves. However, lurking has been recently recorded with more positive views as it has been recognized as a common activity of online participants (Nguyen, 2021). Nguyen (2021) developed the ISTO model of four reasons for lurking: individual, social, technological and organizational. Individuals may need time to get used to the platforms or read the previous posts before sharing/asking for information not to repeat

others. Some technical issues also result in lurking behavior. The recent study by Nguyen et al. (2022) taps into two dimensions of lurking and differentiated active lurking from lurking. Active lurking relates to the propagation and application of knowledge in the workplace, while lurking refers to reading the knowledge shared by others (Nguyen et al., 2022).

A key obstacle to online knowledge sharing is the unwillingness to share knowledge (Chaker et al., 2021). Without motivation, knowledge owners do not want to share their most valuable knowledge assets (Akhavan and Hosseini, 2016). Underpinning SDT, we develop a conceptual framework to investigate the influence of leadership with its three styles as predictors of online knowledge-sharing behavior and employee creativity. In order to address the limitations of previous approaches to capture online knowledge-sharing and bring more insights into employee behavior, this study includes four dimensions of online knowledge-sharing: knowledge donating, knowledge collecting, lurking and active lurking.

Hypotheses development

Prior scholars have identified the link between leadership and online knowledge-sharing behavior in the knowledge management literature. Leadership often provides direction for employees to follow and form perceptions to contribute to the organization (Le and Lei, 2019). Mehta *et al.* (2003) posit that leaders are crucial in the knowledge-sharing management process in an organization. Leadership provides a supportive climate and sufficient resources for online knowledge sharing. Transformational leadership is often regarded as an inspirational style influences followers' positive attitudes and individual development (Le and Lei, 2019). Transformational leadership is often viewed as a frame for the participation of employees in the decision-making process, as it motivates employees to create changes and be innovative (Le and Lei, 2019). Many tasks are collective and need to be handled by a team which implies a need for a leader who helps create a favorable working environment (Panagopoulos and Avlonitis, 2010). Transformational leadership often

empowers employees and creates a supportive culture where employees feel free to discuss and exchange knowledge (Chang et al., 2015).

Leaders, who follow the transformational style, often motivate employees to contribute to organizational development by sharing their knowledge (Dai et al., 2013). Transformational leadership urges employees to share their knowledge with colleagues to overcome work challenges and difficulties (Masa'deh et al., 2016). Transactional leadership allows knowledge to be shared efficiently within an organization due to introducing a reward and recognition system (Masa'deh et al., 2016). Chang et al. (2015) indicate that the influence of transactional leadership with knowledge acquisition capability can help increase innovation. Transactional leadership builds a reciprocal relationship between supervisors and employees (Chang et al., 2015). Leaders pursue a cost-benefit exchange to encourage employees to perform well. Followers under transactional leadership expect to comply with the leaders to exchange for rewards, praise, and recognition.

Creative leadership is often associated with creative problem-solving activities as such as brainstorming (Rickards and Moger, 2000). Creative leaders use techniques that bring individuals together to discuss and seek creative and innovative outputs. Creative leadership links with everyday creativity (Rickards and Moger, 2000), often enhances creative performances and engages employees in knowledge-sharing to brainstorm or develop more initiatives (Rickards and Moger, 2000). Creative leaders are inclined to recognize and maximize employee talents through collaboration and to learn from each other, which can effectively do knowledge-sharing (Harris, 2009). Creative leaders create a climate and conditions to make creativity thrive. Creative leaders often motivate knowledge sharing to remove barriers that prevent working together and equip employees with a platform for interaction and dialogue (Harris, 2009). Supportive leadership styles have been linked to increase knowledge sharing (Navimipour and Charband, 2016), especially in virtual settings

(Ardichvili, 2008). Further, supportive leadership is also a critical enabler of knowledge sharing and creativity (Carmeli *et al.*, 2013). Thus:

H1: All three leadership styles positively impact online knowledge sharing.

The relationship between knowledge sharing and employee creativity has been identified (Ma *et al.*, 2013). Employee creativity performance will be high when the exchange of knowledge among employees is enhanced (Ali *et al.*, 2019). Creativity requires new knowledge; online knowledge sharing helps create knowledge pools as social capital, and all employees benefit from it. Carmeli and Paulus (2015) argue that online knowledge sharing supports creativity as it saves employees' effort to explore things known by others. Those with experience in overcoming issues or difficulties can help colleagues through knowledge donating (Nguyen, 2021). Those who face work issues can request help from co-work through knowledge collecting (Akhavan and Hosseini, 2016).

Lurking is another type of organizational learning that helps increase employee creativity as employees learn from the knowledge shared by colleagues (Nguyen et al., 2022). Active lurking contributes to employee creativity by applying knowledge shared in work tasks. The critical success factor that leads to employee creativity is online knowledge sharing (Kremer *et al.*, 2019). Through the accumulated pools of knowledge, employees build up more initiatives, such as those to reduce production costs or to improve firm performance (Nguyen et al., 2022). Sharing knowledge online enhanced employee creativity which helped decrease costs (Singh *et al.*, 2021). Thus:

H2: Online knowledge-sharing behavior has a positive impact on employee creativity.

Earlier arguments indicate the potential mediation role of online knowledge sharing in the effect of leadership on employee creativity (Carmeli and Paulus, 2015; Choi *et al.*, 2016). Further, previous studies (e.g., Choi et al., 2016) have indicated the mediation role of online

knowledge sharing in the association between leadership and employee outcomes. For example, knowledge-sharing had a mediation effect on the impact of transformational leadership on team creativity and employee innovative behavior (Ma et al., 2013). Online knowledge sharing helps employees deal with work-related issues, promote intellectual stimulation, and help them view their work issues in a new way and address those creatively (Singh et al., 2021). When employees actively engage in online knowledge sharing, they are exposed to organizational learning opportunities (Gupta and Polonsky, 2014).

Leadership can create a favorable working environment to increase employees' online knowledge sharing to stimulate creativity and innovation (Ma et al., 2013). Ma et al. (2013) reported that knowledge-sharing mediates the impact of leadership on employee creativity. Similarly, in the study by Hussain et al. (2017), knowledge sharing was found to be a mediator in linking transactional leadership and creativity in an organization. Raab *et al.* (2014) reveal that leadership influences employee creativity to increase innovation performance via knowledge sharing. Dai et al. (2013) found that leaders can provide an appropriate climate to foster knowledge sharing – the exchange of knowledge which is beneficial to employees in their organizational learning, enhancing employee creativity and organizational innovation. Le and Lei (2019) also argue that transformational leadership helps increase employee knowledge sharing behavior, which enhances the exchange of information, skills and expertise, resulting in higher employee creativity. In addition, creative leadership motivates employees to collaborate to propose and develop more initiatives, often enhancing employee creativity (Mainemelis et al., 2015). Thus:

H3: Online knowledge-sharing behavior mediates the impact of leadership on employee creativity.

Organizational innovation refers to introducing new or improved products/services or process improvement (Nguyen and Malik, 2020). Organizational innovation is key to competitive

advantage in the fierce market environment for B2B organizations (Iranmanesh *et al.*, 2021). The recent study by Nguyen and Malik (2021) indicates that organizational innovation may play a role as a moderator. The leaders in innovative organizations tend to push the online knowledge-sharing process to achieve organizational goals (Singh et al., 2021). A higher level of organizational innovation also means higher pressure on leaders to have new products or services to maintain organizational competitive advantage (Singh et al., 2021). Leaders are inclined to feel their role is more important to contribute to organization development, tend to motivate employees to think about organizational goals and contribute to the organization (Panagopoulos and Avlonitis, 2010).

Online knowledge sharing is one type of behavior that shows their contribution. Leaders in innovative organizations tend to feel they need to drive subordinates to contribute to improving organizational performance through online knowledge sharing (Le and Lei, 2019). The same is for leader behavior in an organization that needs a high level of innovation (Le and Lei, 2019). In a high-innovation environment, more pressure is placed on employee creativity (Le and Lei, 2019). Knowledge exchange in an innovative organization is important to reduce redundancy and increase productivity (García-Morales *et al.*, 2012). Al-Husseini et al. (2019) found that leadership indirectly affects employee creativity via its positive effects on employees' knowledge-sharing behavior. Recent studies (e.g. Le and Lei (2019)) indicate that leadership significantly impacts employee's psychological and intellectual capital shared with colleagues, which, in turn, motivates them to use social knowledge capital for radical and incremental innovation to enhance employee creativity.

H4: Organizational innovation moderates the impact of leadership on online knowledge-sharing behavior.

Figure 1 shows the conceptual model with all the hypotheses.

< Insert Figure 1 about here >

Method

This study adopted a positivist approach using the quantitative method to develop the research design. In this study, the research problems were defined where employees are often reluctant to share knowledge online. This study is to examine the impact of three leadership styles on online knowledge sharing behavior and employee creativity as well as the moderation role of organizational innovation. Thus, this study aims to test four hypotheses developed from the literature review. The literature review identified numerous studies related to the constructs elaborated in the conceptual framework. The conceptual framework will test hypotheses derived from the framework through the use of statistical procedures (Cresswell, 2003). According to the suggestion of Cresswell (2003), positivism and the quantitative research method are deemed to be the most suitable for this study because a theory was advanced, and data were collected to test the conceptual framework.

The data were collected in 2021 in Vietnam. Our target participants were employees of B2B companies in Vietnam undergoing digitalization and engaged in intra-organizational online knowledge sharing. Convenience sampling method was used to collect data due to the feasibility to access the target audience within research budget constraints. Using researchers' connection with B2B organizations, 16 B2B companies agreed to support data collection by distributing an online survey link to their employees. All these companies were eligible because: (1) they all had online knowledge-sharing platforms such as Microsoft Teams or internal online forums, (2) they were on the digitalization with the process of transforming to use digital tools, technology, and ecosystems to change their business models.

The data collection was implemented in three steps. First, we developed our questionnaire using scales adopted from previous studies to ensure reliability. On the cover page, all the

participants were informed about their voluntary participation and had no consequences if they withdrew. They were also informed that their responses would be treated confidentially and anonymously, and the research team would only use the data for research purposes. Second, in terms of translation and pilot test, the original questionnaire was in English and then translated from Vietnamese via a back-translation process to ensure accuracy. Finally, a pilot test with 25 employees was implemented to ensure clarity of wording.

Third, the Qualtrics platform was employed to design the online questionnaire for the main survey. We placed two filtering questions after the survey's cover page to ensure the respondents' eligibility. An anonymous link was distributed to participating organizations. Three-hundred sixty-one complete questionnaires were collected after three months of data collection and used for data analysis. About half the participants were females (54%) and in the age group of 26-35 years (54%). Those who hold a bachelor's degree or higher were 49% and 46%, respectively. About half of the participants (53.5%) were married, while single participants made up 40.7%.

Measures

We adapted scales from previous studies and used 5-point Likert scales (1 as strongly disagree and 5 as strongly agree. Transactional leadership was adapted from Dai et al. (2013) with four items (α = .88). The transformational leadership scale had eight items (α = .93) which were adopted from Dai et al. (2013). Creative leadership with four items (α = .72) was adopted from Ye *et al.* (2021). Knowledge donating was adopted from De Vries *et al.* (2006) with five items (α = .91). The scale of knowledge collecting was adopted from De Vries et al. (2006) with four times (α = .87). Both lurking (α = .93) and active lurking (α = .95) scales were adapted from Nguyen et al. (2022) with four items each. Employee creativity was adapted from Farmer *et al.* (2003) with five items (α = .92). Finally, the five-item scale of organizational innovation (α = .87) was adapted from Liao *et al.* (2007).

Common method variance

As we collected data at a one-time point, some remedies were applied to reduce common method variance. Back-translation techniques were employed to ensure the accuracy of the Vietnamese version. The pilot test was conducted to check the clarity of the questionnaire wording. Before data analysis, the dataset was gone through Harman's single factor test, which showed that the first variable explained less than 50% variance. The correlation among variables was generated with and without a marker variable, which resulted in no changes in the correlation values (Podsakoff et al., 2003). Multicollinearity was checked through the variance inflation factor, which indicated no value above 3.0 (Neter et al., 1985). Thus, common method variance was not identified.

Data analysis and results

Measurement model

The measurement model was assessed to examine the reliability and validities of constructs. The measurement model showed reasonable fit indices: $\chi 2/df = 2.29$, $p<.001$; CFI = .92; TLI = .92; RMSEA = .06 (see Tabachnick and Fidell, 2013). All factor loadings and composite reliabilities (CR) fulfilled the criteria, with the values being higher than .70 as the cut-off point (Hair *et al.*, 2010). The average variance extracted (AVE) of each construct was assessed to check adequate convergent validity. The values of all AVE were higher than the cut-off point of .50 (Fornell and Larcker, 1981). Discriminant validity was examined using the square root of AVE of each construct which was higher than the correlations between constructs (see Table 1).

< Insert Table 1 about here >

Hypotheses testing

Structural equation modelling was assessed (Table 2). The path model showed an acceptable

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fit ($\chi2/df$ = 2.66, p <.001; CFI = .91; TLI = .91; RMSEA = .07). The results showed that transactional leadership, transformational leadership, and creative leadership significantly influenced knowledge donating (transactional leadership: ß= .34, p < .001; transformational leadership: ß= .24, p < .001; creative leadership: ß= .78, p < .001), knowledge collecting (transactional leadership: ß= .46, p < .001; transformational leadership: ß= .24, p < .001; creative leadership: ß= .49, p < .001), lurking (transactional leadership: ß= .49, p < .001; transformational leadership: ß= .29, p < .001; creative leadership: ß= .46, p < .001) and active lurking (transactional leadership: ß= .53, p < .001; transformational leadership: ß= .33, p < .001; creative leadership: ß= .32, p < .001). Thus, H1 was supported. Knowledge donating (ß= .16, p < .05), knowledge collecting (ß= .17, p < .05), lurking (ß= .31, p < .01) and active lurking (ß= .16, p < .001) significantly impact employee creativity. Thus, H2 was supported.

< Insert Table 2 here >

Next, the mediation and moderation effects were assessed using Hayes PROCESS SPSS Macro Model 1 and 4. As shown in Table 3 and Figure 2, the impact of transactional leadership on employee creativity was fully mediated by knowledge donating (ß= .15, p < .05), knowledge collecting (ß= .13, p < .05), lurking (ß= .18, p < .05), and active lurking (ß= .16, p < .05); the relationship between transformational leadership and employee creativity was fully mediated by knowledge donating (ß= .18, p < .05), knowledge collecting (ß= .17, p < .05), lurking (ß= .22, p < .05), and active lurking (ß= .21, p < .05); and the impact of active leadership on employee creativity was fully mediated by knowledge donating (ß= .18, p < .05), knowledge collecting (ß= .13, p < .05), lurking (ß= .16, p < .05), and active lurking (ß= .16, p < .05). Therefore, H3 was supported.

< Insert Table 3 and Figure 2 about here >

Next, as shown in Table 4, organizational innovation moderated the influence of

transformational leadership on knowledge donating (ß= .13, p < .01), which resulted in the moderated mediation (ß = .05, p < .05, CI [.01; .10]) in the relationship transformational leadership – knowledge donating – employee creativity. Organizational innovation moderated the influence of creative leadership on knowledge donating (ß= .13, p < .01), knowledge collecting (ß= .17, p < .001), lurking (ß= .09, p < .05), and active lurking (ß= .12, p < .01). As a result, the moderated mediation was found in the indirect impact of creative leadership on employee creativity via knowledge donating (ß = .06, p < .05, CI [.01; .11]), knowledge collecting (ß = .08, p < 0.5, CI [.03; .12]), lurking (ß = .05, p < .05, CI [.00; .09]), and active lurking (ß = .06, p < .05, CI [.01; .11]). Finally, the moderation effect and moderated mediation of organizational innovation was also confirmed (Table 5). In particular, organizational innovation moderated the impact of transactional leadership on knowledge donating (ß= .12, p < .01), which led to the moderated mediation (ß = .05, p < .05, CI [.01; .09]) in transactional leadership – knowledge donating – employee creativity relationship.

< Insert Tables 4 and 5 about here >

Discussion

This paper empirically tests the causal effect of three leadership styles on knowledge sharing and employee creativity. The results support the first hypothesis on the relationship between leadership and online knowledge sharing. The premise underpinning this relationship between leadership and online knowledge sharing is that various leadership styles encourage employees to exchange knowledge. Those who possess valuable knowledge are motivated to share knowledge. Those who need help are encouraged to reach out to address work issues. Leadership helps lurkers read the knowledge shared more and apply it to their work. These results agree with what was found in the study by Le and Lei (2019) regarding the impact of transformational leadership on knowledge sharing. This study goes beyond it and contributes to the knowledge management literature by investigating three leadership styles in the same

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context, especially the inclusion of creative leadership. Their influence on online knowledge-sharing behavior in different perspectives, including knowledge donating, knowledge collecting, lurking and active lurking.

The complexity of the relationship between leadership and online knowledge-sharing behavior under different aspects was uncovered through this study. We found some differences in the influence of each of the three leadership styles. Creative leadership encourages employees for knowledge donating and collecting, whereas transactional leadership plays a key role in lurking and active lurking. This helps to explain the contradictory results from previous studies in the knowledge management literature regarding the impact of leadership on online knowledge-sharing as they tend to examine a "general leadership style" and knowledge-sharing behavior without differentiating its different dimensions. Some researchers (e.g. Baytok *et al.* (2014)) agree on the positive influence of transformational leadership on online knowledge sharing, arguing that transformational leadership plays a pivotal role in engaging employees in online knowledge sharing by providing favorable organizational culture to promote the exchange of information, skills and expertise. In addition, transformation leadership helps create a shared vision and provides systems and structures that need to promote online knowledge sharing in an organization (Baytok et al., 2014). However, Masa'deh et al. (2016) did not find any link between transformational leadership and knowledge-sharing behavior. Also, the impact of transactional leadership on online knowledge sharing behavior is questionable with large variance in results from past studies. Thus, the inclusion of different dimensions of online knowledge sharing behavior provides more insights into the influence of different predictors.

The results of this study indicate the influence of online knowledge sharing on employee creativity. Employee creativity is dependent on the effective exchange of knowledge. Knowledge sharing is the transfer from knowledge donators to knowledge-collectors and

lurkers. This result echoes the finding of Tseng and Huang (2011), who agree that the open and rapid sharing of knowledge makes employees surrounded by diverse knowledge, facilitating the creation of new ideas, utilization of resources and rapid progress. Previous studies acknowledge the influence of knowledge donation on employee creativity (e.g. Ma et al. (2013). However, this study goes beyond the findings from previous studies regarding the impact of online knowledge sharing behavior and explores other dimensions of online knowledge-sharing behavior, including knowledge collecting, lurking, and active lurking, which also contribute to employee creativity.

Interestingly, lurking is the behavior that contributes the most to employee creativity in this study. Reading and accumulating are crucial ways of learning and acquiring knowledge shared by others. Knowledge collecting is an active learning way to reach out when an employee needs help addressing work issues. Lurking and active lurking have recently been acknowledged as a way to acquire knowledge and learn. Nguyen et al. (2022) view lurking and active lurking positively to learn from the knowledge shared by others. This study distinguishes active lurking from lurking as employees read and need to propagate and apply the knowledge shared by others to their work. Active lurking contributes equally to employee creativity as knowledge donating and collecting.

Online knowledge-sharing behavior was proven to mediate the relationship between leadership styles and employee creativity in this study. These findings explain how leaders want to drive employee behavior into their creativity. Therefore, the influence of leadership is significant in setting a knowledge-sharing culture that is translated into employee creativity. Furthermore, as online knowledge-sharing behavior is not compulsory, motivation, either autonomous or controlled, which leaders create, is crucial to engagement in online knowledge-sharing behavior. The stronger individual growth through organizational learning in the online knowledge-sharing process, the higher the employee creativity level. These

findings are aligned with those by Le and Lei (2019) and Chang et al. (2015), who found that appropriate leadership styles help create a favorable working environment for knowledge sharing to motivate employees to convert their knowledge into creativity and innovation.

Another interesting result is the moderating effect of organizational innovation. This study examines organizational innovation from a different angle as a moderator, which moderates the impact of leadership on online knowledge-sharing behavior. The results indicate that organizational innovation pressurizes leaders to drive employees' online knowledge behavior. In highly innovative organizations, leaders tend to use online platforms to bring employees together for brainstorming, discussions, and collective learning. These results support Nguyen and Malik's study (2020), who found that organizational innovation moderates the impact of intrinsic and extrinsic motivation on knowledge-sharing behavior.

Theoretical contributions

This study contributes to some aspects of SDT theory (Ryan and Deci, 2000) and knowledge-sharing literature. First, as per our literature review, it is the first time four dimensions of online knowledge-sharing behavior are examined in the same context. Two mainstreams of online knowledge sharing lie in either knowledge donating and collecting or lurking behavior. This study fills the gap to cover the lines between these two mainstreams by including knowledge donating, collecting, and lurking together. In this study, lurking is a crucial way to improve employee creativity. Lurking has been viewed negatively and recently recognized as a positive way of learning and acquiring knowledge. In addition, lurking and active lurking are distinguished to bring more insights into employee behavior. Active lurking in organizational and employee creativity and innovation has been empirically examined by Nguyen et al. (2022). Our paper builds up on Nguyen et al. (2022) and extends to cover other dimensions of online knowledge-sharing behavior.

The three different leadership styles were examined in the same context, and comparisons across their impact on the different online knowledge-sharing behavior aspects were investigated. Including different leadership styles and their impact on online knowledge-sharing behavior provides an additional layer to examine the relationship between leaders and followers and helps explain the discrepancy in the findings of previous studies which just focus on one leadership style. The results of this study also indicate the importance of creative leadership, which has been overlooked by previous scholars (Mainemelis et al., 2015). In addition, as one of the first, this study examines online knowledge-sharing behavior in the association between leadership and employee creativity in digitalization in the workplace. The findings of this study provide a new lens to approach the leader-follower relationship and show the importance of leader creativity to employee creativity.

This study is also the first to examine the impact of different leadership styles on different dimensions of online knowledge sharing behavior. This study contributes to the online knowledge sharing literature by shedding light on the complexity of the relationship between leadership styles and online knowledge sharing behavior. The results of this study help explain the contradictory of the results from previous studies regarding the influence of leadership on online knowledge sharing behavior as different leadership styles work for certain dimensions of online knowledge sharing behavior. These findings open a new research avenue to explore different leadership styles and dimensions of online knowledge sharing behavior from different angles.

Furthermore, organizational innovation is often viewed as an outcome of online knowledge sharing; however, this study looks at organizational innovation as a moderator, which puts more pressure on leaders to contribute to organizational development. The moderator role of organizational innovation has not been unfolded much. Nguyen and Malik (2021) tap into the surface of this role but mainly focus on the pressure on leaders in general, but their leadership

styles have not been explored. This study uncovers different leadership styles and examines organizational innovation in the context of providing more layers of pressure leaders usually carry. Finally, this study contributes to the knowledge management literature to examine the role of online knowledge-sharing behaviors in the B2B context, as this has not received sufficient attention from previous researchers despite its importance in the global economy (Chen and Huan, 2020).

Practical implications

Transactional leadership effectively encourages employees to exchange knowledge with rewards, recognition, or resources. As the lack of knowledge-sharing rewards was recognized as one key reason for knowledge holding and hoarding (Anaza and Nowlin, 2017), leaders need to understand what employee needs and wants to use as incentive and motivation. However, incentives may work quickly and should not be a long-term strategy with opposite results (Nguyen and Malik, 2020). Transactional leadership keeps employees on track, especially in digitalization, where a mobile working environment may distract employees from their work tasks. A transactional leadership style serves as a nudge when employees fail or are off track to achieve their goals, giving timely feedback. Employees are more inclined to share knowledge if they feel the working environment is open for them to speak up and exchange knowledge.

Leaders help increase trust, praise the willingness to support each other, influence norms or culture among their subordinates, look to encourage voice in their team, and boost the reinforcement of knowledge sharing among employees. Leaders also can create a small team or group and give them the freedom to establish the team or group rules and ask team or group members for input explicitly. By doing it, the knowledge shared is valued by other team members (Kremer et al., 2019). Leaders also can provide support and empowerment to promote online knowledge sharing.

Limitations and future research

This paper has a few limitations that future researchers may want to address. First, we use the data collected from employees working in Vietnamese B2B organizations, the generalizability of the findings of this study should be followed with caution. As Vietnam is recorded as having a high level of collectivism and power distance, it may influence the relationship between leaders and followers in intra-organizational online knowledge sharing. Future research may include personal-level cultural dimensions to seek more profound insights into employee's online knowledge-sharing behaviors under different leadership styles. Second, the data were cross-sectional due to the limitation in data collection at a one-time point. Future researchers may want to conduct a longitudinal study to validate the findings of this study. Third, due to research budget constraints, we used convenience sampling method to collect data. Future scholars may want to consolidate the model using different data collection methods before the generalization of the findings. Finally, future research may explore other predictors of online knowledge sharing, such as self-efficacy (Nguyen et al., 2022) and outcomes of online knowledge sharing, such as employee productivity and job satisfaction.

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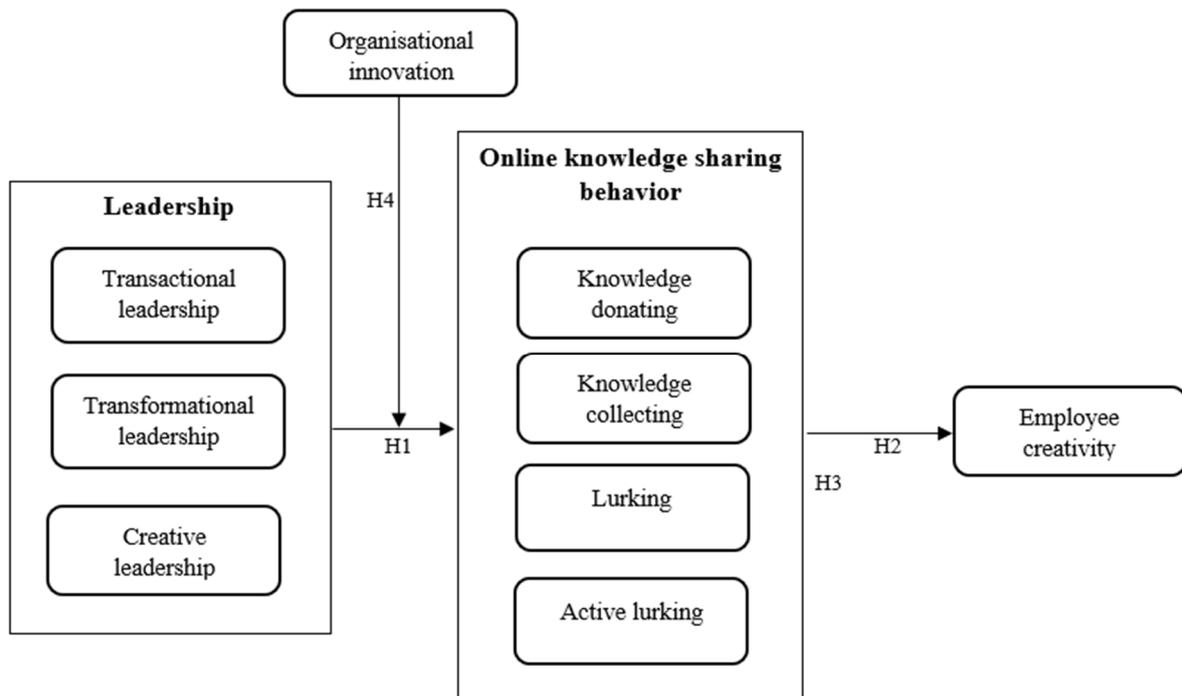
Figure 1: Conceptual model
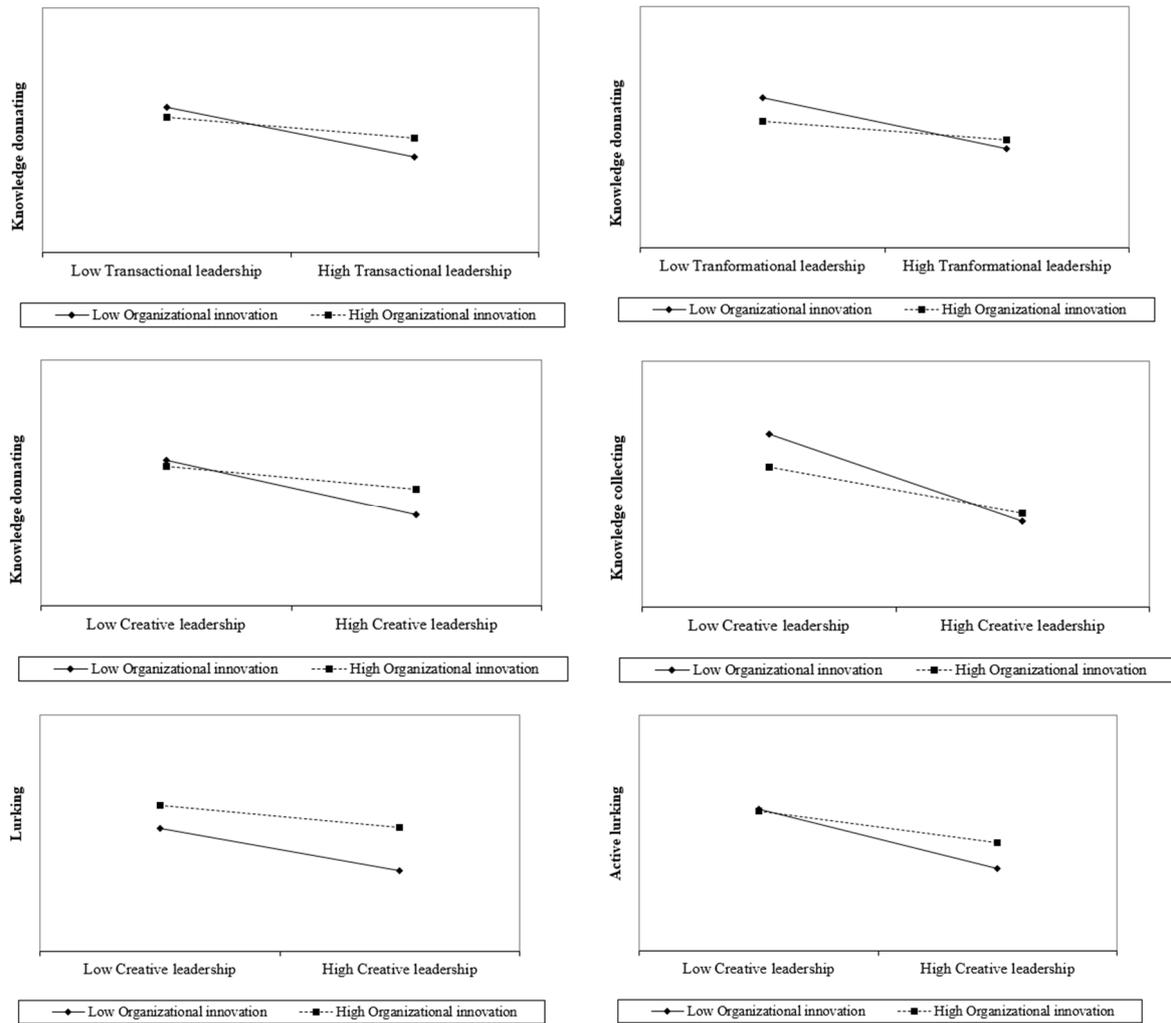
Figure 2: Moderating effect of organizational innovation

Table 1: Correlation table

Constructs	1	2	3	4	5	6	7	8	9
1. Transactional leadership	**.91**								
2. Transformational leadership	.38	**.80**							
3. Creative leadership	.17	.36	**.79**						
4. Knowledge donating	.29	.48	.45	**.83**					
5. Knowledge collecting	.24	.48	.55	.77	**.80**				
6. Lurking	.24	.49	.54	.63	.63	**.87**			
7. Active lurking	.24	.51	.60	.56	.54	.76	**.91**		
8. Employee creativity	.16	.42	.57	.59	.58	.58	.58	**.85**	
9. Organizational innovation	.30	.69	.49	.57	.52	.63	.63	.63	**.76**
Mean	3.74	3.77	3.22	3.65	3.77	3.79	3.78	3.89	3.57
Standard Deviation	.95	.84	.85	.87	.82	.86	.83	.77	.94
Average Variance Extracted (AVE)	.83	.64	.63	.70	.65	.76	.83	.83	.58
Composite Reliability (CR)	.95	.93	.87	.92	.88	.93	.95	.95	.87
Cronbach's alpha (α)	.88	.93	.72	.91	.87	.93	.95	.92	.87

Note: Figures in the diagonal are the square roots of AVE for all the constructs. All the correlations are significant at $p < .01$

Table 2: Path model results

	Knowledge donating	**Knowledge collecting**	**Lurking**	**Active lurking**	**Employee creativity**
Transactional leadership	.34***	.46***	.49***	.53***	
Transformational leadership	.24***	.24***	.29***	.33***	
Creative leadership	.78***	.49***	.46***	.32***	
Knowledge donating					.16*
Knowledge collecting					.17*
Lurking					.31***
Active lurking					.16**
R^2	.78	.66	.53	.49	.44

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3: Mediating effects

IV	DV	Mediator	Effect	LLCI	ULCI
Transactional leadership	Employee creativity	Knowledge donating	.15*	.01	.22
Transactional leadership	Employee creativity	Knowledge collecting	.13*	.08	.19
Transactional leadership	Employee creativity	Lurking	.18*	.12	.24
Transactional leadership	Employee creativity	Active lurking	.16*	.11	.22
Transformational leadership	Employee creativity	Knowledge donating	.18*	.13	.25
Transformational leadership	Employee creativity	Knowledge collecting	.17*	.11	.23
Transformational leadership	Employee creativity	Lurking	.22*	.16	.29
Transformational leadership	Employee creativity	Active lurking	.21*	.15	.27
Creative leadership	Employee creativity	Knowledge donating	.18*	.13	.24
Creative leadership	Employee creativity	Knowledge collecting	.13*	.09	.19
Creative leadership	Employee creativity	Lurking	.16*	.11	.22
Creative leadership	Employee creativity	Active lurking	.16*	.11	.21

IV: independent variable; DV: dependent variable; * $p < .05$

Table 4: Moderating effects of organizational innovation

IV	DV	Effect on DV		
		IV	MOD	IAT
Transactional leadership	Knowledge donating	-.29	.04	.12**
Transactional leadership	Knowledge collecting	-.07	.17	.06
Transactional leadership	Lurking	-.07	.33*	.05
Transactional leadership	Active lurking	-.14	.16	.08
Transformational leadership	Knowledge donating	-.29	-.06	.13**
Transformational leadership	Knowledge collecting	.07	.21	.04
Transformational leadership	Lurking	-.09	.21	.07
Transformational leadership	Active lurking	.01	.17	.06
Creative leadership	Knowledge donating	-.32	.08	.13**
Creative leadership	Knowledge collecting	-.54**	-.10	.17***
Creative leadership	Lurking	-.27	.28*	.09*
Creative leadership	Active lurking	-.38*	.10	.12**

DV = Dependent variable; IV = Independent variable; MOD = moderator; IAT = interaction
* $p < .05$; ** $p < .01$; *** $p < .001$

Table 5: Moderated mediation analysis

Relationship	β	SE	LLCI	ULCI
Transactional leadership – knowledge donating – employee creativity	.05*	.02	.01	.09
-1 SD	.01	.03	-.04	.07
M	.06*	.02	.01	.11
+1 SD	.10*	.03	.05	.17
Transformational leadership – knowledge donating – employee creativity	.05*	.02	.01	.10
-1 SD	.03	.03	-.03	.09
M	.08*	.03	.03	.13
+1 SD	.13*	.04	.06	.21
Creative leadership – knowledge donating – employee creativity	.06*	.03	.01	.11
-1 SD	.01	.04	-.07	.08
M	.06*	.02	.02	.11
+1 SD	.12*	.03	.06	.18
Creative leadership – knowledge collecting – employee creativity	.08*	.01	.03	.12
-1 SD	-.05	.04	-.12	.02
M	.02	.02	-.02	.07
+1 SD	.10*	.03	.05	.15
Creative leadership – lurking – employee creativity	.05	.02	-.00	.09
-1 SD	-.02	.04	-.11	.07
M	.02	.03	-.03	.07
+1 SD	.06*	.02	.02	.11
Creative leadership – active lurking – employee creativity	.06	.03	.01	.11
-1 SD	-.02	.04	-.11	.06
M	.03	.02	-.02	.08
+1 SD	.09*	.03	.04	.14

* p <. 05

Appendix. Scale items and descriptive

Scale items	M	SD	λ	α
Transformational leadership				
My supervisors can understand my situation and give me encouragement and assistance	3.73	1.02	.84	.70
My supervisors encourage me to update new technology trends and applications	.384	.99	.84	.70
My supervisors encourage us to make efforts towards fulfilling the company vision	3.97	.99	.86	.73
My supervisors encourage me to think about the changes in technology trends and applications from a new perspective	3.69	1.03	.86	.74
My supervisors encourage me to rethink opinions that have never been doubted in the past	3.73	1.05	.84	.71
My supervisors spend time understanding my needs	3.35	1.06	.76	.58
I believe my supervisors can overcome the challenge at work	3.94	.99	.83	.69
I believe I can complete my work under the leadership of my supervisors	3.94	1.00	.80	.64
Transactional leadership				
When I am unable to complete my work, the supervisor reprimands me	4.05	.98	.89	.79
The supervisors precisely record any of my mistakes	4.14	.94	.92	.84
The supervisor gives me what I want to exchange for my hard work	4.01	.99	.83	.69
The supervisor tells me that I can get special rewards when I show good work performance	4.04	.97	.80	.63
Creative leadership				
Leaders will make work interesting or challenging, thus increasing employees' sense of fulfilment	3.16	1.19	.92	.86
Leaders stimulate employees' creativity in a new way	2.96	1.23	.91	85
Leaders regard creativity or innovation as the goal of the team	3.51	1.03	.87	.79
Leaders will actively drive the implementation of new ideas and new suggestions	3.26	1.19	.88	.79
Knowledge donating				
I often share my information, skills and experiences with my colleagues	3.89	.94	.83	.69
When I know any new information, I tell my colleagues about it	3.82	.97	.87	76
When I have learned something new, I tell my colleagues about it	3.73	.94	.91	.83
I regularly tell my colleagues what I am doing	3.45	1.08	.87	.75

	M	SD	λ	α
I often keep my colleagues informed of my work tasks	3.37	1.14	.80	.64
Knowledge collecting				
I often ask my colleagues what they know	3.75	.93	.86	.73
When I need certain knowledge, I will ask my colleagues	3.90	.90	89	.79
I ask my colleagues about their abilities when I need to learn something	3.80	.94	.89	.79
When a colleague is good at something, I ask them to teach me how to do it	3.64	1.05	.78	.61
Lurking				
I regularly read information and skills and experiences shared on the online platforms	3.87	.95	.90	.80
I often accumulate information and skills, and experiences shared in the online platforms	3.78	.93	.93	.86
I often read the discussion or knowledge exchanged on the online platform	3.75	.93	.92	.84
I often follow the discussion or knowledge exchanged in the online platform	3.74	.94	.91	.83
Active lurking				
I propagated information or knowledge gained from online platforms to other colleagues outside it	3.89	.91	.92	.84
I learn a lot from the information or knowledge shared on online platforms	3.93	.89	.96	.92
I use information or knowledge gained from online platforms for my work tasks or my organizational activities	3.93	.89	.92	.85
I am aware that reading information and knowledge shared on online platforms has changed your thoughts toward my career or the company	3.87	.95	.94	.88
Employee creativity				
I think my work is creative	4.07	.91	.86	.74
I often try new ideas and methods first	3.89	.84	.90	.80
I seek new ideas and ways to solve problems	3.79	.85	.87	.76
I generate ground-breaking ideas related to the field	3.84	.88	.91	.83
I am a good role model for creativity	3.84	.92	.84	.71
Organizational innovation				
My organization often introduce new products/services	3.84	.93	.85	.73
My organization often improve products/services	3.86	.89	.84	.70
My organization often introduce new processes	3.61	1.00	.74	.55
My organization often improve processes	3.96	.95	.81	66
My organization often introduce new processes and improves processes as compared to others within the same industry	4.06	.93	.82	67

M = Mean; SD = Standard Deviation; λ = Standardized factor loading; α = Communality