

Transformational leadership, knowledge sharing, organizational climate and learning: an empirical study

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Abstract

Purpose – This study examined the relationships among transformational leadership, organizational climate, employees' knowledge-sharing behavior and organizational learning.

Design/methodology/approach – Data were collected from 282 responses from multiple companies in South Korea. Descriptive statistics and correlations were provided. The structural equation modeling was primarily used to test the proposed hypotheses and model comparisons.

Findings – The results indicated direct effects of transformational leadership on organizational climate, knowledge-sharing and organizational learning. In addition, organizational climate was positively related to knowledge-sharing behavior. Finally, knowledge-sharing behavior was found to affect organizational learning and to be a mediator in linking transformational leadership and organizational learning.

Research limitations/implications – This study contributes to the literature on the role of leader's support to enhance employees' outcomes related to knowledge and learning. By investing different antecedents of organizational learning, this study will help scholars and professionals pay more attention to organizational learning, its process and outcomes, which can promote organizational effectiveness and next outcomes from organizational learning.

Practical implications – Organizations need to pay continuous attention to maintaining and strengthening employees' knowledge-sharing behavior and learning, which is positively influenced by organizational efforts (i.e. leader's support and supportive organizational climate).

Originality/value – The significance of this study is that the findings add to the academic work on organizational learning by empirically examining how leadership and organizational climate factors influence knowledge and learning outcomes and through which mechanisms.

Keywords Transformational leadership, Organizational climate, Knowledge-sharing behavior, Organizational learning

Paper type Research paper

There is increasing recognition that the capacity of an organization depends on the learning potential of its workforce. Accelerated globalization of the workforce requires more innovative approaches to overcome barriers impacting organizations. The emphasis on individuals' improvement that influences an organization's strategic direction contributes to an understanding of organizational learning as a way to manage the relationship between organizational and individual capabilities (Dimitriadis, 2005).

Organizational learning has played a critical role in developing knowledge and skills that are important for effective operations in organizations where learning must occur, both reflexively in practice and from experience (Fiol and Lyles, 1985). Organizational learning is required for employees to develop their ideas, share their knowledge and engage in a proactive behavior for better ways to do their work (Dixon, 2017). Current issues in organizational learning include the following: diverse conceptualization, changing features over time, an increasing importance of learning for organizations, change in work organizations calling for learning, multiple processes and ways of learning, critical factors



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promoting learning and linking learning and organizational outcomes and effectiveness (Crossan *et al.*, 2011; Easterby-Smith *et al.*, 2000; Kasemsap, 2017).

Among these issues, the researchers focused on factors affecting organizational learning and viewed organizational learning as an initial outcome promoting diverse outcomes. Many scholars have examined diverse factors to promote organizational learning (García-Morales *et al.*, 2012; Sousa *et al.*, 2015). As per contextual aspects, leadership and organizational factors have been frequently investigated in terms of their influence on organizational learning. In particular, leadership is critical for organizational learning because of its influence on the level of support and encouragement for learning and development within an organization (Salas-Vallina *et al.*, 2017). In addition, organizational climate is significantly related to employees' perceptions of the work atmosphere, environment and practices (Dennison, 1996); thus, it could affect the organizational learning process and experience. Because of the close relationship between knowledge and learning, knowledge sharing has also been viewed as a significant antecedent of organizational learning (Abu-Shanab *et al.*, 2014; Swift and Hwang, 2013).

Although there has been a growing body of research on organizational learning, little research has focused on the outcome aspects of organizational learning. Only a handful of studies have examined organizational learning as a dependent variable available in relation to individual behavior and organizational contexts (Ehrgott *et al.*, 2013; Louis and Murphy, 2017). For instance, Louis and Murphy (2017) emphasized organizational learning as a precursor to problem-solving, change and innovation and viewed it as a dependent variable to investigate whether organizational learning can be promoted through organizational support and trust.

Research highlighting organizational learning as a dependent variable is urgently needed to inform scholars and practitioners of effective strategies and interventions by identifying how organizational learning occurs and what predicts organizational learning. Human resource (HR) management and development fields can play a critical role in identifying variables, developing a mechanism and providing strategies to facilitate organizational learning. The focus on developing capabilities and improving performance can help organizations identify ways to facilitate organizational learning and its process. In particular, scholars can explore learning and development opportunities to change and improve organizational practices. Therefore, more research is needed to better understand organizational learning. The findings can guide organizations to facilitate employees' organizational learning and thus ensure innovation and competitiveness.

The purpose of this study is to examine the relationships among transformational learning, organizational climate, knowledge-sharing behavior and organizational learning. The overall research questions guiding the study are (1) what are the relationships among transformational learning, organizational climate, knowledge-sharing behavior and organizational learning? and (2) do organizational climate and knowledge-sharing behavior mediate the relationship between transformational and organizational learning?

The significance of this study is that our findings add to the academic work on organizational learning by empirically examining (1) organizational learning as a dependent variable, (2) how leadership and climate factors influence knowledge and learning outcomes and (3) through which mechanisms. By investing different antecedents of organizational learning, this study will help scholars and practitioners pay more attention to organizational learning, its process and outcomes, which can promote organizational effectiveness and next outcomes from organizational learning. Additionally, this study will help scholars and practitioners to make informed decisions regarding organizational learning by testing organizational climate and knowledge sharing as mediators in the research model. From a practical point of view, exploring the role of organizational climate in relation to leadership and organizational learning may help

organizations incorporate an effective support system as a mechanism to link support from leaders to knowledge sharing and learning outcomes. This attempt to expand our understanding of the organizational learning and its process may also add to the training literature from a theoretical perspective by adopting the conceptual model of an organizational learning process.

Theory and hypotheses development

In this section, the researchers introduce the definitions of each variable and review the literature and examine the relationships among transformational leadership, organizational climate, knowledge-sharing behavior and organizational learning. The mediating role of organizational climate and knowledge-sharing behavior is also discussed.

Definitions

Transformational leadership is a leadership type to help followers achieve higher performance by being an excellent role model (idealized influence), communicating expectations and purpose (inspirational motivation), promoting intelligence and rationality (intellectual stimulation) and giving personal attention (individualized consideration) (Bass, 1990; Bass and Avolio, 1992). Organizational climate is regarded as shared common practices, procedures, beliefs and value systems that organizational members perceive and follow (Denison, 1996; Reichers and Schneider, 1990). In this study, organizational climate is the perception of employees about knowledge-sharing climate that promotes employees' social interactions for their sharing of knowledge and experience within the organization.

Knowledge sharing is defined as "the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas or implement policies and procedures" (Wang and Noe, 2010, p. 117). Organizational learning can be understood as the ways organizations build, supplement and construct knowledge and routines around their activities and within their cultures and adapt and develop organizational efficiency by improving the use of the broad skills of their workforces (Dodgson, 1993). The researchers viewed organizational learning as employees' perceptions of their learning experiences at the organizational level.

Transformational leadership

Transformational leaders inspire followers to transcend their own interests for the good of the organization and encourage followers to adopt innovative methods to deal with complex work situations (Sosik, 2006). In this study, the researchers view transformational leadership as a unidimensional construct because the four subdimensions of transformational leadership work together to demonstrate the features of transformational leaders (García-Morales *et al.*, 2012; Schermuly and Meyer, 2020).

Most research findings have reported that transformational leadership is a significant predictor of various outcomes and performance (e.g. Katou, 2015; Newman *et al.*, 2017; Peng *et al.*, 2020). By supporting, stimulating, challenging and inspiring employees, transformational leaders establish the organizational climate (Sarros *et al.*, 2008; Kao, 2015), encourage knowledge sharing (Birasnav, 2014; Fullwood *et al.*, 2013; Le and Lei, 2017) and promote organizational learning (Pasamar *et al.*, 2019; Sattayaraksa and Boon-itt, 2016; Vashdi *et al.*, 2019). Through transformational leadership, managers and leaders can establish a positive climate for knowledge-sharing innovation and subsequently influence employees' knowledge-sharing behavior (Fullwood *et al.*, 2013; Kao, 2015). Leaders play an important role in creating a knowledge-sharing climate in organizations to encourage

employees to pay more attention to knowledge sharing (Hussein *et al.*, 2016). Transformational leaders can also stimulate employees' motivation to engage in organizational learning by allowing employees to experiment, communicate actively and create innovative knowledge (Imran *et al.*, 2016; Salas-Vallina *et al.*, 2017).

Organizational climate

Organizational climate has been discussed as a critical factor affecting employees' behavior and actions (Aarons and Sawitzky, 2006; Hsu and Chen, 2017; Wallace *et al.*, 2016). Organizational climate is also related to employees' perceptions of their work atmosphere and environment (Dennison, 1996) and reflects the way in which employees describe how their organizations impact their work (Ostroff *et al.*, 2003). In particular, knowledge sharing climate should be established to develop employees' more positive attitude toward knowledge sharing (Ni *et al.*, 2017).

Many scholars have supported that knowledge sharing and organizational climate can promote employees' knowledge-related activities and organizational learning (Bock *et al.*, 2005; Lee *et al.*, 2016; Peralta and Saldanha, 2014). For instance, employees are actively involved in knowledge-sharing behavior when the organizational climate emphasizes the value of knowledge and creates an environment for knowledge exchange and accessibility (Michailova and Minbaeva, 2012; Peralta and Saldanha, 2014; Radaelli *et al.*, 2011). In addition, an organizational climate that supports employees' collective and collaborative knowledge sharing can foster organizational learning by encouraging employees to discuss their ideas and establish collaborative relationships (Kumaraswamy and Chitale, 2012; Lee *et al.*, 2016).

Knowledge-sharing behavior

Knowledge sharing can occur in diverse ways, such as communicating and networking with people, documenting, organizing and capturing knowledge, solving problems, assisting others, learning new skills and developing competencies from experts and colleagues (Cummings, 2004; Davenport and Prusak, 1998; Sousa *et al.*, 2015).

Numerous scholars have found that knowledge-sharing behavior affects organizational learning (Usman *et al.*, 2019; Kumaraswamy and Chitale, 2012; Nugroho, 2018; Swift and Hwang, 2013). As a basis for organizational learning, knowledge-sharing behavior can contribute to organizational learning through knowledge creation, transfer and sharing (Kumaraswamy and Chitale, 2012; Lee *et al.*, 2012). Through knowledge-sharing behavior, employees are able to maintain their learning flow, have more opportunities to learn from each other and integrate their learning for practical applications at the organizational level (Farooq, 2018; Swift and Hwang, 2013).

Organizational learning

Many scholars have discussed the multiple aspects of organizational learning including the constructs, processes and approaches (Argote and Miron-Spektor, 2011; Argyris and Schon, 1996; Dixon, 2017; Easterby-Smith *et al.*, 2000; Flores *et al.*, 2012; Van de Ven *et al.*, 2019). Generally, organizational learning is regarded as the process of improving organizational performance through knowledge or as the outcome of such processes (Chadwick and Raver, 2015). For instance, organizational learning has been discussed in terms of the three dimensions, including the (individual, group, organizational and/or interorganizational) learning unit of analysis, the relationship between cognitive process and behavior and the relationship between learning and performance (Crossan *et al.*, 1995). Dixon (2017) described the organizational learning process by including four steps: widespread generation of

information, integration of information into the organizational context, collective interpretation of information and having authority to take responsible action based on the interpreted meaning. Recently, [Van de Ven et al. \(2019\)](#) suggested behavioral processes of organizational learning as recurrent cycles of action–assessment–response on similar tasks over time, including adaptive learning (the conventional trial and error process of behavioral learning) and dialectical learning (conflict resolution to resolve disagreement on outcome assessments).

Although one main feature of organizational learning is a process, its process could create specific outcomes, such as products, responses and actions to solve given problem and have certain points to end the initial process to move forward to next level of learning. In this regard, organizational learning was selected as a dependent variable to emphasize its outcome-related features. Examining contextual and personal antecedents of organizational learning for this study helped us better understand the features and dimensions of organizational learning.

The mediating role of organizational climate and knowledge-sharing behavior

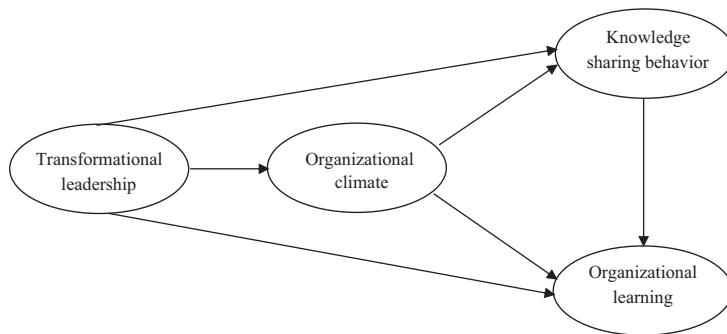
Multiple studies have shown a mediating effect of organizational climate and knowledge-sharing behavior on the relationship between transformational leadership and various outcomes ([Carmeli and Paulus, 2015](#); [Choi et al., 2016](#); [Shao et al., 2012](#); [Yasir et al., 2013](#)). For instance, knowledge-sharing behavior mediated the relationship between transformational leadership and team creativity or innovative behavior of employees ([Carmeli and Paulus, 2015](#); [Choi et al., 2016](#)). The researchers focused on the link between leadership and organizational learning through organizational climate and knowledge-sharing behavior. Transformational leaders are able to establish an organizational climate for their employees by providing diverse contexts and examples for knowledge sharing and engaging employees in knowledge sharing ([Sarros et al., 2008](#)). Organizational climate can also promote employees' knowledge-sharing behavior by establishing supportive environments for knowledge sharing ([Lee et al., 2016](#)). Likewise, transformational leadership, specifically, the intellection stimulation aspect, supports employees' knowledge sharing by enhancing employees' interest in, and awareness of problems and increasing their ability to think about problems in new way ([Le and Lei, 2017](#); [Shao et al., 2012](#)). When employees actively share their knowledge, they will have more opportunities to experience organizational learning ([Abu-Shanab et al., 2014](#)).

Hypotheses development

The researchers adopted the knowledge-sharing ([Lin, 2007](#)) and the theoretical frameworks for organizational learning ([Argote and Miron-Spektor, 2011](#)) to establish the relationship among variables and develop hypotheses. [Lin's \(2007\)](#) framework for knowledge sharing emphasized knowledge-sharing enablers (including individual, organizational and technology factors) to promote the knowledge-sharing process. We selected transformational leadership and organizational climate as organizational enablers for knowledge sharing based on [Lin's \(2007\)](#) framework for knowledge sharing. In [Argote and Miron-Spektor's \(2011\)](#) framework for organizational learning, they explained that organizational contexts play a significant role in promoting organizational learning and employees' knowledge-related activities are part of the organizational learning process. According to their framework, the researchers regarded organizational climate supporting knowledge sharing as the organizational context and viewed knowledge-sharing behavior as one of the knowledge-related activities of employees.

Given the review of the extant literature and related frameworks, the researchers suggest seven hypotheses and the research model shown in [Figure 1](#).

Figure 1.
The research
framework



- H1.* Transformational leadership will be positively related to organizational climate.
- H2.* Transformational leadership will be positively related to knowledge-sharing behavior.
- H3.* Transformational leadership will be positively related to organizational learning.
- H4.* Organizational climate will be positively related to knowledge-sharing behavior.
- H5.* Organizational climate will be positively related to organizational learning.
- H6.* Knowledge-sharing behavior will be positively related to organizational learning.
- H7.* Organizational climate and knowledge-sharing behavior mediate the relationship between transformational leadership and organizational learning.

Methodology

The sample and data collection

The data for the present study were collected from employees of several Korean business organizations that have maintained knowledge management systems for more than ten years. The researchers purposefully solicited participation from organizations that maintained feasible systems for knowledge management, which is fundamental for knowledge workers. Approximately 500 potential survey participants were randomly selected from approximately 1,000 employees in three heterogeneous organizations in construction and communication. All participation was voluntary without any incentive and participants could opt out of the study at any time. All the procedures and survey data were assured for confidentiality. Of the approximately 500 potential participants, 297 responses were collected, yielding a response rate of 59.2%. After excluding incomplete questionnaires, the useable responses were 282. Regarding the demographic composition of the respondents, 174 respondents (61.7%) were male. With respect to age, 51.6% (145) were between 30 and 40, 36.3% (102) were between 20 and 30 and 7.8% (21) were between 40 and 50 years of age. With respect to the education level, the majority of the respondents had bachelor's degrees (62.3%, 175). Regarding tenures with their respective organizations, 47.5% (134) of the respondents had worked for less than 10 years, followed by 32.7% (92) between 10 and 15 years and 19.8% (55) over 15 years at the current organization.

Measures

Each variable was examined using previously validated measurement items in the literature with minor modifications to assess the variables of the study. The questionnaire items were

piloted with individuals from the research population. Items were assessed on a five-point Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree.”

Transformational leadership. Transformational leadership was measured with the scale developed by Podsakoff *et al.* (1996). The measurement was composed of four subconstructs: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. In this study, the reliability coefficient was 0.90. A sample item in the measurement was “my organization has leaders who are capable of motivating and guiding their colleagues on the job.”

Organizational climate. To measure organizational climate for knowledge sharing, items adapted from Chen and Huang (2007) and Jaw and Liu (2003) were used. Items capturing the climate for knowledge sharing in organizations were rephrased to fit in with the construction industry environment. A sample item included “employees are encouraged to express their opinion and ideas openly.” Cronbach’s alpha reliability coefficient of the items was 0.89.

Knowledge-sharing behavior. Knowledge-sharing behavior was measured with items adapted from a measure by Bock *et al.* (2005), which assesses employees’ willingness to share explicit and tacit knowledge with their colleagues. The reliability of the scale was 0.92. A sample item was “my work-related knowledge sharing with other organizational members is good.”

Organizational learning. To measure the level of organizational learning, a four-item organizational learning scale (García-Morales *et al.*, 2007) was adopted. This scale asked respondents if organizational members had acquired critical knowledge, capabilities and skills. The reliability coefficient of the items from this study was 0.82. A sample item included “the organization has acquired and used much new and relevant knowledge.”

Data analysis

As the variables of this study were collected from a single source, the data were analyzed for potential common method bias using Harman’s one-factor test (Podsakoff *et al.*, 2003). To investigate the validity of each variable in the instrument, a factor analysis was conducted. After confirming the model fit, structural equation modeling was employed to estimate the fitness of the proposed model and to test the study hypotheses. Furthermore, the bootstrapping technique was adopted to examine the indirect effects of organizational climate and knowledge sharing in the relationship between leadership and organizational learning using Preacher and Hayes’s (2004) mediation analysis. To evaluate the degree of fit of the proposed models, this study examined the following indices: χ^2 goodness of fit to degrees of freedom ratio, the Tucker–Lewis index (TLI), the comparative fit index (CFI), the incremental fit index (IFI), the normed fit index (NFI) and the root mean square error of approximation (RMSEA).

Results

Preliminary data analyses

Table 1 presents the interconstruct correlations and item internal consistency estimates. Regarding reliability, a calculation of the item’s internal consistency indicates an acceptable level for each scale ($\alpha = 0.82\text{--}0.92$). The results were found to be in the expected direction, providing preliminary support for the relationships. The results of the correlation analyses were significant at $p < 0.01$.

As the variables of this study were collected from the single source, the data were analyzed for common method bias using Harman’s single-factor test (Podsakoff *et al.*, 2003). All four variables were entered into an exploratory factor analysis and the results showed that no single factor emerged and no single general factor accounted for

the majority of the covariance among the latent factors, with factor 1 accounting for only 27.6% of the variance. In addition, due to the inadequate model–data–fit indices (RMSEA = 0.117, CFI = 0.639, TLI = 0.613), the single-factor model was found to be an unacceptable one. Therefore, Harman’s test indicated that common method bias was not likely to be a serious issue in the current study (Podsakoff and Organ, 1986).

A confirmatory factor analysis (CFA) was conducted to assess the construct validity of the measurement model based on the proposed construct relationships. A total of three measurement models were compared to several fit indices: one-, three- and four-factor models. The CFA results showed that the hypothesized, four-factor model provided a good fit with the data collected, shown in Table 2. The model-fit indices exceeded the respective common acceptance levels (Hu and Bentler, 1999; Kline, 2011); thus, demonstrating that the distinctiveness of the four-construct measurement model showed a good fit with the data collected: $\chi^2 = 192.6$; df = 78; RMR = 0.057; TLI = 0.93; CFI = 0.92 and RMSEA = 0.064. The factor loadings of all items in the four-factor model ranged from 0.65 to 0.90, indicating strong values (Hair *et al.*, 2010; Thompson, 2004) and were statistically significant ($p < 0.001$), suggesting that the convergent validity of all measures was reasonable for the sample of this study. In addition, average variance extracted (AVE), the average amount of the shared variance in a latent variable (Fornell and Larcker, 1981), was examined. The values of the composite reliability and AVE were all above 0.7 (ranged from 0.61 to 0.82) and 0.5 (ranged from 0.53 to 0.71), respectively (Hair *et al.*, 2006), showing adequate discriminant and convergent validity (Fornell and Larcker, 1981). These results demonstrate that this study had adequate reliability and validity.

Structural equation model analyses were conducted to determine whether the hypothesized model fit the data. The theoretically plausible alternate models against the hypothesized model were compared to select the best model for the data of this study. The first alternate model had only a direct effect on organizational learning, with no indirect effect through organizational climate. The second alternate model had only indirect effects of organizational climate, with no direct effects on organizational learning.

As shown in Table 3, the hypothesized model provided an acceptable fit to the data ($\chi^2 = 192.6$; df = 78; IFI = 0.91; TLI = 0.93; CFI = 0.92; RMSEA = 0.064; $p < 0.01$). All of the

Table 1.
 Descriptive statistics
 and intercorrelations of
 variables of the study

Variables	Mean	SD	1	2	3	4
Transformational leadership	3.67	0.53	(0.90)			
Organizational climate	3.84	0.64	0.41	(0.89)		
Knowledge-sharing behavior	4.02	0.62	0.52	0.61	(0.92)	
Organizational learning	4.08	0.56	0.59	0.38	0.46	(0.82)

Note(s): $n = 282$. Scale reliabilities are shown in parentheses along the diagonal. All correlations are significant at the 0.01 level

Table 2.
 Fit indices of the
 measurement models

Models	χ^2	df	TLI	NFI	CFI	RMSEA
One-factor model ¹	471.6	92	0.63	0.64	0.61	0.112
Three-factor model ²	387.8	90	0.73	0.78	0.74	0.092
Four-factor model ³	198.6	84	0.91	0.90	0.90	0.068

Note(s): ¹Equating transformational leadership, organizational climate, knowledge-sharing behavior and organizational learning, ²equating transformational leadership and organizational climate, ³equating transformational leadership, organizational climate, knowledge-sharing behavior and organizational learning

goodness-of-fit statistics also indicated that the hypothesized model provided a good fit to the data (Hu and Bentler, 1999; Kline, 2011). Based on the model comparison among the structural models, the two alternate models did not reveal a significantly better fit than the hypothesized model. In addition, the chi-square difference statistics indicated that alternate model 1 ($\Delta = 57.2$, $\Delta df = 3$) and alternate model 2 ($\Delta = 35.3$, $\Delta df = 2$) showed a marginal and poorer fit with the data relative to the hypothesized model (see Table 3). Based on the results and theoretical considerations of the relationships among the variables, the hypothesized model was selected as the best representation of the data of the current study. Therefore, discussion of the hypotheses of this study is based on model 1, the hypothesized model.

Hypothesis testing

All proposed hypotheses in this study were tested and the statistical significance of the path coefficients among the variables was examined. The path coefficient estimates for all relations and standardized path coefficient estimates were considered to determine the influential effect sizes of each relation (Hair *et al.*, 2006).

The results showed that the positive and direct effects of transformational leadership on organizational climate ($\beta = 0.65$, $p < 0.01$), knowledge-sharing behavior ($\beta = 0.22$, $p < 0.01$) and organizational learning ($\beta = 0.37$, $p < 0.01$) were statistically significant. Thus, hypotheses 1–3 were supported. Next, organizational climate was found to have a direct effect on knowledge-sharing behavior (H4) ($\beta = 0.46$, $p < 0.01$) but not on organizational learning (H5) ($\beta = 0.12$, $p > 0.05$). The estimate of the direct effect of knowledge-sharing behavior on organizational learning was statistically significant ($\beta = 0.67$, $p < 0.01$); thus, H6 was supported.

To examine the indirect effects of the structural model, following Hayes (2013), bias-corrected bootstrapping procedures with 1,000 bootstrap samples was performed. The bootstrapping results demonstrated that the indirect effects of transformational leadership and organizational learning through organizational climate and knowledge-sharing behavior were statistically significant ($\beta = 0.32$ $p < 0.01$), supporting H7.

The magnitude of the prediction among the effects of the proposed constructs was examined. The results showed that the overall model accounted for 43% of the variance in organizational learning ($R^2 = 0.43$). Employees' knowledge-sharing behavior was found to have a greater impact on organizational learning when compared with leadership in terms of the total effect and, in other words, leadership both directly and indirectly impacted employees' knowledge-sharing behavior. Table 4 summarizes the standardized path coefficients in the model.

Discussion and implications

In this study, the researchers examined the relationships among transformational leadership, organizational climate, employees' knowledge-sharing behavior and organizational learning. The findings provide evidence that (1) transformational leadership directly affected organizational climate, knowledge-sharing behavior and organizational learning, (2)

Models	χ^2	df	TLI	IFI	CFI	RMSEA
Model 1 (hypothesized model)	192.6	78	0.93	0.92	0.92	0.064
Model 2 (alternate model 1)	249.8	81	0.91	0.89	0.89	0.065
Model 3 (alternate model 2)	227.9	80	0.91	0.90	0.90	0.065
Fit criteria	–	–	>0.90	>0.90	>0.90	<0.07

Table 3.
Results of the fitness
examination of the
hypothesized model

organizational climate was positively associated with knowledge-sharing behavior, (3) knowledge-sharing behavior connected to organizational learning and (4) knowledge-sharing played a mediating role in linking transformational leadership and organizational learning. The findings support previous studies on the relationship among leadership, climate, knowledge sharing and organizational learning (Birasnav, 2014; Nugroho, 2018; Sarros *et al.*, 2008). When employees' perceptions of leadership and organizational climate are positive, they show higher commitment to knowledge sharing and organizational learning.

This study enriches the literature in several ways. First, this study contributes to organizational research by providing empirical evidence of how transformational leadership contributes to promoting organizational climate, knowledge sharing and organizational learning. The results of the study indicate that transformational leadership not only relates to organizational climate but also influences employees' behavior and learning. In other words, transformational leaders could encourage employees to share their knowledge and maintain and increase organizational learning while fostering the organizational climate. This finding emphasizes the role of leaders in creating supportive work environments and reinforcing employees' positive outcomes related to knowledge and learning.

This study also investigated the relationships among organizational climate, knowledge-sharing behavior and organizational learning. As per previous studies, our study supported the relationships between organizational climate and knowledge-sharing behavior and between knowledge-sharing behavior and organizational learning. Interestingly, organizational climate did not significantly affect organizational learning. It may be that participants in this study perceived that the organizational climate alone was not supportive enough for their organizational learning process and experiences. This interpretation implies the notion that understanding the value employees place on their learning experience at the organizational level may be an important factor when establishing and maintaining the organizational climate and atmosphere. However, organizational climate directly affected knowledge sharing and was positively related to employees' organizational learning through their knowledge-sharing behavior. When the organizational climate encourages employees to pay attention to, acquire, sustain and grow knowledge, they may have more opportunities to share their knowledge, which could be connected to their organizational learning experience.

The findings of this study inform practitioners in several practical ways and can help them implement interventions in their organizations. First, given the positive effect of transformational leadership on organizational climate, knowledge-sharing behavior and organizational learning, organizations should make significant efforts to develop and enhance transformational leadership within their organizations. Providing relevant training programs and actively implementing supportive systems for leadership will enhance the organizational climate. In addition, the findings of the study show that the effects of transformational leadership on knowledge-sharing behavior and organizational learning are

Table 4.
 Decomposition of
 effects in the
 structural model

Paths	Direct effect	Indirect effect	Total effect
Transformational leadership → organizational climate	0.65**	—	0.65**
Transformational leadership → knowledge-sharing behavior	0.22*	0.35**	0.57**
Transformational leadership → organizational learning	0.37**	0.40**	0.77**
Organizational climate → knowledge-sharing behaviour	0.46**	—	0.46**
Organizational climate → organizational learning	0.12	0.36**	0.48**
Knowledge-sharing behavior → organizational learning	0.67**	—	0.67**
Note(s). ** $p < 0.01$			

stronger when they are mediated by a knowledge-sharing climate. This implies that if organizations foster a supportive climate in knowledge sharing, employees are more likely to repay them by being more engaged in sharing their knowledge and by transferring and expanding organizational learning.

Another practical recommendation is that organizations need to pay attention to maintaining and strengthening employees' knowledge-sharing behavior, which is positively influenced by organizational efforts (i.e. leader support and supportive organizational climate). For instance, organizations could consider either creating or modifying policies and systems (e.g. incentives for knowledge-sharing) to link employees' knowledge-sharing behavior to organizational learning to create sustainable organizations. By formalizing knowledge-sharing-related events and sessions, organizations could encourage employees to share their experience and learning and allow them to identify better ways of improving the current working practices.

In addition, organizations may consider checking the status quo for knowledge sharing within their organizations and design environments that help employees and teams foster, support and share tacit work knowledge, as well as explicit knowledge. Specifically, organizations could facilitate online and off-line environments for knowledge sharing where any work-related ideas, opinions and discussions are welcome. These efforts will lead to learning at the organizational level, which, in turn, could lead to relevant value creation and new knowledge to promote organizational competitiveness.

Limitations and future research

There are several limitations in this study that are worthy of further investigation. First, the cross-sectional nature of a research design and data collected at a single point in time does not allow conclusions about the causal direction of relationships. Therefore, future studies can adopt a longitudinal design to examine the causal links of the variables. Second, there is a potential for common method bias since all the variables were measured from only one source: a survey. To minimize potential bias, procedural remedies were adopted such as protecting the anonymity of respondents, counterbalancing the question order and reducing evaluation apprehension by informing respondents that there was no right or wrong answers (Podsakoff *et al.*, 2003). In addition, although the potential bias of common method variance was addressed by examining Harman's single-factor test, future research would be strengthened if data were collected from multiple sources.

Finally, this study was conducted in private organizations in Korea, which could somewhat limit the generalizability of the findings of this study to other populations in different businesses and cultural contexts. Thus, more cross-cultural and national comparison research is recommended. Moreover, a multilevel analysis of organizational climate could be conducted to see the different responses from various members of the group, division and organization.

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