



What followers are saying about transformational leaders fostering employee innovation via organisational learning, knowledge sharing and social media use in public organisations?

Naseer Abbas Khan^a, Ali Nawaz Khan^{b,*}

^a School of Public Affairs University of Science and Technology of China, Anhui, Hefei 230026, PR China

^b School of Economics and Management Tongji University, Shanghai, PR China

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ABSTRACT

This study uses diffusion of innovation theory to determine the relationship between transformational leadership and employee innovation via the mediation of organisational learning and knowledge sharing, as well as to examine the moderating role of social media use. A total of 375 employees and supervisors were recruited via random sampling from 89 municipal committees (one of the tiers of local government organisations) in Pakistan. Results indicate that transformational leadership has a positive impact on organisational learning and knowledge sharing. Similarly, organisational learning and knowledge sharing have a significant impact on employee innovation. Likewise, transformational leadership indirectly influenced employee innovation via organisational learning and knowledge sharing. Surprisingly, the moderating influence of social media use on the relationship between organisational learning and employee innovation proved insignificant. However, social media use had a significant effect on the relationship between knowledge sharing and employee innovation. This study provides informative insights by demonstrating that public sector leaders undertaking the transformational role and encouraging followers to use organisational learning, knowledge sharing and social media can help facilitate employee innovation in the public sector.

1. Introduction

Driven by multiple success stories associated with innovation in the private sector, the public sector has begun to move in this direction with attempts to expand employee knowledge in order to promote innovations that can address complex social issues and needs. Today, public organisations, especially municipalities, are under tremendous pressure to develop innovative solutions to improve public services within a limited resource range (Lambert, 2013; Shaw et al., 2019). Social challenges, such as fiscal crises, demographic changes, urbanisation and social inequalities, are urging local governments to address these issues in new and better ways. Policymakers realise that the policy framework for balancing markets is expensive because of the lack of resources, so a new buzzword, 'innovation', is gaining popularity (Hanusch and Pyka, 2013) in public organisations. Innovation is diverse in application due to its controversial status and its strong normative and positive nature. Innovation has become a necessary condition to bring change in the thinking and practices of the public sector workforce.

In this regard, the current study begins with the idea that employee innovation simply means the ability of employees to produce something new, that is, doing things in different or new ways. From the perspective of Schumpeter (2000) and Freeman (1995), public organisations cannot be regarded as natural sources of innovation; rather, innovation is the competitive advantage gained in a market economy. Innovation is primarily described as an economic phenomenon in the public sector; a fundamental principle also exists, which is that highly participatory management processes of innovation reflect the type of interaction between leaders and employees, which in turn, helps increase learning and knowledge-sharing opportunities (Hanusch and Pyka, 2013). Therefore, the role of leadership in public organisations is critical in motivating and inspiring employees.

On the basis of the pioneering contributions of Burns (1978), several mainstream management scholars have made significant contributions to study the transformational leadership and its impact on employees and organisations (Bass and Riggio, 2006; Schmitt et al., 2016), especially in the public sector. The role of leadership in the public sector is more critical than in the private sector due to the political and

* Corresponding author.

E-mail addresses: naseer@mail.ustc.edu.cn (N.A. Khan), alisial@tongji.edu.cn (A.N. Khan).

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administrative nature of public administration. Voluntary alliances and management skills have become important factors in meeting the competitive interests of different stakeholders in public sector (Damanpour and Schneider, 2008). Therefore, the impact of public leadership on promoting innovation is more complex and challenging than that in the private sector. Hence, several scholars argue that transformational leadership is a value-based leadership style (Brown and Treviño, 2009; Shamir et al., 1993) with the ability to inspire the followers to generate innovative solutions. Nalbandian (2005) pointed out that effective local governments need a close liaison between leaders and employees to introduce different ideas in municipality work.

Surprisingly, the mainstream public management literature usually ignores the different mechanisms which facilitate the development of the relationship between leaders and innovation of followers. In general, the public management literature focuses on leadership styles with strong top-down characteristics. Classical bureaucratic leaders mostly assume that the best way to lead, that is, direction-based leadership, already exists and this approach suits the laggards who often inhibit innovative solutions (Barnett, 1979). As per diffusion of innovation theory, laggards are people who are very conservative, who are incredulous about change and are the most difficult to deal with (Rogers, 2003). Unfortunately, in the public management literature, mainstream leadership styles receive little focus, including transformational leadership, which has motivational characteristics (Kickert et al., 1997; Pierre, 2000) and help promote creative behaviours (Lewis et al., 2011; Osborne and Brown, 2011). The interaction between leadership and innovation is complex and is beyond the scope of direct and arbitrary relationship between leadership and innovation. Therefore, previous studies examined various intervening and moderating variables to address the complexity of the relationship between leadership and employee performance. For instance, two studies on public organisations focus on the impact of transformational leadership on performance information use and mission valence (Kroll and Vogel, 2014; Wright et al., 2012) by using different mediating and moderating variables. In addition, several studies investigated the impacts of transformational leadership on organisational commitment, follower satisfaction and performance (Caillier, 2014; Jacobsen and Bøgh Andersen, 2015; Oberfield, 2012).

In the public sector, especially in municipalities, examining whether transformational leadership promotes innovation among followers has become inevitable. Therefore, the current study attempts to examine the relationship between transformational leadership and employee innovation by introducing two mediating variables (i.e. organisational learning and knowledge sharing) and a moderating variable (i.e. social media use). In this regard, organisational learning is a collective process of acquiring and creating capabilities that are modified by the inherently complex process of managing and transforming situations. Particularly in public management, several researchers use organisational learning as an intermediary to establish the link between leadership and performance, as well as leadership and creativity (Abbasi and Zamani-Miandashti, 2013; Ismail, 2005; Khan et al., 2019a; Moynihan and Pandey, 2010), thus demonstrating that organisational learning has the ability to intervene in complex relationships. Similarly, several studies emphasised the important role of knowledge sharing practices (Ali et al., 2019; Dong et al., 2017; Von Krogh et al., 2012), arguing that leadership has the potential to empower employees by motivating the knowledge sharing practices to develop innovative skills. Earlier studies have also shown that social media use has an impact on employee outcomes and plays a key role in improving the transparency and accountability in public organisations (Carlo Bertot et al., 2012; Picazo-Vela et al., 2016). Similarly, social media serves as a catalyst for promoting innovation in electronic government (DePaula et al., 2018; Loukis et al., 2017; Mergel, 2016b). Recognising the social and cognitive benefits associated with social media use (Hall et al., 2014; Xiongfei et al., 2019a), the present study also uses social media as a moderator to foster the impact of transformational leadership on

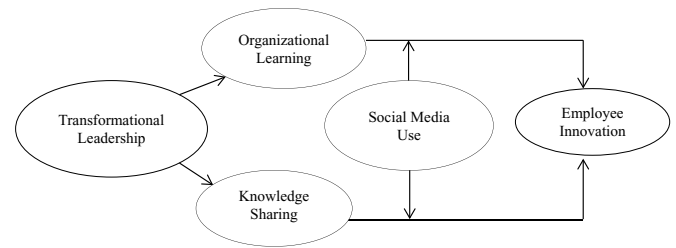


Fig. 1. Study model.

employee innovations.

This study assumes that social media use promotes connections among people by providing knowledge management systems, social interaction platforms and cost-effective software products. Social media tools support knowledge integration among people, processes, technologies and organisational structures, such as brainstorming, content management, document management systems and expert systems (Centobelli et al., 2017; Khan and Ali, 2018; Ojo and Mellouli, 2018; Picazo-Vela et al., 2012). Therefore, the hypothetical model of this study (see Fig. 1) is expected to spark debates for researchers and practitioners in examining the applicability and effectiveness of public leaders' ability to adopt transformational behaviours to promote employee innovation.

2. Theoretical foundation and literature review

This study also uses diffusion of innovation theory to explain the impact of transformational leadership on employee innovation, following various research that have used this theory to examine the adoption of innovation within organisations and society, including communications, criminal justice, agriculture, social work and marketing (see Wonglimpiyarat and Yuberk, 2005; Zhang et al., 2014). This theory explains how innovations, such as a new idea, behavior or product, become attractive and acceptable and eventually diffused in a particular community or in an organisation over time (Rogers and Shoemaker, 1971). The key to adoption is that the ideas, actions or products of an individual are new or innovative. Therefore, diffusion of innovation theory divides innovation adopters into five categories: innovator, early adopters, early majority, late majority and laggards. Innovators are individuals, groups or organisations that are highly flexible and take risks in exploring, adopting, and leveraging innovative ideas, products or services that differentiate them from competitors (Mergel, 2016a). However, laggards represent individuals, groups or organisations that are most reluctant and conservative in terms of innovation.

Rogers (2003) argues that diffusion is a social phenomenon that takes place among people in response to an understanding of innovation, such as a new evidence-based approach to expanding or improving public services. Traditionally, diffusion involves an innovation that diffuses through certain channels used by people, society or organisations (Chatfield and Reddick, 2018). When leaders and organisations adopt innovation, the environment shifts from one normative state to another; if the leader does not adopt innovation, the organisation does not change its current status (Basole et al., 2013; Behn, 2008). As per diffusion of innovation theory, numerous innovations cannot diffuse because innovation is simply defined as being considered a new thing by adopters. Sometimes, invaluable innovations diffuse, whereas effective innovations are hampered.

However, this study investigates innovation at the employee level, and refers to the 'development, adoption and implementation of new ideas for employees related to service delivery, technology and work methods' (Yuan and Woodman, 2010, p.323). Similar to the broad public sector innovation literature (de Vries et al., 2018), several researchers see innovation as a process involving different but related

stages of generation, promotion and implementation of ideas (Hwang and Choi, 2017; Mergel et al., 2018; Scott and Bruce, 1994). In particular, learning and knowledge sharing trends in an organisation allow employees to clarify the path from generation to implementation of ideas, ultimately leading to highly innovative solutions (Kim and Lee, 2006; Potnis, 2010).

Thus, the diffusion of innovation distinguishes between innovative and creative behaviours, which narrowly refer to behaviours that contribute to the creation of novel and useful ideas (Meijer, 2015; Yidong and Xinxin, 2013). Barnett (1979) argues that whether an individual primarily adopts or denies a particular innovation is a decision made after a series of thinking processes, which is actually based on the personal knowledge and learning opportunities existing in a particular society or organisation. Similarly, Rogers (2003) mentions the innovation diffusion as a 'process of uncertainty reduction' (p. 232), so reducing uncertainty about innovation, leadership, knowledge sharing and organisational learning can hasten the process. Therefore, the current study provides a new perspective of innovation diffusion by examining the mediating roles of organisational learning and knowledge sharing in the relationship between transformational leadership and employee innovation.

Meanwhile, social media use in the public sector is becoming one of the main trends in research and practice related to e-government. Several researchers suggested that social media use in the government can help promote co-production of public services and policies as well as political and democratic participation in a growing debate on political and administrative issues (Bertot et al., 2010; Carlo Bertot et al., 2012; Khan et al., 2013). As a result, the diffusion of social media in the public sector innovation involves key aspects for the future of local government administration. Researchers generally believe that social media use in public management is a tool that is being increasingly used in modern society and e-government practices (Bonsón et al., 2012; Sneed, 2013).

Therefore, Twitter, Facebook and LinkedIn are the most widely used social media technologies in bureaucracies around the world (Criado et al., 2013a,b; Pitafi et al., 2018). These social media tools are also invoked when dealing with the relationships between knowledge sharing and innovation and between public leadership and innovation, partly because of their levels of diffusion in the public administration. Therefore, researchers believe that social media is an efficient and low-cost channel for sharing information and knowledge (Mergel, 2016b), hosting relevant content, participating in discussions and soliciting feedback from other users. Therefore, the present study expands the theoretical debate to explain how social media—as a key influencing factor—can help small public organisations, especially in the provision of public services, by using organisational learning capability and knowledge sharing to improve employee innovation.

When applying diffusion of innovation theory to the current perspective, the theory argues that factors from the personal influence of the leader on subordinates and the use of social media itself may affect the knowledge sharing behaviour of the subordinates. The influence of leadership affects the behaviour of social media usage of subordinates. Specifically, transformational leaders who transfer information to social networks can increase employee willingness to share information online (Steffes and Burgee, 2009). For instance, Brown and Reingen (1987) argue that network characteristics significantly affect face-to-face knowledge sharing behaviour of employees with more homogeneity and close social relationships. Since social media can promote the development and maintenance of social networks (Boyd and Ellison, 2007), the characteristics of the network should also have an impact on knowledge sharing, leading to innovative behaviour. Therefore, diffusion of innovation theory is an appropriate way to understand leadership traits, knowledge sharing and learning, as these factors are tested during the diffusion process. In other words, diffusion of innovation theory provides a framework to explain, predict, and interpret factors that may increase or hinder the spread of innovation, especially the

impact of transformational leadership, knowledge sharing, organisational learning, and social media on employee innovative behaviour. Therefore, diffusion of innovation theory is appropriate to investigate the relationship between transformational leadership and employee innovation.

2.1. Development of hypotheses

2.1.1. Transformational leadership, organisational learning and knowledge sharing

The charismatic quality of leaders is the dominant factor in transformational leadership and such leadership is based on the principles of change within the organisation and its people in order to achieve the desired goals (Devanna and Tichy, 1990; Weerakkody et al., 2011). Transformational leaders recognise the need for change and innovation by motivating followers to develop visions and implement change (Bass, 1985). Therefore, in public organisations, the role of the leader is critical in that a transformational leader is a role model for his/her followers (Karaca et al., 2012; Khan et al., 2019b; Leong and Fischer, 2011; Moynihan et al., 2011) who can provide inspiration regarding innovation. Similarly, organisational learning produces synergies that guide organisations towards innovation, growth and sustainable development (Bryson, 2018; Estevez and Janowski, 2013). The combination of knowledge sharing practices and information management mechanisms allows for the transfer of valuable knowledge developed by leaders and followers in the organisation (Bano et al., 2019; Choi and Chandler, 2015; Dawes et al., 2012; Kurland and Hertz-Lazarowitz, 2006). Receiving and transferring knowledge is critical to the performance of public sector employees because the goal of this employees is to facilitate citizens via improved service delivery practices; thus, effective leadership can only encourage the employees for the smooth process of learning and knowledge sharing in the organisation.

For public organisations, a commitment to help employees accept the learning and knowledge processes is a core principle (e.g. Morecroft et al., 1994). This commitment does not happen naturally, but requires a leader with transformational characteristics to motivate followers to become agents of innovation in the organisation. Thus, the following hypotheses can be postulated:

H1. Transformational leadership increases the organisational learning in local governments.

H2. Transformational leadership increases knowledge sharing in the local governments.

2.1.2. Organisational learning, knowledge sharing and employee innovation

Templeton et al. (2002) argue that organisational learning is a set of actions (related to acquisition, dissemination, interpretation of knowledge and organisational memory) generating a positive change within the organisation. Meanwhile, Zollo and Winter (2002) emphasised the collective capabilities to define organisational learning based on experience and cognitive processes involving knowledge management practices. At present, organisational learning is interpreted as a source of competitive advantage in the context of strategic management (Amarakoon et al., 2018). An organisation characterised as a learning entity accepts those behaviours that lead to different perspectives and ways of doing things. The supplement to organisational learning is a formal arrangement, which allows organisations to process relevant information, practices and knowledge as a basis for change and innovation (Greiling and Halachmi, 2013). The present study model emphasises the personal factors and qualities of the employees because these factors play the biggest role in workplace learning (Bamber and Castka, 2006; Morgan and Kennewell, 2006). However, organisational characteristics can affect an individual's learning behaviour (Shrivastava, 1983). For example, a leader may act as a facilitator of learning, but may also become an obstacle (Swaffield and MacBeath,

2009), depending on the nature of leadership. A closely related question is whether the leadership is willing to invest in structural and procedural arrangements to promote learning of public sector employees (Garvin et al., 2008; Giesbrecht et al., 2016; Mavrinac, 2005). In this regard, opportunities of organisational learning and knowledge sharing can be enhanced via the propagation of a mutual dialogue between leaders and followers and the increase of knowledge exchange among followers (Easterby-Smith and Cunliffe, 2017; Nonaka and Takeuchi, 1995). Therefore, public sector employees should have an opportunity to seek new and improved knowledge to generate novel ideas and ways to foster innovation at the workplace (Al-Jabri and Sohail, 2012). The follower's desire to learn relevant skills and valuable knowledge diffuses the innovative behaviours (Argyris and N, 1996; Fraj et al., 2015) within the organisation and in the society as a whole. In this regard, transformational leadership can effectively enhance learning and the knowledge-sharing abilities of followers by motivating and inspiring the latter and fostering a conducive learning environment (Homburg et al., 2017; Sarros et al., 2002). Therefore, the following hypotheses can be proposed:

H3. *Organisational learning in local governments increases employee innovation.*

H4. *Knowledge sharing in local governments increases employee innovation.*

2.1.3. Mediating role of organisational learning and knowledge sharing

The public management literature recognises the important role of leadership in reshaping public organisations to become highly competitive and innovative (Andrews et al., 2006; Damanpour and Schneider, 2008) in terms of human resource. Numerous scholars have discussed the role of leaders in the adoption of innovations to improve performance (Misuraca and Pasi, 2019; Norris and Moon, 2005; Zhang et al., 2017). Moreover, several scholars examined the positive indirect impact of public leadership on organisational innovation (Nystrom et al., 2002; Raus et al., 2010). Therefore, learning and knowledge sharing is critical in achieving deep innovation in the execution of daily tasks and responsibilities (García-Morales et al., 2008). Similarly, the presence of a knowledge sharing platform in public organisations stimulates the process of idea generation (Iyengar et al., 2015; Nonaka and Takeuchi, 1995). In addition, organisational learning and knowledge management combine to empower employees to bring creativity in assigned work and responsibilities (Cohen and Levinthal, 1990; Schultz and Libman, 2015). As per diffusion of innovation theory, leadership plays a critical role in diffusing valuable innovation via effective knowledge-sharing practices (Leonard-Barton, 1995). For instance, a good organisational environment promotes a learning and knowledge sharing culture, thereby improving workplace innovation capabilities (Hurley and Hult, 1998; Vargas, 2015). Unfortunately, public management scholars have yet to fully examine the impact of transformational leadership on employee innovation via knowledge sharing and organisational learning, particularly in small public sector organisations. Martins and Terblanche (2003) identify the motivational work environment that enables employees to learn, share and explore creative ways of action. Therefore, the mediating role of organisational learning and knowledge sharing are important in establishing the link between transformational leadership and employee innovation. Hence, the following hypotheses can be suggested and tested:

H5. *Organisational learning mediates the positive association between transformational leadership and employee innovation in local governments.*

H6. *Knowledge sharing mediates the positive relationship between transformational leadership and employee innovation in local governments.*

2.1.4. Moderating influence of social media use

Social media is a set of 'Internet-based technologies that build on the ideological and technical bases of Web 2.0' (Kaplan and Haenlein,

2010, p.61) and take advantage of the social and interactive aspects of communication technology. Social media tools allow users to exchange two-way information via videos, pictures, text messages and podcasts. This exchange of information and knowledge is carried out not only through the use of free applications, such as Twitter, LinkedIn, Facebook, Flickr, and YouTube, but also feed-driven services, such as Ning or Basecamp. The use of social media has become part of human life, and organisations are trying to integrate social media tools into their work. Various private, public and non-profit organisations are gradually increasing their presence in and use of social media platforms to improve their interactions and communications with customers, citizens and employees as well as to enhance their organisational identity (Khan et al., 2019b; Klang and Nolin, 2011; Mossberger et al., 2013). In particular, the public sector has also expanded its online interaction by opening accounts on Facebook and Twitter.

Therefore, the employees in the public sector have become highly accustomed to using social media to obtain and share knowledge and information. Moreover, social media use plays a critical role in building knowledge-based interactions between leaders and followers. Several public managers promote the use of social media tools in their daily organisational activities (Criado et al., 2013a; Mergel and Bretschneider, 2013). However, researchers and public administrators know little about how government employees view social media use and how social media usage affects their work and innovative thinking (whether positive or negative). Numerous researchers argue that frequent use of social media increases the gratification that individuals receive from social experiences, such as learning from each other and sharing knowledge through immediate contact with others (Dawes et al., 2012; Khan et al., 2014; Zavattaro and Sementelli, 2014). This mutual interaction and knowledge sharing generate novel ideas. Consistent with diffusion of innovation theory, leaders provide a platform upon which employees can connect, communicate and interact with one another via instant messaging or social networking sites, as well as other stakeholders to bring innovation in their work and ideas (Avery et al., 2010). A recent study showed that virtual interactions between leaders and employees contribute 49% of creativity, 23% of self-thinking and 17% of company influence or events (Baker and Freeland, 1972). In this regard, the following hypotheses can be assumed:

H7. *Social media use moderates the association between organisational learning and employee innovation in local governments; this association becomes stronger when social media use is higher rather than lower.*

H8. *Social media use moderates the association between knowledge sharing and employee innovation in local governments; this association becomes stronger when social media use is higher rather than lower.*

As a catalyst, social media use can influence the interaction between transformational leadership and employee innovation, with the aim of strengthening employee innovation by fostering organisational learning and knowledge sharing impacts. Empirical evidence supports the role of social media use in strengthening the impact of transformational leadership on knowledge seeking and sharing within public organisations, which ultimately influences employee performance and innovation. For example, Moynihan et al. (2011) found that government employees working in agencies with decentralised systems are likely to perceive transformational leadership behaviour; thus, communication between leaders and followers is highly effective via the use of social media platforms. In this regard, social media use stimulates the impact of transformational leadership on organisational learning and knowledge sharing. Therefore, an assumption can be made that social media use may strengthen the indirect relationship between transformational leadership and employee innovation. A pattern of moderated mediation between transformational leadership and employee innovation may exist, and this study proposes the following hypotheses for moderated mediation:

H9. *Social media use moderates the mediating effect of organisational*

learning on the relationship between transformational leadership and innovation of employees; this mediating effect becomes stronger as social media use increases rather than decreases.

H10. Social media use moderates the mediating effect of knowledge sharing on the relationship between transformational leadership and innovation of employees; this mediating effect becomes stronger as social media use increases rather than decreases.

3. Method

3.1. Sampling and data collection procedures

This study used a close-ended questionnaire in English. The sample was obtained from municipal committees located in the central and southern part of Pakistan. The municipal committee is one of the local government tiers working in urban areas having a population between 30,000 and 500,000 (Act, 2015). The committee's employees often perform municipality tasks, such as sanitation, water supply, street lighting, firefighting, housing planning and other related tasks. Haque (2015) claimed that 39.7% and nearly 40% of the respective populations in Punjab and Sindh are urbanised. Thus, the urbanisation trend has increased the pressure on the municipal workforce in Pakistan to adopt new and useful ways to meet the needs of citizens. The urban literature often lacks advanced and recent research that can support urban administration and policymakers in understanding the issues and potential for good urban management, especially in Pakistan. Therefore, the interaction between leaders and followers should be examined in the context of prevailing pressures on urban administration to cater to the emerging needs of cities and their citizens.

In this regard, this study emphasises municipal committees and obtained a sample of 510 respondents, including 102 leaders/supervisors, from 89 municipal committees via random sampling. Chairmen/vice-chairmen/municipal administrators often fall in the category of municipal committee leadership. To collect the responses from municipal committee leadership and employees, the questionnaires were distributed via civil society volunteers with prior experience in conducting community-based surveys. Data were collected in two waves. Data on transformational leadership, organisational learning, knowledge sharing and demographic factors were collected in the first wave, whereas data on social media use and employee innovation were collected in the second wave. This study followed Detert and Burris (2007) in using the time interval approach. This approach allows respondents to use this time interval to carefully observe, evaluate, decide and act before submitting a final response. Moreover, different respondents and time intervals reduce the possibility of common method bias (Podsakoff et al., 2003).

After removing incomplete and missing responses, the final sample of this study included 375 respondents. Table 1 indicates that the majority of respondents were male (96.5%). The dominant male response was due to certain reasons. Firstly, religious, cultural and

administrative factors prevent women from working in public sector organisations, including municipal committees. Secondly, gender mobility, limited training opportunities and family pressure discourage women employees from participating in male-dominated organisations (Jabeen and Iqbal, 2010). The majority of respondents (47%) were between 21 and 30 years. In terms of educational level, 39% of the respondents were graduates, whereas 35% were undergraduates. Regarding work experience, 37.3% of the respondents have three to five years of work experience, whereas 23.70% have more than six to seven years of work experience (see Table 1).

3.2. Measurement

This study used measurement scales that are accepted and adopted by different management scholars. Specifically, this study used a short version of the seven-item measurement scale adopted by Carless et al. (2000) to measure transformational leadership. We used the six-item knowledge sharing scale adopted by Bock et al. (2005). Moreover, we also used the four-item scale adopted by Anderson and West (1998) to measure the innovation of employees. The measurement of transformational leadership and knowledge sharing used five-point Likert scales with responses ranging from 1 (strongly disagree) to 5 (strongly agree). However, organisational learning was measured on the scale developed by García-Morales et al. (2008) by using a response scale ranging from 1 (never) to 5 (always). Social media use was measured on the nine-item scale adopted by Gil de Zúñiga et al. (2012); Lee et al. (2010) and Lee and Ma (2012). The responses were collected using a five-point Likert scale ranging from 1 (not at all) to 5 (to a great extent). Age, gender, experience and qualifications were treated as control variables.

4. Data analysis

4.1. Preliminary analysis

Table 2 lists the mean, standard deviation and correlation associated with the variables. As can be seen, transformational leadership is positively associated with employee innovation ($r = 0.24$, $p < .01$).

4.2. Model comparison

A confirmatory factor analysis (CFA) was conducted to assess the discriminatory validity of research variables, such as transformational leadership, organisational learning, knowledge sharing, employee innovation and social media use. Compared with the five-factor model, the chi-square of other models increased significantly. However, the five-factor model showed better fit indices (Hu and Bentler 1999). The dataset proved the fitness of the five-factor model ($\chi^2 = 907.82$, $df = 392$, $TLI = 0.948$, $CFI = 0.953$, $RMSEA = 0.058$). Therefore, the five variables are different from one another and represent distinct constructs (see Table 3).

4.3. Hypothesis testing

Hierarchical regression was used to test the direct relationships among the variables. The results are shown in Tables 4–6. Specifically, transformational leadership had a positive and significant relationship (see Table 4) with organisational learning ($\beta = 0.18$, $p < .01$) and knowledge sharing ($\beta = 0.25$, $p < .01$). Organisational learning was positively associated with employee innovation ($\beta = 0.42$, $p < .001$) and knowledge sharing was also positively linked to employee innovation ($\beta = 0.53$, $p < .001$). Thus, H1, H2, H3 and H4 were supported. Additionally, the control variables (age, gender, job tenure and education level) were not significantly related to employee innovation.

Table 1
Demographics.

Variables	N	Percentage	Variables	N	Percentage
Gender			Qualification		
Male	362	96.5	Under-graduate	133	35.46
Female	13	3.5	Graduate	146	38.93
Age			Masters	89	23.73
Up to 20	76	20.30	MS/PhD	7	1.86
Between 21 and 30	176	46.90	Experience		
Between 31 and 40	91	24.20	Upto- 1 year	26	06.90
Between 41 and 50	25	06.70	1–3 years	55	14.70
Above 50	07	01.90	4–5 years	140	37.30
			6–7 years	89	23.70
			Above 7 years	65	17.30

Table 2
Descriptive statistics, correlations, and cronbach α values.

Variable	Mean	SD	1	2	3	4	5
1. Organisational Learning	3.46	0.72	(0.89)				
2. Knowledge Sharing	4.07	0.67	0.24**	(0.93)			
3. Transformational Leadership	3.74	0.83	0.21**	0.31**	(0.94)		
4. Employee Innovation	3.71	0.65	0.50***	0.56***	0.24**	(0.87)	
5. Social Media Use	3.80	0.89	0.11*	0.30**	0.12*	0.26**	(0.95)

Note. Cronbach α values appear in parentheses on the diagonal.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

4.4. Mediating effect tests

To test the mediation effect, we applied the bootstrap method adopted by MacKinnon et al. (2004) to generate asymmetric confidence intervals (CIs) to estimate indirect relationships. As shown in Table 4, organisational learning mediated the relationship between transformational leadership and employee innovation because CI (0.1110, 0.2656) did not include zero. Therefore, H5 was supported. Similarly, knowledge sharing mediated the relationship between transformational leadership and employee innovation due to CI (0.0419, 0.1228), not including a zero. Thus, H6 was supported.

4.5. Moderating analysis

Interaction terms often create multicollinearity problems because of their correlations with the main effects. We thus computed the interaction term by centering the variables before multiplying. As shown in Table 5, the interaction between social media use and organisational learning was insignificant. Therefore, H7 was not supported. However, as shown in Table 6, the interaction between knowledge sharing and employee innovation was significant. Therefore, H8 was supported. The present study applied the procedure for plotting the interactive influence adopted by Aiken and West (1991) to examine the effects of interaction.

As shown in Fig. 2, the interaction pattern was according to the one described in H8. Particularly, knowledge sharing has a strong relationship with employee innovation when social media use status is high ($r = 0.20$, $p \leq .001$), whereas the relationship was weak between knowledge sharing and employee innovation when social media use was low ($r = 0.07$, $p > .05$). Social media use had an insignificant effect on the relationship between organisational learning and employee innovation, and therefore, H7 was not supported.

4.6. Moderated mediation analysis

Table 6 represents the bootstrap CIs for indirect influence with knowledge sharing. When social media use values were one SD above mean (0.019 to 0.146), mean (0.035 to 0.119) and one SD below the mean (0.032 to 0.109), a significant mediating indirect effect of transformational leadership on employee innovation via knowledge

sharing was found, because this did not contain zero (MacKinnon et al., 2004). Under the conditions of mean, one SD above the mean and one SD below, the results suggested that mean of social media use can find a significant moderated mediation effect; hence, H10 was supported. However, an insignificant effect of moderation was found in the relationship between organisational learning and employee innovation. Thus, H9 was not supported.

5. Discussion and implications

This study advances the field by exploring the impact of transformational leadership on followers' level of innovation under a moderated mediation model. The main contribution of this study is the use of knowledge sharing and organisational learning as important mediators and social media use as an important moderator influencing the impact of transformational leadership on the innovation of followers, especially local government employees. Previous studies confirm the independent contribution of transformational leadership, social media and knowledge sharing in various organisational and employee outcomes (Dawes et al., 2012; Gumusluoglu and Ilsev, 2009). However, the influence of transformational leadership on employee innovation via the combination of mediating and moderating variables (i.e. knowledge sharing, organisational learning and social media use) has not been examined, especially in the context of local government.

The present study confirms that transformational leadership helps improve the base of organisational learning in public organisations. This finding is consistent with the arguments of Bass et al. (2003) and Tuan and Thao (2018) that transformational leadership significantly influences organisational learning. Bass et al., (2003) emphasise the role of leaders in organisational learning and demonstrate that learning process norms at different levels of analysis provide an opportunity to reveal the details of the role of leaders in promoting organisational learning. Slater and Narver (1995) and Ege (2018) also found that transformational leaders have a significant impact on the integration process to build a learning organisation. Moreover, our results prove that transformational leadership has a positive relationship with knowledge sharing, thus supporting previous public management literature (Loukis et al., 2017) and illustrating the positive effects of innovation. Transformational leaders convey a common vision and create a productive organisational social context that engages followers in

Table 3
Results of confirmatory factor analyses.

Models	χ^2	df	TLI	CFI	RMSEA
Five Factors Model	907.82	392	0.948	0.953	0.058
Four Factors Model-1 TL and OL combined	2972.44	402	0.749	0.768	0.131
Three Factors Model TL, OL and KS combined	3728.46	403	0.675	0.700	0.149
Two Factors Model TL, OL, KS and EI combined	6244.42	404	0.429	0.473	0.197
Single Factor Model	6846.33	405	0.371	0.418	0.207

Note: TL Transformational Leadership; OL Organisational Learning; KS Knowledge Sharing; SMU Social Media Use; EI Employee Innovation; TLI Tucker-Lewis index; CFI Comparative fit index; RMSEA Root-mean-square error of approximation.

Table 4
Results of mediation through bootstrapping method.

IV	MV	DV	Effect of IV on M (a)	Effect of M on DV (b)	Indirect effect (a*b)	Total effects (c')	Total effects (c)	95% CI	Result
TL	OL	EI	0.18**	0.43***	0.07**	0.11*	0.19**	(0.0419, 0.1228)	Supported
TL	KS	EI	0.25**	0.52***	0.13**	0.06	0.19**	(0.1110, 0.2656)	Supported

Note: IV = TL, DV = EI, MV = OL, KS.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5
Results for hierarchical regression analysis (DV = Employee Innovation).

Variable	Model 1	Model 2	Model 3	Model 4
Gender	0.03	0.06	0.06	0.05
Age	0.08	0.06	0.06	0.06
Education	-0.03	-0.06	-0.06	-0.05
Tenure	-0.05	0.01	0.02	0.01
Main Effects				
Organisational learning (OL)		0.42***	0.40***	0.38***
Knowledge sharing (KS)		0.53***	0.47***	0.46***
Moderator				
Social Media Use (SMU)			0.04	0.05
Interactions				
OLxSMU				-0.03
KSxSMU				0.12**
R ²	0.01	0.46***	0.47	0.49*
Δ R ²	-	0.45	0.01	0.02
F	1.19	157.68***	0.10	4.24*

N = 375.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 6
Bootstrap results for conditional indirect effects.

SMU	Boot indirect effects	Boot SE	Boot Lower limit 95% CI	Boot Upper limit 95% CI
-1 SD	0.0686	0.0198	0.032	0.109
Mean	0.0748	0.0216	0.035	0.119
+1 SD	0.0810	0.0325	0.019	0.146

Note: CI = Confidence Interval; Bootstrap sample size = 5000.

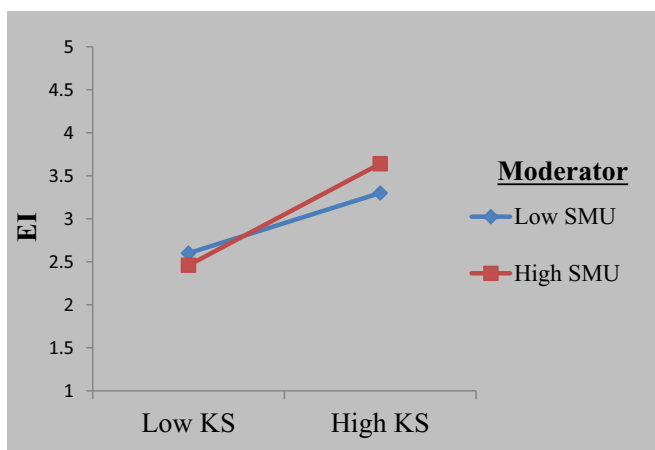


Fig. 2. The moderating effect of Social Media Use between Knowledge Sharing and Employee Innovation.

high-level knowledge sharing (Dong et al., 2017). The results also show that transformational leadership has a significant relationship with employee innovation in local governments. These findings are consistent with the view of Keller (2017), who argued that transformational leaders can foster innovation within the organisation via inspirational motivational and intellectual stimulation, which are critical factors for inducing innovative performance. Transformational leadership is critical in shaping organisational potential and fostering innovation by nurturing an environment that promotes creative decision-making and the successful creation of knowledge (Foss et al., 2010). In addition, the results show that transformational leadership positively and indirectly influences employee innovation via organisational learning and knowledge sharing among local government employees. Therefore, organisational learning and knowledge sharing act as a bridge that links transformational leadership to employee innovation. If transformational leaders in the public sector ignore organisational learning and knowledge sharing, they may not be able to directly increase the innovation of employees.

In addition, the results indicated that social media use significantly moderates the relationship between knowledge sharing and employee innovation. Using social media tools (in the form of blogs, Twitter, Facebook and LinkedIn) and numerous smartphone apps (e.g., Whatsapp, Imo and Skype) is common for people to share and deliver information (Xiongfei et al., 2019b; Zheng and Zheng, 2014). However, this study surprisingly indicated that social media use insignificantly moderated the relationship between organisational learning and employee innovation. On the otherhand, several earlier studies found that the use of social media significantly influenced the impact of leadership on innovation behavior through learning (Jensen and Bro, 2018; Salge and Vera, 2012; Yang and Maxwell, 2011). For example, Moynihan et al. (2011) argue that social media effectively influences the relationship between leadership and innovation by using effective learning opportunities. However, the results of this study presents insignificant impact of social media on the relationship between transformational leadership and employee innovation through organisational learning. In the context of Pakistan, the likely reason for this insignificant finding may be that in such a small public organisation (i.e. municipal committee), organisational learning is not entirely inclined to use digital technology to provide employees with the necessary learning environment, which can trigger the innovation process (Van Den Bosch et al., 1999). Furthermore, the results of moderated mediation show that social media use significantly affects the mediation effect of knowledge sharing in the relationship between transformational leadership and employee innovation.

5.1. Theoretical Implications

The important contribution of this study is that local governments must encourage employee innovation that is dependent on the transformational characteristic of public managers, promote a culture of knowledge sharing and increase the use of social media at work. Several studies on the important role of leadership in the context of the re-shaping, innovation and public management reform movement of the government (Andrews et al., 2006; Denhardt and Denhardt, 2001;

Sarros et al., 2008) provide empirical evidence on the effective role of leaders in the innovation process. In general, the findings tend to support diffusion of innovation theory (Rogers and Shoemaker, 1971) and also broaden our understanding about frameworks and processes that support the diffusion of innovation in local government organisations. In this regard, this study has made a preliminary theoretical and empirical contribution to the unexplored moderated mediation effect of transformational leadership on employee innovation, indicating that transformational leadership indirectly and positively influences employee innovation.

Moreover, this study contributes to the literature by presenting a significant intermediary effect of knowledge sharing in the association between transformational leadership and employee innovation. Specifically, the findings show that local government employees internalise their knowledge-sharing abilities and motivation (Chen et al., 2018; Demircioglu and Chen, 2019; Fedorowicz et al., 2019) when they follow the cues of transformational leaders. Therefore, internalisation occurs when employees realise that their needs for competence, relevance and autonomy are met, the realisation of which fosters knowledge sharing among themselves. Ultimately, this understanding leads to the finding of new ways to complete everyday tasks.

In addition, this study finds that the catalytic use of social media between transformational leaders and employees in public sector organisations enhances employees' motivation capabilities. The results also indicate that social media use enhances knowledge sharing among employees when they receive motivation from transformational leaders. Diffusion of innovation theory is a critical tool in examining the diffusion of social media technology in the past two decades. Therefore, this study also attempts to incorporate diffusion of innovation theory into a possible study of the diffusion of social media use in local government organisations in Pakistan. This study introduces new constructs, such as transformational leadership, knowledge sharing and organisational learning, to existing theories, thus helping us understand the diffusion of social media technology in the public sector.

5.2. Practical Implications

This study finds that the transformational characteristics of local government leaders have a significant impact on employee innovation. A possible explanation for this impact is that, although local government managers have specific cultural, national and regional characteristics, they have a close relationship with followers. If managers find that employees have difficulty in accomplishing their work, they can provide timely support and responses. Therefore, leaders should recognise the need for change and innovation by motivating employees within the organisation to develop vision and implement change (Bass, 1985).

The results are different from those in the private sector, especially in the context of observing the impact of organisational learning on employee innovation performance. In particular, small public organisations need policies and corrective actions to make organisational culture highly conducive to learning perspectives. The private sector represents a significant impact of organisational learning on innovation (Runco et al., 2017). Given the focus on transformational leadership and employee innovation, the present study demonstrates how municipal managers understand leadership and innovation. Several scholars argue that research on transformational leadership has become important in the perspective of employees and organisation (see Jensen and Bro, 2018; Paarlberg and Lavigna, 2010; Van Knippenberg and Sitkin, 2013).

With this in mind, this study suggests expanding the perspective of public sector leadership research beyond traditional bureaucracy and looking for other important qualities, such as risk, motivation and e-governance skills, instead of just relying on traditional leadership. Moreover, the results show that the government should continue investing in the transformational leadership development of local

government managers to foster the innovation-driven culture for employees. The findings also support that a management capacity building strategy that creates an innovative atmosphere requires a high level of learning and knowledge sharing opportunities, and provides resources to strengthen employee commitment to innovation. A strong constitutional cover should be provided to strengthen the mainstream leadership style in local governments, and local governments should have the right to increase the female workforce.

Moreover, this study provides a useful framework through which practitioners can analyse the transformational leadership of local government managers and the social media usage of employees, which should be a part of any government innovation reform agenda. Therefore, local governments should foster a learning environment wherein employees continue to share knowledge and information about government initiatives and best practices via ongoing project/programme updates with employees and decision-making authorities in municipal committees. This move can strengthen the awareness of leaders and employees and help identify novel solutions regarding employee's work. In particular, local government leaders should make the organisation a great source of learning for employees and be able to analyse and share past successes and failures. Moreover, local governments should encourage employees to use social media to create virtual networks and interact with employees of other tiers of local governments, thus promoting the sharing of best practices to find novel ways to provide municipal services.

5.3. Study limitation and future research directions

Innovation is increasingly used to cover changes, reforms and other responses to perceived problems, thus highlighting the importance of more research in the field of public sector innovation. This study did not provide an empirical report on defined innovation or innovation activities, nor did it assess the specific outcome of the municipal committees. This study is based primarily on self-reported data. Therefore, it is a normative opinion on employees' innovation in the transformational leadership choice provided to employees of municipal committees based on their direct observations and experiences. This study was conducted at the municipal committee level, an urban tier of local governments in Pakistan. As such, this study does not make any claims about the generalisability of results to public leaders in other tiers of local government or in other public sector organisations. Future research can investigate the other tiers (i.e. metropolitan or municipal corporations) in a similar or different research setting to validate our results.

This study also collects data from different sources and time periods, so the common method bias is not a serious issue. However, we used self-reported data in most variables, which may lead to response distortion due to ego tendencies and social desirability. Readers should also be cautious when generalising the results into different administrative and cultural contexts. However, future research may focus on the impacts of leadership on other employee outcomes variables, such as employee wellbeing, turnover, performance and creativity. Similarly, future research may look into how transformational leadership influences outcome variables, including employee satisfaction, commitment and performance, particularly in the local government setting.

5.4. Conclusion

The urban literature often overlooks the impact of transformational leadership on employee outcomes, with particular emphasis on small-scale government organisations in Pakistan. Therefore, this study is different because it attempts to fill the academic gap by examining the impact of transformational leadership on employee innovation via knowledge sharing and organisational learning. This study also used diffusion of innovation theory to assess the catalytic effects of social media use on the indirect relationship between transformational

leadership and employee innovation. Our findings suggest that public managers possessing transformational characteristics are seen as agents of change and innovation. Moreover, this study indicates the need to go beyond the current emphasis on traditional managerial practices and consider other mainstream leadership styles, including transformational leadership, which may be important for inducing innovation among public sector employees. Additional research in this area can expand the adoption of mainstream leadership styles and the potential attributes that public managers must have as professionals. This study provided a good option for public organisations to choose leadership with a transformational role, which requires promoting innovation among local government employees by recognising the values of knowledge sharing and social media use.

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Naseer Abbas Khan has his Ph.D. in Public Administration from the School of Public Affairs at the University of Science and Technology of China. His research appeared in the Journal of Business Information Systems, Asian Business & Management, Information Systems Frontiers and Journal of Educational Computing Research. His current focus of research is on Leadership, Public Policy, Tourism Research, Organisational Behaviour, and creativity. Email: naseer@mail.ustc.edu.cn

Ali Nawaz Khan has his Ph.D. in Information Systems from the School Management at the University of Science and Technology of China and currently working as Postdoctoral Fellow at School of Economics and Management Tongji University. His research appeared in the Journal of Organisational and End User Computing, Asian Business & Management, Computers in Human Behaviours, Journal of Educational Computing Research, Information System Frontiers and International Journal of Business Information Systems. His current focus of research is on social media, M-commerce, Technology adoption, Online Behaviour, Leadership, Information systems, and Organisational Studies. Email: alisial@tongji.edu.cn