

Does transformational leadership matter for innovation in banks? The mediating role of knowledge sharing

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Abstract

Purpose – This paper aims to examine the mediating role of knowledge sharing (KS) on the relationship between the transformational leadership (TL) and innovation in banks.

Design/methodology/approach – Quantitative analysis was conducted by using the structural equations modeling with AMOS 24 to examine the influence of the mediating role of KS on the TL–innovation relationship. Data were collected from 310 employees at 27 banks in Lebanon.

Findings – The research highlights that leaders exhibiting transformational behavior were able to promote knowledge-sharing culture that enhances the generation of new ideas, products and processes. The findings confirmed that KS mediates the association of TL and innovation.

Practical implications – The findings point to how TL mobilizes employees to engage in innovative products and processes by encouraging a knowledge-sharing culture.

Originality/value – The research findings advance the understanding of how TL stimulates innovation and highlights the benefits gained by cultivating KS to generate more innovative outcomes.

Keywords Transformational leadership, Lebanon, Innovation, Banks, Knowledge sharing

Paper type Research paper

Introduction

Today, the banking sector is facing challenges resulting from the rapidly changing business environment, threatening their survival and long-term success (Easa, 2019). Academics and practitioners alike realize the need to be innovative to face these challenges (Cheung and Wong, 2011). Innovation becomes one of the major characteristics required for organizational success in the 21st century workplaces (Nakano and Wechsler, 2018). Researchers have been trying to identify the factors that stimulate and sustain innovation in organizations (Han *et al.*, 2016). The most significant factor that affects innovation is transformational leadership (TL) (Mittal and Dhar, 2015).

This style plays an essential role in developing the process, structure and climate for firms to become innovative (Chan *et al.*, 2014). TL develops a team attitude and spirit among members, which enhances the generation of new ideas (Zheng *et al.*, 2016). Herrmann and



Felfe (2013) pointed out that TL practices stimulate employees to perceive the new task as a challenge that may foster employees' creativity. TL acts as a fuel for innovation by promoting idealized influence (ID), inspirational motivation (IM), intellectual stimulation (IS) and individualized consideration (IC) among an organization's members (Bass and Riggio, 2012).

Additionally, previous studies have suggested that although TL may impact innovation directly, this direct effect may be enhanced by the mediating role of several constructs. Specifically, knowledge sharing (KS) has been widely recommended to sustain innovation (Easa, 2012). KS involves converting knowledge into a configuration that can be integrated and applied by others (Hooff and Weenen, 2004). When knowledge is transferred, it helps firms to generate a new knowledge base, which in turn enhances innovative activities (Tsai *et al.*, 2001). Hence, the major concern for both academics and businesses is to transform available knowledge into innovations and advertise them successfully (Easa, 2012).

In developing countries such as Lebanon, the banking sector also faces several challenges that require innovation. The Lebanese economy is a typical model of service-oriented economy (Association of Banks in Lebanon, 2018). The banking sector is one of the core drivers of stability of the Lebanese economy (Sujud and Hashem, 2017). Prior to the Civil War (1975–1990), the Lebanese banking sector was the most developed banking sector in the Middle East, but it was heavily affected by the war. By the end of 1990, banks were lagging far behind in terms of infrastructure and services, and their assets and liabilities became heavily dollarized after the severe devaluation of the Lebanese currency in the late 1980s. Since the early 1990s, the banking sector has implemented restructuring along with increasing capital, debt issuing service diversification and acquisitions and mergers (Awdeh, 2012). As a result, the sector has grown significantly and become capable of regaining its leading position in the region.

The Lebanese banking sector is characterized by a large number of banks of different sizes, nature and ownership structure. A total of 64 banks were operating during 2018 in the Lebanese market, which are classified into, commercial (47), private (2), investment (11) and Islamic banks (4) (Association of Banks in Lebanon, 2018). In Lebanon, banks fall under the jurisdiction of the central bank, which is the bank regulatory authority. It coordinates its activities with the Banking Control Commission, which ensures compliance with the banking regulations and rules (Association of Banks in Lebanon, 2018).

Until recently, the banking industry experienced continual transformation resulting from universal competition. As such, banks started to launch new series of programs and services to be competitive in this market. For instance, banks are providing variety of services ranging from a loyalty point card system to more advanced programs. They started to use different digital banking services that provide fast solutions, such as mobile banking and services that provide expert and qualified advice such as robo-advisors.

Globally, Lebanon ranked in the 90th place out of 126 countries (Global Innovation Index, 2018). This implies that banks presently need to leverage innovation as a driving tool for success and survival in extremely competitive environments (Maarouf, 2016). To achieve the desired outcomes, TL has been evaluated as the strategic tool to enable innovation (Ipe, 2003).

Previous research has recognized the association between TL and innovation with KS as a mediator (Wang *et al.*, 2017). However, in a banking context, it was noted that the research that linked TL and innovation adopted a different approach that differs from the current study approach. For instance, Liao *et al.* (2017) considered the influence of the mediating role of the four dimensions of organizational learning on the relationship between TL and innovation. Additionally, the majority of those empirical studies that investigate the

mediating role of KS and the link between TL and innovation had focused on developed countries (Liao *et al.*, 2017; Ratih *et al.*, 2016). However, there is a recognized lack of research regarding examining these phenomena in developing countries. Therefore, it is a highly recommended additional research to explore these arenas into developing countries. Lebanon, as a developing country, is ideally placed. Consequently, to fill this gap, this study aims to examine the impact of the mediating role of KS in TL–innovation relationship in the banking sector in Lebanon. Thus, this study seeks first to examine the direct impact of the TL on innovation; second, to investigate the direct effects of the TL on KS; third, to explore the direct effect of KS on innovation; and fourth, to test the effect of the mediating role of KS on TL and the innovation relationship.

In the following, a review of the theoretical background of TL, KS and innovation is presented. Then the development of hypotheses will be introduced. Finally, the research methodology and the empirical findings are described and then the research's implications, limitations and future directions are presented.

Theoretical background

Transformational leadership

TL has been recognized as one of the most important factor influencing innovation (García-Morales *et al.*, 2012). Samad (2012) stated that TL is considered important to organizations, as they integrate creative insight that prompts changes in management practices and processes. Zheng *et al.* (2016) argued that transformational leader by sharing goals among team members encourages them to develop innovative ways to succeed. Through the TL, leaders can contribute to the employees' creativity by encouraging more diverse approaches and perspectives (Guo *et al.*, 2016).

Bass and Riggio (2012) described TL as a process in which individuals are changed and transformed. Leaders raise individuals and groups above self-interests through mainly four different behaviors: ID, IM, IS and IC. ID emphasizes that transformational leaders behave as role models for their subordinates (Yukl, 2013). They are deeply admired, respected and trusted (Guay, 2013). They are perceived by their subordinates as having outstanding competence, determination and high standards of ethical and moral behavior (Bass and Riggio, 2012).

Regarding IS, leaders behave in ways that encourage followers to be innovative (Yukl, 2013). In practice, transformational leaders ask followers to consistently question their own assumptions. Leaders mutually work with their subordinates to look at a problem in different way, suggest new methods to complete task and seek different viewpoints in solving problems (Bass and Riggio, 2012). With regard to IM, leaders motivate the followers by providing challenges and meaning to their work (Bass and Riggio, 2012). It is argued that leaders with IM encourage individual and team spirit and collaboration among members (Northouse, 2018). Bass and Riggio (2012) noted that this style can enhance followers' self-confidence to achieve goals, challenge followers with high standards, talk optimistically and provide meaning for the task.

When practicing IC, leaders comprehend and share others' concerns and consider each individual uniquely. They show support and recognize different needs, skills and abilities of their subordinates (Bass and Riggio, 2012). This concept reflects the consideration of followers' abilities and their level of maturity to determine their needs for future development (Bi *et al.*, 2012). These four behavioral patterns are perceived as reliable, dependable and trustworthy in resolving organizational challenges (Galuska, 2014). As such, for an organization to flourish in a fast-changing environment, leaders should make full practice of TL. Therefore, the current research will focus on TL because of the

components of ID, inspiration, IS and IC have been suggested as the optimum style for managing change.

Knowledge sharing

KS is considered important to organizations as it develops the innovative capacity (Cao and Xiang, 2012). Singh (2008) argued that KS is an essential instrument, as it contributes to individual learning that is essential for new practices. Organizations' skills and competence can be enhanced through KS (Renzi, 2008). Valipour *et al.* (2017) found that the exchange of employees' skills is essential to seek creative solutions, which are critical for developing current products and processes.

Various scholars have reported various kinds of KS processes such as knowledge seeking and knowledge contribution (Wei *et al.*, 2013); knowledge transmission and knowledge absorption (Ipe, 2003); and knowledge possession and knowledge acquisition (Singh *et al.*, 2016). Because of the variety of diverse kinds of KS, this research will adopt Hooff and Weenen's (2004) definition, who classified KS processes as involving two main dimensions: knowledge donation and knowledge collection. This definition is supported and is the most widely adopted by several scholars (Ritala *et al.*, 2015; Lin, 2007).

Knowledge donation concerns with the individual's readiness to communicate enthusiastically with others (Darroch and McNaughton, 2002). It is defined as an interactive process by which personal intellectual capital is communicated to colleagues (Jantunen, 2005). Donating knowledge aims to make the knowledge available for the entire organization (Von Krogh *et al.*, 2012). Knowledge donation is the process of providing knowledge by building communication between individuals (Hooff and Weenen, 2004).

Knowledge collection involves consulting people to gain the know-how from them (Darroch and McNaughton, 2002). It refers to the process of acquiring knowledge from other individuals by consultation and persuasion (Lin, 2007). These two processes of KS build a good reputation in business, which improves potential business partner relationships, thereby, enhancing innovation development (Ritala *et al.*, 2015). It is argued that donating and collecting knowledge creates novel thoughts that mobilize the innovation process (Von Krogh *et al.*, 2012).

Innovation

Innovation has been recognized as the deep-seated condition of the 21st century to realize the sustainability of an organization (Nakano and Wechsler, 2018). Consequently, organizations with innovative capacity are able to recognize advanced technologies and knowledge assets to achieve a competitive advantage (Teece, 2014). Plessis (2007) clarified innovation as the creation of novel concepts that adds value to the organization. Similarly, Andreeva and Kianto (2011) claimed that innovation is the uncovering of novel thoughts, processes and products.

Previous studies have highlighted different forms of innovation. For instance, Tidd and Bessant (2011) distinguished between incremental and radical innovations. Damanpour and Aravind (2012) focused on product and process innovations. Schilling (2010) embraced technical and administrative innovation. Despite the various forms of innovations, however, each type of innovation is commonly related to a process or product (Easa, 2012). Accordingly, this research will focus on products and processes innovations that are commonly recommended and studied empirically in the innovation literature (Liao and Wu, 2010).

Product innovation is viewed as a vital predecessor to product success (Valencia *et al.*, 2010). Product innovation relates to the modifications performed in the end consumer's

product and service (Shavinina, 2003). Meanwhile, Cooper and Edgett (2009) argued that product innovation is the newness of products launched in a timely manner to the market. This research focused on product innovation as the improvement and implementation of novel products. It refers to the degree to which employees seek advanced solutions, develop new services and adopt the latest technologies to meet clients' needs (Easa, 2012; Liao *et al.*, 2017).

Regarding process innovation, Gunday *et al.* (2011) considered it to be the application of new, considerably changed production and distribution methods by making technical, equipment or software changes. Wong and He (2003) viewed process innovation as the usage of advanced equipment for novel production processes. Hence, process innovation in this research is defined as the adoption of novel methods, achieved by using the latest technology and introducing changes in management structures, practices and techniques (Easa, 2012; Obeidat *et al.*, 2016). In the banking sector, examples of product innovations consist of issuing new credit and debit cards or financing or mortgage options, whereas process innovations focus on the faster delivery process for issuing credit and debit cards (Easa, 2012).

Hypotheses development

Transformational leadership and innovation

Several studies have reported that TL is a critical enabler for product and process innovations. In particular, the relationships between the four components of TL, namely, ID, IM, IS and IC in relation to innovation have been investigated.

Regarding ID, leaders determine high standards for moral and spiritual behavior. Suifan and Al-Janini (2017) found that emphasizing the prominence of having a collective sense of the organization's mission may encourage subordinates to generate new ideas and challenge existing procedures. Besides, providing employees with a purpose that transcends their self-interest may increase their desire to generate innovative ideas (Jia *et al.*, 2018). Furthermore, sharing goals, values and beliefs among team members encourages them to work together effectively to come up with novel ideas (Zheng *et al.*, 2016).

By practicing IM, leaders inspire their followers through motivation so as a shared vision insight is facilitated (Frazier and Bowler, 2015). Nusair *et al.* (2012) indicated that articulating a shared vision plays an important role in enhancing initiation and implementation of new ideas. Meanwhile, Overstreet *et al.*'s (2013) findings suggested that giving encouragement and recognition to staff inspires them to be highly competent and innovative. Similarly, Zheng *et al.* (2016) claimed that developing a team attitude and spirit among team members enhances the generation of new ideas. Hazen *et al.* (2012) pointed out that leaders who display inspirational behaviors may enable organization to attain desirable outcomes by creating new products, processes or systems.

By providing IS, transformational leaders stimulate followers to find out new solutions and rethink about solving organizational problems in an innovative way (Yukl, 2013). In this aspect, the leaders arouse their followers through precise questions and reexplaining the problems with new ones. Transformational leaders with IS motivate their followers to rethink traditional practices in a creative way (Weib and Sub, 2016). Through the behavior of IS, leaders can promote employees' creativity by questioning their assumptions and the status quo (Slatten *et al.*, 2011). Nusair *et al.* (2012) asserted that encouraging employees to challenge the current environment may motivate them to be more innovative. According to Suifan and Al-Janini (2017), leaders who prevent their employees from thinking outside the box can hinder their employees' capability to create innovations.

Using IC, transformational leaders build individual relationships with their subordinates and esteem their needs, skills and capabilities in such a way that facilitates innovation (Bass and Riggio, 2012). According to Nusair *et al.* (2012), developing a reciprocal and cooperative individualized relationship with employees and trying to fulfill their needs will improve their creativity. Similarly, Overstreet *et al.* (2013) asserted that treating staff as individuals, supporting and encouraging their skills may improve the innovation process. Moreover, Paulsen *et al.* (2013) revealed that helping employees to develop their strengths will affect creativity and innovation particularly, introducing new ideas into the work setting systematically. According to Michaelis *et al.* (2010), leaders, who boost employees' self-esteem, lead product innovation improvement within an organization. Based on the abovementioned arguments, this research aims to investigate the following hypothesis in the banking sector in Lebanon:

H1. Transformational leadership positively influences innovation.

Transformational leadership and knowledge sharing

Previous studies have asserted the relationships between the four dimensions of TL with KS, demonstrating their influence on KS. Regarding ID, leaders emphasize on values in their decisions that will enable their subordinates to feel more comfortable in sharing their knowledge (Tse and Mitchell, 2010). Leaders who reinforce a sense of loyalty among the organization's members may stimulate sharing of knowledge (Yaghoubi *et al.*, 2016). Likewise, building trust and aiding access to implicit knowledge with employees are more likely to improve KS (Ugurlu and Kizildag, 2013). Besides, increasing organizational commitment and ensuring mutual trust among the employees enhance the KS process (Baytok *et al.*, 2014). In addition, establishing emotional bonds with their leader may improve KS activities (Rawung *et al.*, 2015).

By providing IM, leaders reinforce subordinates to discover new means to perform tasks and solve problems, which implies creating and sharing knowledge (Antonakis *et al.*, 2003). Articulating a shared vision that focuses on continuous learning plays an essential role in enhancing the creativity of employees (Baytok *et al.*, 2014). According to Rawung *et al.* (2015), insufficient communication in delivering the vision of the organization may hinder the KS process. Xue *et al.* (2011) stated that leaders who serve as motivational sources play an important role to encourage KS, as members will be excited to deliver their insights.

Regarding the IS, leaders who encourage their subordinates to think in new ways about problems are more likely to promote KS activities (Carmeli *et al.*, 2011). It is argued that transformational leaders build an atmosphere favorable to knowledge creation and sharing through discussions and exchange of ideas. Encouraging organization members to question and experiment may amplify KS activities (Ugurlu and Kizildag, 2013). Supporting creative ideas, innovative initiatives and promoting open communication channels may contribute to KS practices (Baytok *et al.*, 2014). In contrast, Rawung *et al.* (2015) pointed out that leaders who prevent discussions and reviews are more likely to hinder KS activities.

By practicing IC behavior, leaders may understand their subordinates' needs and concerns and spend time teaching, assessing and assisting them in developing their strengths (Yaseen, 2010). Leaders who give their employees autonomy to satisfy their developmental wants and to act accordingly may stimulate learning experiences and the KS process (Cheung and Wong, 2011). According to Rawung *et al.* (2015), creating a supportive working atmosphere and acting as a counselor to their employees are essential to stimulate them to share their knowledge. Furthermore, building a respectful relationship with each individual and being attentive to each individual's growth and needs may amplify KS

(Masa' deh *et al.*, 2016). These studies on leadership reinforce the idea that leadership plays an essential role in enhancing KS. Thus, this research aims to examine the following hypothesis in the banking sector in Lebanon:

H2. Transformational leadership positively influences knowledge sharing.

Knowledge sharing and innovation

Several studies have noted the vital role played by KS in boosting innovation. [Andreeva and Kianto \(2011\)](#) demonstrated that sharing knowledge with strategic partners and systematically informing their employees about changes in procedures, instructions and regulations achieved higher innovation capabilities. Encouraging collaboration and the combination of ideas within organizations is likely to accelerate the innovation process and produce novel thoughts ([Singh *et al.*, 2016](#)). According to [Han and Chen \(2018\)](#), organizations with KS structures, such as documents, guidebooks, approaches and experiences or know-how from other enterprises, enabled them to make changes in management innovation. Besides, the practice of coaching, training and functional rotation enhances the generation of new ideas and innovative project management ([Saenz *et al.*, 2012](#)).

According to [Lopez and Esteves \(2013\)](#), increasing brainstorming sessions can contribute to developing new ideas and benefitting from other's experiences, which will accelerate product and process innovation. Furthermore, knowledge exchange improves organizational learning, which is vital for innovation ([Kim and Lee, 2006](#)). In addition, the aggregation of new knowledge in an organization may promote creative solutions ([Dougherty *et al.*, 2002](#)). Through KS, employees can relate diverse forms of knowledge and thus are able to transform novel thoughts into innovations ([Mura *et al.*, 2013](#)). Likewise, knowledge management processes of using and sharing knowledge have a substantial influence on innovation ([Ferraresi *et al.*, 2012](#)). Further, the mutual interaction and trust prompt the sharing of relevant knowledge and constantly develop inventive capability ([Charterina *et al.*, 2018](#)). Additionally, the stimulation of sharing the knowledge needed for tasks among colleagues and the improvement of information systems are essential for innovation ([Obeidat *et al.*, 2016](#)). Likewise, the social capital accelerates KS, especially in new product development projects ([Bakker *et al.*, 2006](#)).

Similarly, [James *et al.* \(2013\)](#) demonstrated that when firms increased the frequency of knowledge interactions, they enhanced the generation and creation of new ideas and opportunities. Likewise, the collection of knowledge that involved actively consulting others to learn from them enhanced innovation, whereas knowledge donation, involving donating inside and outside the group, did not support exploratory innovation ([Kamasak and Bulutlar, 2010](#)). Through knowledge activities, employees may exploit existing knowledge in novel ways to enhance their tasks, which consecutively develops new knowledge that may be used for innovation. Social interaction supports organizational members to increase KS and its applications, which in turn enhances innovation ([Huang and Li, 2009](#)). The literature has underlined the influence of KS on innovation. Thus, the following hypothesis is presented:

H3. Knowledge sharing is positively related to innovation.

Mediator role of knowledge sharing

TL received increased attention from scholars and practitioners in terms of its relationship with innovation and KS ([Tellis *et al.*, 2009](#)). The relationship between the three concepts has

been examined. Leaders who encouraged employees to integrate new knowledge and supported them to use this knowledge into internal processes enabled them to implement changes that significantly influenced innovation (Birasnav *et al.*, 2013). According to Ratih *et al.* (2016), establishing a knowledge-supportive culture can increase the willingness of colleagues to donate and collect knowledge, which in turn influences the speed and quality of a company’s innovation capability. Besides, imparting skills, expertise and knowledge to the organizational members enables them to use it to obtain, apply, convert and adopt a novel practice (Garcia-Morales *et al.*, 2012).

The collaborative and empowering approaches of leaders help to integrate the tacit knowledge in all the members, resulting in the addition of newness into products and processes (Foumany *et al.*, 2015). Providing knowledge management arrangements for the extraction and exploitation of knowledge to reach organizational goals are essential for an innovative climate (Ramezani *et al.*, 2017). Ribiere and Sitar (2003) claimed that supporting the implementation of knowledge activities in organization and supporting KS processes played an important role in enhancing innovation. In addition, improving the relationship quality and interactive capability of employees will encourage them to acquire knowledge, which in turn will improve new product and process developments (Yli *et al.*, 2001). Similarly, inspiring the creativity of staffs through communicating the vision will boost KS among them (Haase *et al.*, 2015). Leaders, through its support, may encourage the alliance and creation of cohesive work teams that stimulate KS for further organizational innovation (Bettis-Outland, 2012). These studies have underlined the influence of the mediating role of KS in the TL– innovation relationship. Given these arguments, this research aims to test the below hypothesis:

H4. Knowledge sharing positively mediates the impact of transformational leadership on innovation.

Conceptual model

The abovementioned hypotheses are presented in the following research model (Figure 1). The proposed research model shows four relationships as follows: first, there is direct relation between TL and innovation; second, there is direct relation between TL and KS; and third, there is direct relation between KS and innovation. In addition, the mediating effect of KS on the relationship between TL and innovation. In this research, the TL acts as an independent variable, innovation acts as the dependent variable, whereas KS as mediator variable.

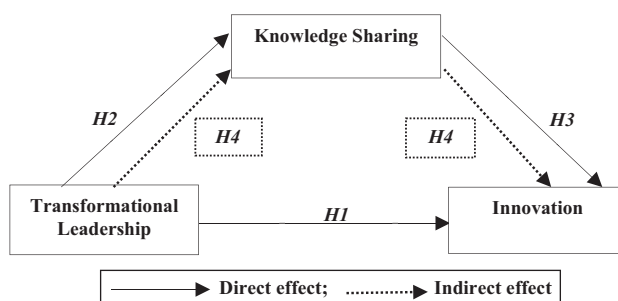


Figure 1.
Research model

Methodology

A quantitative method is used to examine the effect of the mediating role of KS on the relationship between TL and innovation. This research used a self-administered questionnaire, using a five-point Likert scale with 1 as strongly disagree to 5 as strongly agree. A total of 600 surveys were distributed to 35 Lebanese banks through electronic mail, of which 310 were reverted and used for examination.

TL was measured using the multi-factor leadership questionnaire (Form 5X) developed by Bass and Avolio (2004). TL dimensions were measured by 21 items. ID (six-items) is concerned with feeling proud of leader, building mutual respect, going beyond self-interest, displaying a sense of confidence and power, acting according to value and belief and considering the ethical and moral effect in each decision. IM (five-items) is concerned with articulating a convincing vision, enabling enthusiasm in what needs to be accomplished, expressing confidence in goals achievement, developing a team attitude and spirit and talking optimistically about the future. IS (five-items) is concerned with encouraging their subordinates to look at problems differently, suggesting new ways to complete task, seeking different viewpoints in solving problems, rethinking ideas and encouraging recheck ideas. IC (five-items) is concerned with leaders teaching and coaching, treating group's member as an individual, recognizing the different needs, skills and abilities, developing individual's capabilities and helping getting what individual wants.

KS was measured using 16 items, reflecting the interchange of expertise and knowledge regarding relative documents and reports, success and failure stories, expertise obtained by training and discussion of various work-related topics (Hooff and Weenen, 2004). The knowledge donation and collection items were elaborated from Hooff and Weenen (2004) and Mittal and Dhar (2015).

To measure innovation, 12 items were used, reflecting the development of novel ideas through adopting the latest technologies, launching new products into the market, seeking advanced solutions to solve problems, adopting the latest technology to improve processes, introducing distinctive strategies to manage processes, following flexible management strategies, introducing changes in management structures, practices and techniques and adopting new marketing strategies in promotions and services. The items of process and product innovations were developed from Birasnav *et al.* (2013), Easa (2012) and Obeidat *et al.* (2016).

The population for this research includes all employees at nonmanagerial level who worked at Lebanese banks. The sample was selected using a stratified random sampling method. Then, from different subgroups, the respondents were targeted proportionally. The current research established a sample comprised of 27 banks in Lebanon. A total of 310 participants responded with complete data, of which 46% were male and 54% female. The marital status of the respondents was identified in four specific categories: 45% were single, 53% were married, 1% was divorced and 1% was widowed.

The age of the respondents was identified in five specific categories: 41% were below 30 years, 40% were between 30 and 35 years, 14% between 36 and 40 years, 4% were between 41 and 45 years and 1% were older than 46 years. The respondents' work experience was identified in five categories: 36% were the participants with experience of less than 10 years, 47% were the participants with 11–15 years of experience, 13% were the participants with 16–20 years' experience, 3% were the participants with 21–25 years' experience and 1% had more than 26 years of experience.

The educational level of the respondents was represented by 80% with bachelor degrees, followed by 14% with master degrees. The lowest proportion had only high school diplomas

(6%), which indicate that a large majority of the participants (94%) hold at least a graduate degree.

Findings

A structural equation modeling (SEM) with (AMOS) 24 is used to investigate the effect of KS on the TL–innovation relationship. Two major components involved in the SEM are the measurement model to assess the reliability and validity of constructs and a structural model to examine the relations among factors (Hair *et al.*, 2014).

Measurement model

The measurement model specifies the relationships between the response items and their underlying latent variables (Blunch, 2012). To assess the measurement model, the goodness of fit (GOF) and the validity and reliability of the constructs were used. In this regard, a confirmatory factor analysis using AMOS 24 was conducted on all the variables to ascertain the validity and reliability of each construct and GOF. Additionally, to control the response bias, the confidentiality of responses was guaranteed and confirmatory factor analysis was conducted (Donaldson and Grant-Vallone, 2002).

It is important first to check the normality of the data to ensure that the model assumptions are not violated, which may create problems with the estimations (Byrne, 2016). According to Tabachnick and Fidell (2013), to measure normal distribution, skewness and kurtosis are appropriate measures that should be within the range from 2 to –2. Based on Table 1, the absolute values of kurtosis for TL, innovation and KS constructs fell between –1.317 and –0.099 and the values of skewness fell between 1.031 and 1.965. Therefore, the skewness and kurtosis in this research can be accepted as they all fell within the range of ±2.

To achieve the validity of the measurement, two kinds of construct validity tests were performed, namely, convergent validity and discriminant validity (Sekaran and Bougie, 2016). By testing the convergent validity, factor loadings and average variance extracted (AVE) were evaluated. The value was deemed significant at 0.5 or above (Hair *et al.*, 2014). For TL items, 16 item loadings on the 4 extracted factors were indicated and 5 items were excluded (less than 0.50). The excluded items were: beyond self-interest, enthusiastically accomplished, talks optimistically, look at problems and teaching and coaching. The first factor, ID contained five items that ranged from 0.60 to 0.77; the second factor comprised three items related to IM ranging from 0.51 to 0.65; the third factor contained four items related to IS, which ranged from 0.53 to 0.69; and the fourth factor included four items related to IC ranging from 0.53 to 0.69.

Construct	Skewness		Kurtosis	
	Statistic	Std. error	Statistic	Std. error
Idealized influence	–0.458	0.138	1.394	0.276
Inspirational motivation	–0.269	0.138	1.662	0.276
Intellectual stimulation	–0.347	0.138	1.419	0.276
Individualized consideration	–0.542	0.138	1.133	0.276
Product innovation	–1.317	0.138	1.965	0.276
Process innovation	–0.099	0.138	1.475	0.276
Knowledge donation	–0.292	0.138	1.031	0.276
Knowledge collection	–0.485	0.138	1.936	0.276

Table 1.
Normality test for
TL, innovation and
KS dimensions (*n* =
310)

Source: SPSS 24 outputs

Regarding the innovation items, the factor analysis extracted two factors, process and product innovations, to represent the innovation variable. Two latent factors were extracted and 12 items with loadings of more than 0.50 were considered. The first factor, product innovation contained six items ranging from 0.66 to 0.74; and the second factor comprised six items related to process innovation that ranged from 0.57 to 0.77.

For the KS items, the factor analysis extracted two factors, knowledge donation and knowledge collection, that represent the KS variable. Fifteen items were loaded on two factors and one item with factor loading less than 0.50 was removed. The removed item was: I share relevant reports and documents with my colleagues. The first factor, knowledge donation contained seven items ranging from 0.61 to 0.74 and the second factor comprised eight items related to knowledge collection that ranged from 0.62 to 0.74. Regarding construct reliability, two common measures were performed: Cronbach's alpha (α) and composite reliability (CR). Coefficient alpha estimates the multiple item scale's reliability, whereas CR refers to different outer loadings of the indicator variables (Hair *et al.*, 2014). The reliability is achieved when CR and Cronbach's alpha are above 0.70 (Pallant, 2016). The values for all the items were significant.

Based on the rule of Fornell and Larcker (1981), discriminant validity was evaluated (Hair *et al.*, 2014). According to them, the AVE exceeded 0.5 and greater than the squared correlations between the items. The AVE ranged from 0.576 to 0.750, which was above the recommended 0.50 level and is also higher than the squared inter-construct correlations as shown in Table 2.

The measurement model in this research was assessed by the GOF indices. It encompasses two major indices:

- (1) the fit indices, including GOF index, root mean square residual and root mean square error of approximation; and
- (2) the incremental fit measurement, which includes adjusted GOF index and comparative fit index. Data show an acceptable level of GOF of TL, KS and innovation.

Structural model and hypotheses testing

The aim of this research is to investigate the impact of KS on TL–innovation relationship in banks in Lebanon. To evaluate the structural model fit, an assessment of the GOF of the hypothesized model is required. The results show that the model fit indices for the direct

Factors	<i>n</i> = 310							
	1	2	3	4	5	6	7	8
Idealized influence	<i>0.599</i>							
Inspirational motivation	0.063	<i>0.498</i>						
Intellectual stimulation	0.072	0.063	<i>0.638</i>					
Individualized consideration	0.051	0.087	0.021	<i>0.612</i>				
Product innovation	0.083	0.071	0.035	0.211	<i>0.594</i>			
Process innovation	0.236	0.033	0.056	0.231	0.126	<i>0.714</i>		
Knowledge donation	0.214	0.145	0.023	0.054	0.155	0.342	<i>0.750</i>	
Knowledge collection	0.148	0.138	0.143	0.034	0.034	0.235	0.217	<i>0.576</i>

Table 2. Correlations between the factors and AVEs

Notes: The italic numbers in the diagonal row are the square roots of the AVE. All correlations between variables are significant at 0.01 level (two-tailed)

relationship for TL-innovation, TL-KS and KS-innovation relationship and for the indirect relationship of TL on innovation through KS falls within the recommended criteria.

After addressing the issues of GOF, SEM procedures are used to test the strength and direction of the relationships between the independent and dependent variables. Table 3 provides the results of the unstandardized estimate for each structural model interaction. The estimate describes the amount of change in the dependent variable for each one unit change in the variable predicting it.

Testing the direct relationship between transformational leadership and innovation

The results indicate that TL bundle has a significant effect on innovation. The path coefficients of the impact of TL are confirmatory at these levels as shown in Table 3. In particular, it was found that ID, IM and IC are significantly and positively associated with product innovation ($\beta = 0.138$, CR = 3.364; $\beta = 0.165$, CR = 2.879; and $\beta = 1.108$, CR = 8.614, respectively), whereas the finding reveals a negative association between IS and product innovation ($\beta = -0.210$, CR = -3.225). This indicated that IC ($\beta = 1.108$) shows the highest contribution to product innovation while IS ($\beta = -0.210$) shows significantly negative influence on innovation.

For the process innovation of the TL dimensions, IM ($\beta = 0.150$, CR = 2.209) and IC ($\beta = 1.330$, CR = 8.749) demonstrate significant positive relationships with process innovation, whereas IS ($\beta = -0.178$, CR = -2.333) reveals significant negative predictive capability on process innovation. However, ID ($\beta = 0.051$, CR = 1.052) reveals an insignificant effect on process innovation.

Testing the direct relationship between transformational leadership and knowledge sharing

H2 posited the direct effect of TL on KS. H2 is concerned with the overall effect of TL on KS. TL shows a positive and statistically significant relationship with KS ($p < 0.001$; CR = 7.167). The results also reveal the unstandardized estimate, which suggests that for every

	Hypothesis	Hypothesis path	β	CR
Model 1	H1	TL → Innovation	0.804***	9.455
		Idealized → Product	0.138***	3.364
		Inspirational → Product	0.165*	2.879
		Intellectual → Product	-0.210**	-3.225
		Individualized → Product	1.108***	8.614
		Idealized → Process	0.051	1.052
		Inspirational → Process	0.150*	2.209
		Intellectual → Process	-0.178**	-2.333
		Individualized → Process	1.330***	8.749
		Model 2	H2	TL → KS
Idealized → KS	0.192***			3.645
Inspirational → KS	0.022			0.334
Intellectual → KS	0.338***			4.093
Model 3	H3	Individualized → KS	0.188*	2.414
		KS → Innovation	0.917***	8.322
		KS → Product Innovation	1.358***	8.745
		KS → Process Innovation	1.610***	8.930

Table 3.
Results for the direct
effects

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

single unit of increase in TL, KS increases by 0.589 units. Thus, the hypothesis is supported; therefore, the better the TL, the better the KS.

As shown in Model 2, ID, IS and IC are significantly and positively associated with KS ($\beta = 0.192$, CR = 3.645; $\beta = 0.338$, CR = 4.093; and $\beta = 0.188$, CR = 2.414, respectively), whereas IM ($\beta = 0.022$, CR = 0.334) reveals an insignificant predictive capability on KS. This indicates that IS ($\beta = 0.338$) shows the highest contribution to KS followed by ID ($\beta = 0.192$), followed by IC ($\beta = 0.188$), whereas IM ($\beta = 0.022$) shows an insignificant effect on KS.

Testing the direct relationship between knowledge sharing and innovation

H3 posited the direct effect of KS on innovation. H3 is related to the impact of KS on innovation. As shown in Model 3, KS shows a positive direction and a statistically significant relationship with innovation ($p < 0.001$; CR = 8.322). The results also reveal the unstandardized estimate, which suggests that for every single unit of increase in KS, innovation increases by 0.917 units. This implies that there is a statistically significant predictive capability of KS on innovation. Thus, the hypothesis is supported. The better the KS, the better the innovation. As shown in Model 3, KS is associated significantly and positively with product and process innovations ($\beta = 1.358$, CR = 8.745 and $\beta = 1.610$, CR = 8.930, respectively). This indicates that KS ($\beta = 1.610$) shows the highest contribution to process innovation followed by KS ($\beta = 1.358$) on product innovation.

Testing the indirect effect of transformational leadership and innovation

H4 postulated a positive effect of TL on innovation through KS. This research followed a bootstrapping approach recommended by Hayes (2017) to examine the indirect effect of TL on innovation. A guideline developed by Blunch (2012) with regard to the mediator role was followed. According to this guideline, the first step is to demonstrate that the independent variable (TL) has a significant association with the dependent variable (innovation). As shown in Model 1, the direct effect of TL has a positive and significant effect on innovation ($\beta = 0.804$, $p < 0.001$).

The second step is to establish that the independent variable (TL) is significantly associated with the mediating variable (KS). The third step is to establish that the mediating variable (KS) is significantly correlated with the dependent variable (innovation). According to the outcomes exhibited in Table 4, TL ($\beta = 0.598$, $p < 0.01$) has a significant relationship with KS. Moreover, KS has a significant relationship with innovation ($\beta = 0.430$, $p < 0.01$); therefore, both conditions are met. The fourth step, after meeting these conditions, the mediator variable (KS) reduces the direct effect of the independent variables (TL) on the dependent variable (innovation) once the mediator (KS) is computed into the model.

From the results in Table 4, the direct effect of TL on innovation is 0.493 and the indirect effect of TL on innovation via KS is stated by multiplying both paths with each other 0.257 (0.598×0.430). Hence, the total effect of TL on innovation can be expressed as the sum of the direct and indirect effects, i.e. 0.750 ($0.493 + 0.258$). Thus, it can be concluded that KS is a mediator in the relationship between TL and innovation. The type of mediation here is partial mediation as the direct effect is still significant after KS is added and the beta coefficient for TL is reduced from 0.804 to 0.493. Therefore, H4 is supported.

Discussion

The findings from quantitative analysis verified that TL positively affects innovation. These findings are congruent with the assertion that leaders who support organizational change by communicating a clear vision lead to greater product innovation (Liao *et al.*,

2017). Besides, leaders exhibiting an IM create an environment that promotes the inspiration and ability of organizational members to be innovative, which, in turn, gives them direction for successfully developing new products and processes (Zheng *et al.*, 2016). Moreover, these findings are consistent with Jaussi and Dionne's (2003) findings, which showed that IS leadership has a negative effect on innovation, and with Li *et al.*'s (2016) study, which revealed that IS did not generate a positive climate for individual innovation. In addition, the findings of this research confirm previous studies suggesting that leaders who practice the delegating, consulting and encouraging behavior are able to nurture the creation of ideas by employees (Jia *et al.*, 2018; Mittal and Dhar, 2015).

On the other hand, the results also showed employees' belief that the role modeling behavior displayed by their leader is not enough for them to embrace new process innovations. These results are consistent with Tharnpas and Boonitt's (2015) assertion that trust and respect may not always stimulate the willingness to accept the directives provided by their leader; as a result, affecting process innovation negatively. These findings contradict Rafferty and Griffin's (2004) findings, which showed that articulating a vision does not always have a positive influence on innovation. These findings are also inconsistent with Mokhber *et al.*'s (2015) findings, which showed that empowerment can also have negative consequences on innovation, when the goals of the followers are out of alignment or oppose the organization's goals.

The findings from quantitative analysis showed that TL was positively related to KS. These findings support previous research conducted by Baytok *et al.* (2014), who pointed out that leaders who reinforce a sense of respect, confidence and loyalty among employees are able to stimulate and nurture values and norms that respect and promote a KS culture. Likewise, the findings of this research also confirm the results of previous studies (Carmeli *et al.*, 2011; Ugurlu and Kizildag, 2013), which showed that leaders who are able to intellectually stimulate followers will amplify KS processes and problem-solving. The results of this research also support numerous other studies (Cheung and Wong, 2011; Yaghoubi *et al.*, 2016), which found that coaching, advising and caring exhibited by leaders boosted KS practices and transferred knowledge among employees.

However, this finding is consistent with Masa'deh *et al.*'s (2016) findings, which showed that determining high standards and encouraging followers to do things above the norms may have a negative impact on KS. This finding also contradict prior research suggesting that leaders with IM support an organizational climate to facilitate KS by creating a shared vision, encouraging team spirit and expressing confidence in their employees (Baytok *et al.*, 2014; Xue *et al.*, 2011). These findings are inconsistent with Politis's (2001) findings, which

Variables	KS	Innovation
<i>Direct effects</i>		
TL	0.589 ***	0.493**
KS	–	0.430**
<i>Indirect effects</i>		
TL	–	0.258**
<i>Total effects</i>		
TL	–	0.751**

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

Table 4.
Direct, indirect and
total effects analysis

state that coaching, mentoring and dealing with followers individually to meet their requests and needs are negatively related to knowledge acquisition.

This research revealed that the KS process is positively related to innovation. These findings contradict [Kamasak and Bulutlar's \(2010\)](#) study, which concluded that knowledge donation has an insignificant relationship with exploratory innovation and [Wang and Rode's \(2010\)](#) findings, which indicated that implicit knowledge was unrelated to innovation, whereas explicit knowledge had a positive relation to innovation quality and speed. However, the findings are also coinciding with [Akram et al. \(2017\)](#), who claimed that KS played a positive role in creating, encouraging and applying novel ideas that benefit the organization. Further, the finding concurs with [Mura et al. \(2013\)](#), who argued that organizations that support its employees in sharing knowledge can expect to generate novel thoughts, thereby enable innovative activities.

The results from the SEM revealed a positive and significant associations for the mediating role of KS on TL and the innovation relationship. These findings are consistent with the findings of studies by [Alnesr and Ramzani \(2019\)](#), [Anh et al. \(2019\)](#) and [Paulsen et al. \(2013\)](#). For instance, [Paulsen et al. \(2013\)](#) indicated that a supportive and encouraging climate will help each member at the workplace to feel comfortable taking risks, examining new idea and exchanging knowledge, ultimately leading to innovation. Similarly, [Alnesr and Ramzani \(2019\)](#) demonstrated that TL promoted and encouraged KS among employees, which helped to develop innovation. [Anh et al. \(2019\)](#) revealed that transformational leaders fuel KS through experimentation, communication and dialogue, as followers feel challenged to find innovative solutions.

Theoretical and practical implications

This research adds to the extant literature regarding the mediating role of KS on TL–innovation relationship within a novel setting. The findings of this research empirically strengthen the role KS plays in boosting the TL influence on innovation in Lebanese banks.

Foremost, unlike a majority of previous studies that provide a general view on the relationship between TL and innovation, this research provides deep insight toward the association between each dimension of TL separately with product and process innovations. As revealed from the findings, the 4I's within TL vary in their influence on innovation where IC held the highest influence, followed by IM and ID, respectively; however, IS held negative influence. This provides a better understanding that it is not necessary for the four influential components within TL to have same level of influence on innovation; instead, each component separately has a different effect on developing innovation.

Previous research examined KS with various forms of innovation. However, this research considers donating and collecting knowledge as two dimensions of KS and innovation with its two dimensions, namely, process and product innovations. The findings strengthen the role KS plays in enhancing the banks' ability to create new products and processes and provides information regarding which kind of innovation is most influenced by KS processes. Additionally, this research supports and verifies the link between TL and KS, showing that TL provides support, vision, motivation and confidence, which stimulates a KS atmosphere. This research has clarified the specific aspects of the 4I's of TL and their different impacts on KS.

These findings extend the understanding of the processes through which transformational styles of leadership stimulate innovation and also highlight the benefits gained by cultivating KS to generate more innovative outcomes. Moreover, the use of KS as a mediator in the context of TL, along with product and process innovations, represents another contribution, since this research provides a better understanding of how KS impacts

the relationship between TL styles and product and process innovations. This research also confirms the universality of the effects of KS across cultures. By confirming the relationship between TL, KS and innovation in Lebanon, the findings indicate that, regardless of whether the context is Western or Eastern, TL plays a vital role in stimulating a KS culture and strengthening both product and process innovations in the banking sector.

From a methodological view, the reliability and validity of TL, innovation and KS constructs are evaluated in a new geographical setting. This provides researchers and academics with a model to track the effects of TL and KS on innovation in other similar research. The research findings further add new perceptions regarding KS practices that positively affect banks' ability in generating new processes and products. The findings imply that the management at banks should encourage their experienced staffs to communicate their expertise to develop the provision of the bank to deliver innovation that serves their customers' needs.

According to the findings of this research, KS positively influenced the TL–innovation relationship. It was found that sharing new knowledge among employees is vital for innovation. Therefore, bank leaders should create a knowledge-friendly environment to take advantage of sharing experiences and knowledge, such as encouraging and facilitating teamwork, communities of practice, personal networks, strong and weak ties and boundary-spanning. Sharing knowledge among employees might prevent them from repeating the same mistakes and increase their experiences while performing their tasks. Thus, bank leaders should focus on providing a nurturing and supportive climate aimed at motivating staff to engage in KS activities such as sessions, conferences, workshops and social events outside the workplace. This research found that TL is the critical enabler for a KS mechanism among the staff in the Lebanese banking sector. This shows that building successful KS climate depends on the presence of TL. Therefore, bank leaders should create opportunities that stimulate discussions and the sharing of knowledge among employees by seeking alternative perspectives and skills through regular meetings, brainstorming and seminars.

Research limitations and further research

Although this research provides a number of insights regarding the mediating role of KS on TL–innovation relationships in the banking sector in Lebanon, it has its own limitations that should be identified. The sample of this research is constrained to the banking sector; hence, the findings drawn from it cannot be generalized to other sectors. Thus, it is recommended to replicate this research in other sectors, e.g. industrial, educational and health and also conduct comparative studies between the industrial and service sectors, as industrialized firms could pursue various phases of innovation than their service counterparts. This research is limited to developing countries, specifically Lebanon, as one of the smallest Arab countries; therefore, it is recommended to replicate and extend this research to other Arab countries to confirm the results, since it is acknowledged that cultural differences may reach dissimilar results. Another limitation is that this research investigates quantitatively the impact of KS on TL–innovation relationship among nonmanagerial employees. Considering different managerial levels may provide a better understanding of the research topic. This research was restricted by a cross-sectional design, which collected data at a specific point in time. Thus, the outcomes of this research showed the employees' perceptions regarding TL, KS and innovation at the moment of filling in the survey; therefore, it is recommended to use a longitudinal design, which collects data over a period of time, that might provide valuable insights into the influences of TL on KS and innovation. Finally, our study focused only on product and process innovation. Therefore, we suggest to

consider the relationship of other types of innovation (e.g. administrative, technological, radical, incremental . . . etc.) with TL and KS.

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