Impact of knowledge management enablers on knowledge sharing

Is trust a missing link in SMEs of emerging economies?

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Abstract

Purpose – The purpose of this paper is to examine the mediating role of trust in the relationship between knowledge management enablers (i.e. top management support, organizational culture, knowledge management system quality, and openness in communication) on knowledge sharing in small and medium enterprises (SMEs) in Pakistan.

Design/methodology/approach – The study was conducted through self-administered survey of employees of SMEs in Pakistan. Correlation, Baron and Kenny approach (causal steps approach) and PROCESS Macro (normal test theory) developed by Hayes were used to find out the direct and indirect effects of trust among knowledge management enablers and knowledge sharing.

Findings – The results have shown that trust of employees at SMEs was developed through knowledge management enablers which promote knowledge sharing. Therefore, the relationship between knowledge management enablers, trust, and knowledge sharing is positive.

Research limitations/implications – The current study only considered the single aspect of knowledge management system, i.e. knowledge sharing; some other aspects of knowledge management system such as knowledge creation and knowledge utilization can be used for future studies at SMEs sector.

Practical implications – The mediation of trust between top management support, culture, openness in communication, and knowledge sharing provided that trustworthy relationships between the members of an organization would lead to enhance the knowledge sharing activities. In order to promote the knowledge sharing attitudes within the organization, the managers should consider knowledge management enablers (top management support, organizational culture, and openness in communication) along with trustworthy environment as an energetic force for the development of knowledge management systems.

Originality/value – The study confirmed the mediating effect of trust between the relationships of top management support, organizational culture, openness in communication, and knowledge sharing, while there is a partial mediating role of trust between knowledge management system quality and knowledge sharing.

Keywords SMEs, Trust, Knowledge sharing, Knowledge management enablers

Paper type Research paper

1. Introduction

Small and medium enterprises (SMEs) show significant strength for the development of leading and developing economies (Acs and Audretsch, 1990). The fast-changing global market competition increases the importance of SMEs for both leading and developing countries through their strength to innovate new products (Zeng *et al.*, 2010; Bruque and Moyano, 2007). In the development and competitiveness of the emergent economies, SMEs have major contributions in the areas of economic growth (Neck and Dockner, 1987), revenue generation (Acs and Audretsch, 1990), and major employment creation (Kotey and Meredith, 1997). Therefore, after realizing the clear role of SMEs, the emergent economies focus their attention on strategic development of SMEs (Schlogl, 2004).

In the twenty-first century, due to the emergence of knowledge-based economic systems, the knowledge assets gain much more importance and primary attention of entrepreneurs as compared to other resources such as physical and financial (Nisula and Kianto, 2015; Johnston and Blumentritt, 1998). Knowledge-based economies largely depend on the value of the knowledge management system such as creating, sharing, and utilization of knowledge (Verma, 1995). Traditional economies were based on quantitative

inputs such as capital, labor, and land, while the emergent economic structures such as the knowledge-based economy are based on the qualitative input and factors such as innovation (Gardner *et al.*, 2006) and human capital (Ogunyomi and Bruning, 2015). Therefore, transformation of economies from traditional to knowledge-based forced SMEs for the intensive use of knowledge resources in order to enhance the economic activities (Cabrera and Cabrera, 2005).

Besides the major contribution of SMEs, the failure rate of SMEs in various sectors remains at an alarming position in both developed as well as in developing economies (Zimmerer *et al.*, 2008). In emergence economies, a large number of SMEs failed at the initial stages of the operation (Hodgents and Kuratko, 2004). The results of the study conducted in the Malaysian context show that there is atleast a failure rate of 60 percent in the first five years (Ahmad and Seet, 2009). In the same way, several past studies from England, USA, and Australia have shown that the failure rate of SMEs is approximately 80 percent within first five to ten years of their operation (Hodgents and Kuratko, 2004). It is proved from the past studies that the survival of SMEs in both leading and emerging economies require to cope with the increase in challenges due to the emergence of a knowledge-based economy. Hence, survival in the knowledge-based economy forced SMEs to cope with fundamental operational issues as well as developing knowledge and intellectual capital for survival and long-term competitive growth (Ibrahim and Heng, 2015; Athar and Aamir, 2004).

Knowledge assets play an important role for the growth, survival, and better performance in knowledge-based economy (Huang and Jim Wu, 2010; Bontis 1998; Soto-Acosta *et al.* (2014). Besides, there are various evidences available in the literature that knowledge sharing and knowledge dissemination is a valuable source for organizational survival, e.g. Cabrera and Cabrera (2005) and Leonardi (2014) explained that knowledge sharing between members of any group allows them to capitalize and exploit on knowledge-based resources. Prior empirical studies have found the causal relationship between knowledge management enablers and trust (e.g. open communication (Ruppel and Harrington, 2000), top management support (Skarlicki and Latham, 1997), quality of information system (Ho *et al.*, 2010). The association between trust and knowledge sharing has also been found positive and significant in a number of studies (Nelson and Cooprider, 1996; Tsai and Ghoshal, 1998; Hsu *et al.*, 2007). Most of the studies used direct relationships to confirm the impact of knowledge enablers on knowledge sharing. Some of them have proved the significant impact of knowledge management enablers on knowledge sharing (Pan and Scarbrough, 1998; Lee and Choi, 2003), while some studies hypothesize that most of knowledge management enablers have shown insignificant impact on knowledge sharing in a direct relationship (Tan and Md Noor, 2013). The insignificant relationship of the variables pushes the researchers to think about the indirect relationship, which is the main theme of this research. Therefore, the primary concern of the current study is to fill the gap through incorporating indirect relationships of trust between knowledge management enablers and knowledge sharing.

The current study examines the mediating role of trust between knowledge management enablers and knowledge sharing. This study proposes knowledge management enablers – trust – knowledge sharing model after considering the mediating effect of trust that influences knowledge sharing in SMEs in emerging economies. In order to reach the proposed objectives of this inquiry, the study has been divided into different sections to develop argument. Section 2 discusses the literature of knowledge management enablers and their relevance to trust and knowledge sharing. Section 3 explains the theoretical framework based on our discussion related to organizational, communication, and technological enablers of knowledge management, trust, and knowledge sharing. Section 4 presents the research methodology, while Section 5 focuses on the results and findings.

2. Literature review

2.1 Knowledge sharing

The concept of knowledge sharing is defined by the researchers as a process of communication between different parties that are engaged in the generation of knowledge by one party (the source) and the other party (the recipient) (Usoro *et al.*, 2007). Ibrahim and Heng (2015) suggested that knowledge sharing comprised mutual conversation between organizational members that enable them to receive knowledge possessed by other members. Knowledge is a valuable resource for the modern organization to survive in the knowledge-based economy. In order to cope with the underlying challenges imposed by the economic transformation, the organization must disseminate and share knowledge in order to promote knowledge activities (Howell and Annansingh, 2013). According to Cabrera and Cabrera (2005), knowledge sharing allows organizational members to capitalize and exploit the knowledge-based resources.

In the current study, we operationalized knowledge sharing as a practice that is concerned with the exchange of information and know-how possessed by the organizational members and distributing valuable information for the best possible use and mutual benefits of members (Krogh *et al.*, 2000). Stoddart (2001) and Garrido-Moreno *et al.* (2014) stressed that practices toward knowledge sharing can only work when a particular organization promotes these practices. In order to promote knowledge management activities such as knowledge sharing, SMEs in Pakistan need to promote the trust-based relationships among its members. Trust has a major contribution to encourage knowledge sharing among the members of an organization by facilitating a more open and proactive relationship that permit exchange of knowledge smoothly (Paul and McDaniel, 2004; Tan and Md Noor, 2013).

2.2 Trust

Trust is defined by Cornelissena *et al.* (2011) as the belief in and reliance of one party (i.e. trustor) on another party (i.e. trustee) that is consistent, competent, and honest and opens when he/she desires to share knowledge. Rousseau *et al.* (1998) suggested that trust is a "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions of the behavior of another" (p. 395). The construct of trust has received importance due to its high potential to provide performance benefits to both individuals and organizations (Dirks and Skarlicki, 2009). Panteli and Sockalingam (2005) conducted a research study on the association between trust and knowledge sharing and concluded that a high level of trust between organizational members makes knowledge sharing much easier and faster. Yusof and Suhaimi (2006) suggested that a relationship between employees that involve knowledge recipients and knowledge providers largely depends on trust.

2.3 Knowledge management enablers

Knowledge management enablers are characterized as prompting factors which can facilitate the individuals in sharing knowledge assets and provides the basis for the initiation of knowledge management activities within an organization (Alegre *et al.*, 2013). Enabling factors showed the power to initiate and encourage knowledge management activities (Al-Hakim and Hassan, 2013). Knowledge management enablers have primary contribution for the development of knowledge sharing and creation (Yeh *et al.*, 2006), and also affect the knowledge management process in the organization (Omar Sharifuddin Syed-Ikhsan and Rowland, 2004). On the basis of previous empirical studies, it is very much clear that knowledge sharing and knowledge transfer is affected by various knowledge management enablers such as culture, structure and technology (Pan and Scarbrough, 1998); centralization, T-shaped skills, collaboration, learning, formalization, and trust

(Lee and Choi, 2003); culture and people (Chung *et al.*, 2013); top management support, reciprocal benefits, rewards, knowledge management system quality, knowledge management system infrastructure and openness in communication (Tan and Md Noor, 2013).

To achieve the research objective as to whether the relationships between knowledge enablers and knowledge sharing are mediated by trust, there is significant positive relationship required between knowledge enablers, trust, and knowledge sharing. The empirical results of past studies have proved two significant relationships between knowledge enablers, trust, and knowledge sharing: knowledge management enablers positively affect trust and trust positively affects knowledge sharing (Xu and Quaddus, 2012). However, in both relations trust was not considered as a mediating variable and this gap is addressed by this study. In this work we have analyzed the mediating effect of trust between three different groups of knowledge management enablers and knowledge sharing.

2.3.1 Organizational knowledge management enablers. Knowledge management enablers are the most prominent factors that facilitate for initiating knowledge activities within the organization (Palacios-Marqués *et al.*, 2015). According to Tan and Md Noor (2013) organizational knowledge management enablers involve top management support and organizational culture that accelerate the knowledge management activities within an organization. Top management support is one of the important enabling factors of the organization that makes a significant contribution to knowledge sharing behavior (Einsenberger *et al.*, 1997).

Top management support involves the participation and involvement of top-level managers in institutional events (Jarvenpaa and Ives, 1991). The support from the top management is considered as an important factor in ensuring the success of knowledge management to the extent of their involvement in knowledge sharing practices in SMEs. Mary MacNeil (2004) pointed out that the growth of knowledge management practices depends on the top management support since it facilitates the voluntary involvement and participation of members to share important knowledge. The cooperative attitude of managers toward employees provides evidence for the development of trust among members of the organization and top management (Skarlicki and Latham, 1997). McCauley and Khunert (1992) suggested that a higher level of trust of employees toward management largely depends on reciprocal trust relations between them; if top management shows lack of trust toward employees, then employees will react in a similar way.

Most of the researchers explained that trust has a significant relationship with knowledge sharing. Nahapiet and Ghoshal (1998) suggested that trust facilitates knowledge management activities through creating the necessary conditions for enabling knowledge sharing; Holste and Fields (2005) found that individual knowledge sharing activities depends on trust; and Flood *et al.* (2001) confirmed that trust facilitates knowledge sharing. The high level of trust increases and eases the exchange of knowledge (McEvily *et al.*, 2003). Therefore, on the basis of the results of prior studies that proved the relationships between top management support and trust as well as trust and knowledge sharing, we expect that top management support will enhance trust, which in turn fosters knowledge sharing:

H1. The impact of top management support on knowledge sharing will be mediated by trust at SMEs in an emerging economy.

Besides top management support, organizational culture has a major contribution toward the achievement of knowledge creation and knowledge sharing (Hooff and Huysman, 2009). Culture is concerned with the shared interpretations as well as understanding the events of the organization, and this understanding increases with the passage of time (Rentsch, 1990). Denison (1996, p. 624) defined that "culture refers to the deep structure of organizations which is rooted in the values, beliefs, and assumptions held by organizational members." Organizational culture is based on a model of basic assumptions and beliefs held and shared by the organizational members (Schein, 1985). Many researchers in the field of knowledge

management considered that organization's culture has a major influence toward effectiveness of knowledge sharing (Chase, 1997; Holsapple and Joshi, 2000; Pan and Scarbrough, 1998).

In order to develop a culture of sharing knowledge, SMEs must encourage the members to collaborate with each other. Furthermore, the ability to knowledge sharing of members depends on their willingness to share the information (Chen *et al.*, 2009). Bose (2004) pointed out that knowledge sharing is important to knowledge management success for which trusting culture acts as a facilitator, whereas relationships among organizational members based on trust creates a culture that enhance knowledge sharing. Trust among members within an organization is based on cultural mechanisms such as shared values, assumptions, and beliefs (Chou, 1998; Kumar *et al.*, 1998). Therefore, on the basis of the literature that defined the relationships between organizational culture, trust, and knowledge sharing, we expect the mediating role of trust between organizational culture and knowledge sharing:

H2. The impact of organizational culture on knowledge sharing will be mediated by trust at SMEs in an emerging economy.

2.3.2 Technological knowledge management enablers. Technological knowledge management enablers facilitate the exchange of information; therefore, technology has major contribution for searching, storing, updating, retrieving, and accessing information. The information technology has major contribution in the promotion of knowledge management activities (Lee and Choi, 2003). Teh and Yong (2011) have also argued that information technology plays a vital role for the development of knowledge management systems. According to Lin (2011), the knowledge management system quality is considered as important enablers of knowledge, which is defined as the quality of knowledge, accumulated and provided by the knowledge management system. According to Delone and McLean (2003) the knowledge management system quality consists of reliability, relevance, accuracy, and accessibility of the knowledge that are valuable to the organizational members. Higher learning organizations need a high-quality knowledge management system in order to provide easy accessibility of knowledge management practices, i.e. creation, sharing, and utilizing of knowledge (Kulkarni *et al.*, 2006).

Interactions among organizational members are achieved through a proper implementation of the knowledge management system (Arthur Andersen, 1998). Cabrera *et al.* (2006) believed that the knowledge management system quality of an organization increases knowledge sharing. In addition to that, the knowledge management system quality provides a platform for social connectivity through enabling information and knowledge sharing (Jarvenpaa and Staples, 2001). Most of the previous studies observed positive outcomes regarding information technology and employee's trustworthy behavior (Ho *et al.*, 2010). Zhou *et al.* (2010) reported that both information quality and information system positively related to the users' trust. The knowledge management system quality enhances the individual confidence and willingness to acquire the required information and sharing with colleagues and management. Ho *et al.* (2012) found that a higher level of knowledge management system quality is significantly and positively associated with the higher level of users' trust. Knowledge management in SMEs involves the sharing of information among employees; however, in this regard technology plays a vital role for accessing the required information. On the basis of the literature, we expect the mediating role of trust in the relationship between knowledge management system quality and knowledge sharing. Hence, we proposed that:

H3. The impact of knowledge management system quality on knowledge sharing will be mediated by trust at SMEs in an emerging economy.

2.3.3 Communicational knowledge management enablers. Communicational enablers of knowledge management facilitate an easy communication and face-to-face interaction for the creation, sharing, and utilization of knowledge (Tan and Md Noor 2013). Chiu *et al.* (2006) believed that communication can be an effective means of conversations that allows the members to sharing knowledge. According to Brown and Isaacs (1996), knowledge sharing is largely dependent on the level of conversation among organizational members at SMEs. Sarker *et al.* (2005) investigated that communication enablers of knowledge management such as openness in communication positively promotes knowledge management activities within an organization. According to Panteli and Sockalingam (2005) openness in communication influences the knowledge sharing behavior of individuals at the workplace. Open communication between organizational members is important to create a supportive environment for knowledge sharing (Samaha, 1996).

According to Jer Yuen and Shaheen Majid (2007) openness in communication is considered as an important form of sharing information since it offers non-verbal clues, helps in seeking clarification, and provides instant feedback. From the above view it is clear that openness in communication was important and popular due to encouraging fast feedback and allows an accurate transmission of information among the members involved in the process of communication. Knowledge sharing at SMEs needs open communication in order to sustain and modernize the organizational members with the required information and knowledge (Migdadi, 2009).

Kramer and Tyler (1996) suggested that trust evolves from social relationships, which is based on the duration and frequency of contact, i.e. communication. Furthermore, such social relationships among members of the organization tend to build trust and confidence in the members. Johnson and Johnson (1989) argued that trust-related interactions are linked to cooperation and mutual openness. Butler and Cantrell (1994) discovered that job-related communication have precise effects on trust. Ruppel and Harrington (2000) found that a greater level of open communication and cooperation among the organization members enhances the level of trust. Therefore, on the basis of the literature that provided for the relationships between openness in communication, trust, and knowledge sharing, we expect that openness in communication will enhance trust, which in turn fosters knowledge sharing:

H4. The impact of openness in communication on knowledge sharing will be mediated by trust at SMEs in an emerging economy.

3. Research model
Figure 1 presents the proposed research model for the current study with the most significant objective, i.e. to find out the mediating role of trust between knowledge management enablers and knowledge sharing. Figure 1 captures the relationship between all variables in the proposed research model.

4. Research methodology
4.1 Population and sample
To achieve the purpose of the study, data were collected through self-administered questionnaire. Data for the current study were collected from employees of SMEs. The sample for the current study was selected from the list of SMEs already registered with SMEDA, business dictionary, and Pakistan Chamber of Commerce and Industry. Three criteria were set for inclusion of SMEs in the sample: a minimum number of 50 employees, minimum capital investment of 25 million (Pakistani rupees), and e-mail and personal contacts of employees are available. Data were collected during the period from February 2014 to June 2015 using two rounds. Initially more than 2,000 employees were contacted using the e-mail addresses available in the above-mentioned databases.
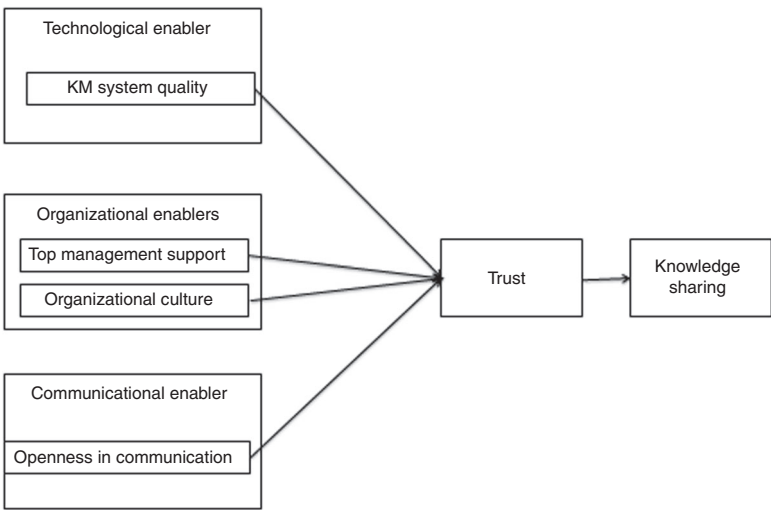
Figure 1.
The research model

Out of 2,000, 83 questionnaires were undelivered due to various reasons, i.e. the e-mail addresses were blocked, overloaded, or incorrect. After sending four reminders (e-mail) excluding the ones who had already submitted the response, only 361 questionnaires were received back, 38 respondents mailed incomplete questionnaire, finally the responses of 323 respondents were completed through e-mail during the period of five months. In the second round, due to the low response rate of the first step it was decided to contact the respondents by personal visits during the period from August 2014 to June 2015. In total, 713 usable responses were collected through personal visits. In total 1,036 usable responses were completed through personal visits and e-mails. Out of the 1,036 participants, 87.26 percent were men and 12.74 percent were women, the majority of the respondents' age was between 31 and 40 years. Table I contains the demographic characteristics of the sample used in the current study.

4.2 Measurements and scale

The current study used self-administered questionnaires which were developed using five-point Likert scale. The instruments contained a total of 30 items: four items for top management support developed and formulated by Lin *et al.* (2009); seven items for

Variable	Category	Frequency	Percentage	Cumulative percentage
Gender	Male	904	87.26	87.26
	Female	132	12.74	100
Age	20-30 years	243	23.45	23.45
	31-40 years	759	73.26	96.71
	41-50 years	22	2.12	98.83
	51-60 years	12	1.17	100
Tenure	1-5 year job experience	631	60.91	60.91
	6-10 year job experience	337	32.53	93.44
	11-15 year job experience	35	3.38	96.82
	16-20 year job experience	16	1.54	98.36
	Above 20 year job experience	17	1.64	100

Table I.
Demographic characteristics of the sample

organizational culture developed by Hooff and Huysman (2009); five items for knowledge management system quality developed by Lin (2011) and Delone and McLean (2003); four items for openness in communication developed by Kim and Ju (2008); five items for trust developed by Choi *et al.* (2008); and five items for knowledge sharing developed by Yang and Chen (2007). The reason behind the previously used construct was twofold: generalizability and validity and reliability observed by the previous researches.

4.2.1 Knowledge management enablers. The seven-item scale was used to measure the concept of organizational culture. Organizational culture was used in this study as a measure to gauge the organizational knowledge management enablers and generated a value of Cronbach's α coefficient of 0.92 (see Table II). The second measure of organizational knowledge management enablers was top management support which was measured with the four-item scale and generated a value of Cronbach's α coefficient of 0.83 (see Table II).

To measure the communication enablers of knowledge management, openness in communication was measured with the four-item scale. The items used to measure the openness in communication are reliable due to a Cronbach's α coefficient of 0.87 presented in Table II. The five-item scale was used to measure the concept of knowledge management system quality that reported a Cronbach's α coefficient of 0.79.

4.2.2 Trust and knowledge sharing. The notion of trust was measured with a five-item scale and reported a Cronbach's α value of 0.86 (see Table II). Knowledge sharing was used as a dependent variable, which was measured with the five items developed by Yang and Chen (2007). The value of Cronbach's α coefficient (0.93) confirmed the measurement scale reliability (see Table II).

Construct	Item	Loadings	Mean	SD	α	AVE
Top management support	TMS1	0.6541	3.58	0.66	0.83	0.652
	TMS2	0.8237	3.82	0.61		
	TMS3	0.8646	3.98	1.00		
	TMS4	0.8702	3.78	0.65		
Organizational culture	OC1	0.7401	3.03	1.03	0.92	0.542
	OC2	0.6731	3.25	1.12		
	OC3	0.6945	3.07	1.25		
	OC4	0.7550	3.08	1.24		
Knowledge management system quality	KQ1	0.7770	3.37	0.94	0.79	0.761
	KQ2	0.6393	3.54	0.73		
	KQ3	0.7281	3.55	0.76		
	KQ4	0.7138	3.54	0.97		
	KQ5	0.7719	3.36	0.91		
Openness in communication	OP1	0.7579	3.69	0.99	0.87	0.674
	OP2	0.8334	3.68	0.93		
	OP3	0.8287	3.42	1.07		
	OP4	0.7938	3.47	1.04		
Trust	Tr1	0.8409	3.79	1.05	0.86	0.682
	Tr2	0.7397	3.71	0.92		
	Tr3	0.8774	3.41	0.99		
	Tr4	0.8464	3.41	0.89		
	Tr5	0.7658	4.02	0.65		
Knowledge sharing	KS1	0.8605	3.42	0.91	0.93	0.731
	KS2	0.8258	3.44	1.01		
	KS3	0.8122	3.66	0.97		
	KS4	0.8300	3.49	0.95		
	KS5	0.8664	3.54	0.93		

Table II.
Descriptive and
reliability statistics

5. Results and discussions

Initially, for the purpose of the analysis, we have used descriptive statistics and correlation; furthermore, causal steps approach (Baron and Kenny) and normal test theory (PROCESS Macro) were used to prove the mediation analysis.

In the current study, we have used the technique of confirmatory factor analysis to measure the model fitness. Three techniques including goodness-of-fit-index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) have been used in order to test the construct validity and evaluate the overall model fit. The values of GFI, CFI, and RMSEA reasonably met the standard norms. The value of GFI and CFI values should be 0.90 or higher (Hu and Bentler, 1999) and were 0.932 and 0.921, respectively, and the RMSEA value was 0.028, while the recommendation score is 0.05 or less (Browne and Cudeck, 1992).

Table III shows the correlation coefficient of the variables used in this study. The coefficients of correlations confirmed significant associations among independent, mediator, and dependent variables. The results shown in Table III confirmed the relationship between top management support (0.39), organizational culture (0.32), knowledge management system quality (0.58), openness in communication (0.20), and knowledge sharing. Trust is also highly correlated with knowledge sharing (0.55).

Table III also confirmed the positive relationships between top management support (0.55), organizational culture (0.40), knowledge management system quality (0.43), openness in communication (0.33), and trust. In support of these relationships, therefore, according to the norms recommended by Baron and Kenny (1986), the mediating effect of trust in the association between knowledge management enablers and knowledge sharing can be analyzed.

5.1 Causal steps approach

The causal steps approach known as the Baron and Kenny method was used to test the study hypotheses and confirm the mediation effect of trust between knowledge management enablers and knowledge sharing. Tables IV-V and Figure 2 demonstrate the results of the causal steps approach.

H1 proposed that trust mediates between top management support and knowledge sharing. Simple regressions were used to confirm the four conditions for mediation specified by Baron and Kenny (1986). The first condition was met because Table IV shows that top management support was related directly and positively to trust ($\beta = 0.56$, $t = 9.83$, $p < 0.00$). The second condition was also met because top management support was directly and positively related to knowledge sharing ($\beta = 0.39$, $t = 6.29$, $p < 0.00$). As to the third requirement, trust was related directly and positively to knowledge sharing ($\beta = 0.56$, $t = 9.86$, $p < 0.00$). On the basis of these results of simple regressions confirm the three steps. The fourth criterion was satisfied on the basis of the results of multiple regressions shown in Table V, because when trust was included as the mediator, the direct effect of top

Constructs	Mean	SD	TMS	OC	KMSQ	OCOMM	Trust	KS
TMS	3.79	0.5	1					
OC	3.11	1.0	0.280**	1				
KMSQ	3.47	0.6	0.236*	0.115	1			
OCOMM	3.56	0.8	0.205*	0.082	0.163*	1		
Trust	3.67	0.7	0.557**	0.402**	0.431**	0.337**	1	
KS	3.51	0.9	0.394**	0.325**	0.585**	0.206*	0.558**	1

Table III.
Correlations
coefficient

Notes: TMS, top management support; KMSQ, knowledge management system quality; OCOMM, openness in communication; OC, organizational culture; KS, knowledge sharing. *$p < 0.05$; **$p < 0.01$

management support on knowledge sharing was insignificant ($\beta = = 0.12$, $t = 1.78$, $p = 0.08$). On the basis of these results we accept study *H1*.

H2 proposed that trust mediates between organizational culture and knowledge sharing. We test the entire remaining hypotheses by following the same procedure as used for *H1*. The first condition was met because Table IV shows that organizational culture was related directly and positively with trust ($\beta = 0.40$, $t = 6.44$, $p < 0.00$). The second condition was also met because organizational culture was directly and positively related with knowledge sharing ($\beta = 0.33$, $t = 5.05$, $p < 0.00$). As to the third requirement, trust was related directly and positively to knowledge sharing ($\beta = 0.56$, $t = 9.86$, $p < 0.00$). On the basis of these results of simple regressions, the three steps have been confirmed. The fourth criterion was
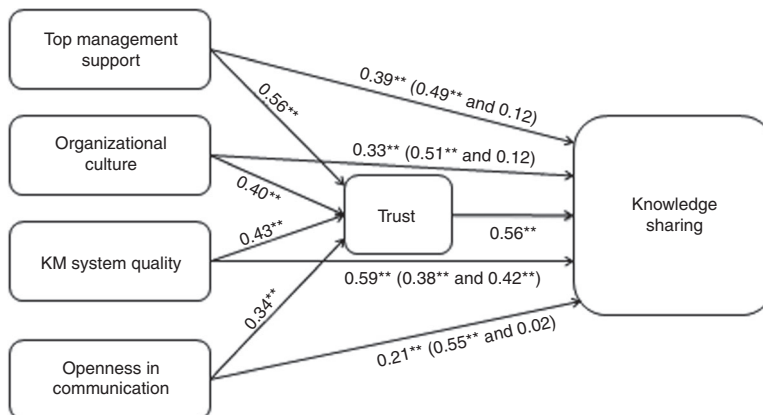
Independent factors	R^2	SE	Trust β	*t*-value	Sig.	R^2	SE	KS β	*t*-value	Sig.
TMS	0.30	0.08	0.56	9.83	0.00	0.15	0.11	0.39	6.29	0.00
OC	0.15	0.04	0.40	6.44	0.00	0.11	0.05	0.33	5.05	0.00
KM SQ	0.18	0.07	0.43	7.00	0.00	0.33	0.08	0.59	10.57	0.00
OCOMM	0.11	0.06	0.34	5.25	0.00	0.04	0.07	0.21	3.08	0.00
Trust (mediator)	–	–	–	–	–	0.31	0.07	0.56	9.86	0.00

Notes: TMS, top management support; KMSQ, knowledge management system quality; OCOMM, openness in communication; OC, organizational culture. The regressions are performed separately between one independent, mediator, and an independent variable

Table IV.
Regression with trust as the mediator and knowledge sharing as the dependent variable

Model	Factor	R^2	F	SE	β	*t*-value	Sig.
1	Top management support	0.32	50.75	0.12	0.12	1.78	0.08
	Trust			0.08	0.49	7.25	0.00
2	Organizational culture	0.31	51.25	0.05	0.12	1.96	0.05
	Trust			0.07	0.51	8.31	0.00
3	Knowledge management system quality	0.45	90.12	0.08	0.42	7.58	0.00
	Trust			0.07	0.38	6.74	0.00
4	Openness in communication	0.31	48.52	0.06	0.02	0.32	0.75
	Trust			0.07	0.55	9.16	0.00

Table V.
Multiple regression results for knowledge sharing

Note: **p<0.01

Figure 2.
Simple and multiple regression results using the Baron and Kenny approach

satisfied on the basis of the results of multiple regressions shown in Table V, because when trust was included as the mediator, the direct effect of top management support was insignificant ($\beta = 0.12$, $t = 1.96$). On the basis of these results we accept study *H2*.

H3 formulated for the mediating role of trust in the association between knowledge management system quality and knowledge sharing. The first condition was met because Table IV shows that the knowledge management system quality was related directly and positively to trust ($\beta = 0.43$, $t = 7.00$, $p < 0.00$). The second condition was also met because knowledge management system quality was directly and positively related to knowledge sharing ($\beta = 0.59$, $t = 10.57$, $p < 0.00$). As to the third requirement, trust was related directly and positively to knowledge sharing ($\beta = 0.56$, $t = 9.86$, $p < 0.00$). On the basis of these results of simple regressions, it is possible to confirm the three steps. The fourth criterion was not fully met on the basis of the results of multiple regressions shown in Table V, because when trust was included as the mediator, the direct effect of knowledge management system quality was significant ($\beta = 0.42$, $t = 7.58$), however, reduced. Therefore, there is a partial mediation in this case.

H4 proposed that trust mediates between openness in communication and knowledge sharing. The first condition was met because Table IV shows that openness in communication was related directly and positively to trust ($\beta = 0.34$, $t = 5.25$, $p < 0.00$). The second condition was also met because openness in communication was directly and positively related to knowledge sharing ($\beta = 0.21$, $t = 3.08$, $p < 0.00$). As to the third requirement, trust was related directly and positively to knowledge sharing ($\beta = 0.56$, $t = 9.86$, $p < 0.00$). On the basis of these results of simple regressions the three steps can be confirmed. The fourth criterion was satisfied on the basis of the results of multiple regressions shown in Table V, because when trust was included as the mediator, the direct effect of openness in communication was insignificant ($\beta = 0.02$, $t = 0.32$). On the basis of these results we accept study *H4*.

To recapitulate the results have shown that trust fully mediates between top management support, organizational culture, openness in communication, and knowledge sharing. However, there is a partial mediation of trust for knowledge management system quality.

5.2 Normal test approach
Baron and Kenny approach simply states the occurrence of mediation and ignores the strength and size of indirect effect (Preacher and Hayes, 2004). In the current study, we also used the normal test theory approach in order to determine the size and significance of indirect effect of knowledge management enablers on knowledge sharing. The outcomes of normal test theory provide statistics for the total, direct, and indirect effects (Preacher and Hayes, 2008). Table VI present the results of the total, direct, and the indirect effect using PROCESS Macro version of SPSS.

	Total effect			Direct effect			Indirect effect Normal test theory		
Mediation models	β	t	p	β	t	p	β	Z	p
TMS→Trust→KS	0.67	5.42	0.00	0.21	1.59	0.11	0.46	4.87	0.00
OC→Trust→KS	0.26	5.12	0.00	0.09	1.95	0.06	0.16	4.79	0.00
KM SQ→Trust→KS	0.79	11.3	0.00	0.57	7.49	0.00	0.21	4.25	0.00
OCOMM→Trust→KS	0.21	2.38	0.01	0.02	0.3	0.76	0.19	3.46	0.00

Notes: TMS, top management support; KMSQ, knowledge management system quality; OCOMM, openness in communication; OC, organizational culture; KS, knowledge sharing

Table VI.
Direct and indirect effects of KM enablers on KS using SPSS version of PROCESS

The results presented in Table VI indicate that the top management support has an insignificant direct effect ($\beta = 0.21$, $t = 1.59$), while the outcomes the normal test theory, i.e. ($Z = 4.87$, $p < 0.00$) confirmed the indirect effect ($0.67 - 0.21 = 0.46$) of top management support on knowledge sharing, which also confirmed the study *H1*. The output of Table VI also shows an insignificant direct effect of organizational culture ($\beta = 0.09$, $t = 1.95$), also confirmed the significant indirect effect ($0.26 - 0.09 = 0.16$) and ($Z = 4.87$, $p < 0.00$), which satisfied *H2*.

The results in Table VI further show that knowledge management system quality has 0.79 or 79 percent significant total effect ($\beta = 0.79$, $t = 11.3$), out of which 57 percent is direct effect ($\beta = 0.57$, $t = 7.49$, $p < 0.00$). The result does provide insufficient evidence to prove the full mediation to accept the study *H3*. Lastly, the results confirmed the indirect effect ($0.21 - 0.02 = 0.19$) of openness in communication and knowledge sharing mediated by the trust ($\beta = 0.02$, $t = 0.30$, $p > 0.76$), the outcomes of normal test theory ($Z = 3.46$, $p < 0.00$) confirmed the study *H4*.

To summarize the results presented in Table VI, we concluded that trust is functioning as a full mediator of the effect of three out of four knowledge management enablers, i.e. top management support, organizational culture, and openness in communication on knowledge sharing. Furthermore, we also observe that trust is not functioning as a full mediator of the effect of one of the knowledge management enablers used in this study, i.e. the knowledge management system quality on knowledge sharing.

6. Discussion, limitations, and implications
6.1 Theoretical contributions
The current research study extends the body of knowledge in various ways. First, we found an indirect and positive association between knowledge enablers, trust, and knowledge sharing. Knowledge enablers accelerate knowledge management activities within an organization (Ho *et al.*, 2010). The intervening role of trust between top management support and knowledge sharing suggested that employees must develop relationships with other employees and with supervisors on the basis of mutual trust that enhances the positive attitudes toward sharing valuable information with their colleagues and management. The relationship between organizational culture and knowledge sharing mediated by trust confirmed that trust has a strong energetic force for the promotion of knowledge sharing activities. Knowledge sharing is important to knowledge management success for which trusting culture acts as a facilitator (Bose, 2004). The management at SMEs should promote a culture that facilitates the knowledge sharing among members.

The indirect outcomes of trust on the association between openness in communication and knowledge sharing suggested that freedom to communicate with colleagues and management develop the trust of individuals which in turn positively enhances the knowledge sharing activities. Communication and interaction among organizational members enable them to involve in the knowledge management activities (Panteli and Sockalingam, 2005). The frequency of interactions among the organizational members enhances the level of trust (Ruppel and Harrington 2000). The findings of this study show that openness in communication plays an important role for promoting knowledge management activities through the mediating role of trust.

Knowledge management system quality is another factor which significantly influences the trust of the individual at workplace. The findings of the study suggest that effective information technology ensures the access and exchange of required information. These findings are consistent with Harrison and Daly (2009). The evidence on the direct influence of trust on knowledge sharing proved that trust can be declared as an important force for the promotion of knowledge sharing activities. These findings are consistent with

Langfred (2004) and Cheng *et al.* (2008). Therefore, the findings of the current study confirmed that knowledge management system quality has major contribution toward the development of knowledge management systems through the intervening role of trust.

6.2 Practical implications

As pointed out in the introduction section, the purpose of this research study was to provide information about the mediating role of trust. Knowledge management enablers play an important role for the development of knowledge management systems (Tan and Md Noor, 2013). The strong relationship between knowledge enablers and knowledge sharing provides insight to the owner/managers and policymakers to consider these knowledge management enablers in order to encourage the employees of SMEs for knowledge sharing. The management should create a supportive internal environment where knowledge sharing could flourish. Knowledge sharing activities at SMEs accelerate through the supporting culture, development of quality system for knowledge management, and provision of platform that facilitates interaction among the employees.

On the other hand, the mediation of trust between top management support, culture, openness in communication, and knowledge sharing provided that trustworthy relationships between the members of an organization would lead to enhance the knowledge sharing activities. In order to promote the knowledge sharing attitudes within organizations, the managers should consider knowledge management enablers (top management support, organizational culture, and openness in communication) along with a trustworthy environment as an energetic force for the development of knowledge management systems.

6.3 Limitations

This study has some limitations. First, some of the other knowledge management enablers like the individual knowledge management enablers, which were not considered in this study, may be varying in attitudes toward the determinants of knowledge sharing through the mediation of trust. Second, the current study was investigating the relationship between knowledge enablers and knowledge sharing; any future study should be conducted as an extension of this work to find out the outcomes of this relationship such as employees' performance, effectiveness, and competitive advantages of knowledge sharing. Lastly, the current study only considered the single aspect of knowledge management system, i.e. knowledge sharing; some other aspects of knowledge management systems such as knowledge creation and knowledge utilization can be used for future studies at SMEs sector.

7. Conclusion

The current study enhances the knowledge management literature through incorporating the mediation effect of trust between the knowledge management enablers and knowledge sharing relationship. The evidence on the indirect influence of trust on the relationship between knowledge enablers and knowledge sharing prove that trust has a major contribution toward the promotion of knowledge sharing. The findings of the current and previous research studies suggest that in order to promote knowledge sharing, SMEs should create an environment that develops trust among employees, which may in turn lead them to work together as well as share their expertise and important information to other members within an organization. This study also provides information for an understanding of knowledge management enablers, trust, and knowledge sharing within the context of SMEs in an emergent economy.

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