

The explanatory power of social capital in determining knowledge sharing in higher education: A case from Saudi Arabia

Abdullah Almuqrin^{1,2*}, Zuopeng (Justin) Zhang³, Aljawharah Alzamil^{4,5}, Ibrahim Mutambik², and Abdullah Alhabeeb²

¹ Deanship of Library Affairs, King Saud University, SAUDI ARABIA

² Faculty of Department of Information Science,
College of Arts, King Saud University, SAUDI ARABIA

³ Faculty of Department of Management, Coggin College of Business,
University of North Florida, USA

⁴ Research Center for Humanities, King Saud University, SAUDI ARABIA

⁵ Faculty of Department of Sociology,
College of Arts, King Saud University, SAUDI ARABIA

e-mail: * aalmogren@ksu.edu.sa (corresponding author); justin.zhang@unf.edu;
Aalzamil@ksu.edu.sa; imutambik@ksu.edu.sa; abalhabeeb@ksu.edu.sa

Abstract

Knowledge sharing strengthens individual creativity, critical thinking and innovation. It also improves research and development endeavors, performance and productivity at the organizational level. Knowledge sharing decreases the amount of red-tape faced by organizations, firms and individuals in achieving economic, as well as social improvements. Notwithstanding the plethora of empirical studies on knowledge sharing determinants, much confusion has been produced by differing conclusions. Using original data collected via questionnaires from a sample of 404 participants at a Saudi public university, this analysis tested the effect of social capital on knowledge sharing intentions and behaviors. Findings from the Structural Equation Model found support to the hypotheses claiming positive associations between social ties, trust, identification, reciprocity, shared language, and shared vision and knowledge sharing. This study proposes a practice-based strategy for higher learning institutions to improve knowledge sharing behaviors built on the two components of enhancing enabling environments and technical skills. On the theoretical level, this study argues that the effects of social capital constructs differ with respect to the context considered. In higher education, social capital is thought to have a weak significant positive explanatory power on knowledge sharing behaviors.

Keywords: Knowledge sharing behaviors; Social capital; Social networks; Structural Equation Modeling; Higher learning institutions.

INTRODUCTION

Knowledge sharing improves organizational performance by enhancing human capital, which in turn results in better productivity that translates into more efficient and effective services and products. It enhances individual and organizational information security, privacy and safeguarding practices. Knowledge sharing has been found to statistically positively improve individuals' commitment, engagement and activity with their organizations. It has also been shown to improve intrinsic and extrinsic motivations for

employees to learn new systems, as well as invest in their education to improve their performance at work.

The sheer amount of research on the determinants of knowledge sharing intentions and behaviors has led to a great amount of confusion. A large body of scholarship argues that social capital theory explains a significant part of knowledge sharing behaviors while others have vehemently disagreed. Factors such as social ties, trust, reciprocity, group identification, shared language and shared vision have been found to have strong, medium, weak and no relationship with knowledge sharing intentions and behaviors (Mushtaq and Rizwan 2018). The current study contributes to this debate by testing the factors in a large sample of faculty members at a large public Saudi university.

Results indicate that social capital theory has a weak statistically significant positive association with knowledge sharing behaviors. Social ties, trust, reciprocity, identification, shared language and shared vision all have significant paths linking them to knowledge sharing behaviors. This evidence is supported by many studies from the extant literature reviewed within Saudi Arabia and abroad. Such results have significant contributions to the theory and practice of knowledge sharing in organizations.

On the theoretical level, the current study validated scales developed in other contexts in a new environment, the Saudi higher education system. Second, the study confirmed the robustness of social capital theory developed in Western societies in the Saudi cultural context. Third, the many studies finding weak associations between social capital theory constructs and knowledge sharing behaviors were supported with data obtained from a new sample aiding in the invariance of effects of such constructs. Most importantly, this study suggests that the expected theoretical associations of social capital constructs rely heavily on the context of application. For instance, the effects of social ties, trust, reciprocity, identification, shared language and shared vision on knowledge sharing will differ systematically from homogenous groups, such as Saudi faculty at a public university, to heterogenous groups, such as large diverse teams working for multinational corporations.

On the practical side, this study suggests a plan for colleges and universities to enhance knowledge sharing behaviors. This strategy builds on strengthening enabling environments and technical abilities. It is built on the foundational belief that tacit knowledge should be packaged, instructed and disseminated in conventional learning formats like seminars, workshops and courses. Only through this can higher learning institutions improve the knowledge sharing intentions and behaviors of their staff. This web of activities should be linked to tangible financial rewards and supported by strong leadership modeling of knowledge sharing behaviors.

LITERATURE REVIEW

Knowledge Sharing

Knowledge sharing is understood as the process of exchanging information among a group of individuals in a network or organization (Fullwood, Rowley and McLean 2019). The knowledge transferred could be implicit or explicit (Chiu, Hsu and Wang 2006). The purpose of the exchange could be the creation of new services or products or completing a routine task at a specific unit. Knowledge sharing is undertaken in formal and informal settings (Mushtaq and Rizwan 2018). Organizations have made serious efforts to improve

knowledge sharing for its value in uplifting employees' performance and institutional productivity. Voluntary knowledge sharing in social networks also creates mediums where members exchange information for a variety of purposes (Sohail and Daud 2009).

Determinants of Knowledge Sharing

Information and Communication Technology Use

Active use of social networking sites facilitates knowledge sharing behaviors in Saudi Arabia. Eid and Al-Jabri (2016) found that being part of chatting and discussion groups, having a higher tendency to create content, possessing a file sharing intention and the enjoyment of being part of social networks all positively influenced knowledge sharing among students in higher education. Eid and Nuhu (2011) found that higher use of information and communication technologies was associated with increased knowledge sharing among Saudi students at King Fahad University.

Trust

Trust has been highlighted as the most important factor fostering knowledge sharing behaviors. Fullwood, Rowley and McLean (2019) suggested that trust was the most commonly cited factor that resulted in more frequent knowledge sharing among academics in the UK. Liang, Liu and Wu (2008) found that the average effect size of trust on knowledge sharing behaviors was 0.32. In a similar vein, Witherspoon et al. (2013) found trust to be statistically positively associated with knowledge sharing, in a meta-analysis of 26 studies focusing on online groups' knowledge sharing. Mushtaq and Rizwan (2018) demonstrated how low trust among engineering staff across different sectors and contexts led to lower frequency of knowledge sharing. Tamjidyamcholo et al. (2013) noted the strong association between trust and knowledge sharing intentions among information security personnel across contexts and countries.

Notwithstanding the overarching evidence supporting a positive association between trust and knowledge sharing attitudes and behaviors, few studies have found a negative or no association between different measures of trust and knowledge sharing behaviors. Yeo and Gold (2014) found a statistically negative association between trust and knowledge sharing attitudes among employees of small and medium enterprise organizations. By the same token, Chiu, Hsu and Wang (2006) reported a non-significant main effect linking trust to the quantity of knowledge sharing in virtual networks in their path analysis. Cheng, Yeh and Tu (2008) argued that in some organizations, opportunistic behaviors were rampant, causing trust to be an insignificant factor in determining employees' behaviors like knowledge sharing.

Trust has been identified as one of the most important determinants of knowledge sharing in Saudi Arabia. Idrees, Vasconcelos and Ellis (2018) used a qualitative grounded theory approach to identify determinants of knowledge sharing among five-star hotels in Saudi Arabia, finding trust to be the most influential factor. Hotels will share valuable information with other competitors based on perceived reciprocal behavior entailing that other parties will share similar future information. Youssef, Haak-Saheem and Youssef (2017) suggested that trust among members of organizations in Saudi Arabia facilitates knowledge sharing behaviors. Eid and Al-Jabri (2016) found a significant relationship between trust and the quality of knowledge sharing in online communities among students in Saudi universities.

Strength of Social Ties

Prior research has noted the importance of social ties or interactions among group members in determining their knowledge sharing behaviors. Fullwood, Rowley and McLean (2019) found a statistically significant positive association between the quality of knowledge sharing and social interactions frequency. Liang, Liu and Wu (2008) suggested that the strength of social ties measured in frequent interactions was positively associated with knowledge sharing behaviors with an effect size of 0.36. Wang, Ashleigh and Meyer (2006) demonstrated how trust can be replaced with social interaction among employees of research and development teams that facilitate more frequent and higher quality knowledge sharing behaviors.

Not all studies, however, have supported the positive association between knowledge sharing behaviors and social ties or interactions. For instance, Chiu, Hsu and Wang (2006) found that the quantity of knowledge sharing behaviors was not related to the frequency of social interactions among virtual group members. Similarly, Suh and Shin (2010) found no association between social interactions and knowledge sharing behaviors in virtual networks using data from collected and dispersed teams. In his extensive analysis of project teams, Hansen (1999) found that social ties in organizations did not facilitate the transfer of complex knowledge.

The strength of social ties among network members has likewise been shown to facilitate knowledge sharing among employees in Saudi organizations. Sohail and Daud (2009) found significant positive associations between norms of reciprocity at the workplace and knowledge sharing behaviors. In addition, they suggested that universities characterized with stronger faculty ties featured higher levels of knowledge sharing attitudes and behaviors compared to institutions with lower levels of social ties. Eid and Nuhu (2011) found that collective and collaborative learning tendencies among college students were associated with higher levels of knowledge sharing. Once students felt a community bond, they were more likely to help each other by sharing important information about courses, examinations, projects and assignments. Yeo and Gold (2014) found that the only factor fostering knowledge sharing behaviors in small and medium-sized enterprises was a collaborative climate characterized by strong social and organizational ties between team members. Aljuwaiber (2016) demonstrated how establishing communities of practice for information gathering and exchange developed stronger ties that led to increased knowledge sharing acceptance and practice across all types of organizations.

Reciprocity

Reciprocity has been found to positively enhance knowledge sharing behaviors across different types of organizations and countries (Fullwood, Rowley and McLean 2019). In a meta-analysis, Witherspoon et al. (2013) found that reciprocity had an overall effect size of 0.45 on knowledge sharing, and a collaborative culture in higher education among faculty and staff engendered higher levels of knowledge sharing in the workforce. On the other hand, low perceived collaboration among engineers has been associated with decreased reciprocal information exchange behaviors, resulting in diminished knowledge sharing (Mushtaq and Rizwan 2018). Alattas and Kang (2016) indicated that group culture outperformed any other type of culture in increasing the frequency and intensity of knowledge sharing across organizations. They argued that knowledge sharing is best fostered in settings where members of the same organization reciprocate the perceived and actual benefits of information exchange. Tamjidyamcholo et al. (2013) found a statistically significant positive association between norms of reciprocity and knowledge sharing intentions in an information security network. Chang and Chuang (2011) confirmed

the hypothesis claiming a significant positive association between norms of reciprocity and knowledge sharing behaviors. Chiu, Hsu and Wang (2006) documented positive correlations between reciprocity and knowledge sharing in terms of quantity and quality.

Some researchers have disagreed with the assumption of a positive association between reciprocity and knowledge sharing behaviors. Lin, Hung and Chen (2009), for example, found no association between reciprocity and knowledge sharing in virtual networks. Caimo and Lomi (2015) concluded that regular reciprocal behaviors among team members did not guarantee the transfer of expert and valuable information. Instead, knowledge sharing behaviors were only common when reciprocity was repeated and strong for a sustained period of time. Endres and Chowdhury (2013) argued that norms of reciprocity only result in more frequent knowledge sharing behaviors when members of the team are competent and homogenous demographically. In large diverse teams, reciprocity is expected to possess a weak influence on knowledge sharing behaviors.

As with other countries, reciprocity has been highlighted as an important factor in determining knowledge sharing behaviors in Saudi organizations. Al-Qadhi et al. (2015) noted that reciprocity increased the likelihood of complex knowledge transfer among diverse team members. Lei (2016) found strong support that expected reciprocal behaviors were associated with higher intentions of knowledge sharing in the Saudi cultural context. Madichie, Alharbi and Singh (2013) concluded that reciprocity facilitated rapport, trust and social interactions, thereby improving knowledge sharing intentions and behaviors in Saudi institutions.

Group Attachment (Identification)

Knowledge sharing behaviors are found to be more frequent in environments where members of a group network experience a sense of belonging to the same community. Tella (2016) found that perceived citizenship, the feeling of belonging to the same organization, had the highest positive correlation with knowledge sharing among a sample of Nigerian employees. Chiu, Hsu and Wang (2006) demonstrated a positive relationship between identification with the network and the quantity and quality of knowledge sharing in virtual groups. In Carmeli, Atwater and Levi's (2013) study, relational and organization identifications facilitated knowledge sharing behaviors among research and development employees in large organizations. Ho, Kuo and Lin (2012) concluded that identification had a strong mediating effect on knowledge sharing in organizations. Their results confirmed an earlier finding by Van den Hooff et al. (2003) that the feeling of belonging to a community of shared information was the strongest predictor of knowledge sharing behaviors.

Not all researchers, however, have found support for a positive association between identification and knowledge sharing behaviors. Rosendaal and Bijlsma-Frankema (2015) found that strong team identification among public school teachers negatively moderated the association between work value diversity and knowledge sharing. They argued that in teams where members had stark value differences and high identification, knowledge sharing was lower due to perceived threats signaled by differences in opinion remarks. Willem and Buelens (2007) found that in public-sector organizations, identification only had a weak effect on knowledge sharing behaviors due to the potential of masked relational and organizational attachment exhibited for personal gain. Rosendaal (2009) suggested that increasing diversity weakened various types of identification and resulted in diminished knowledge sharing behaviors since employees failed to develop strong community bonds.

Social, organizational and relational identifications have been found to improve knowledge sharing intentions and behaviors in Saudi Arabia. Al-Qadhi et al. (2015) suggested that similar cultural backgrounds among Saudi employees fostered a collaborative work environment where identification is constructed faster compared to more diverse contexts. Aljuwaiber (2016) found Saudi organizations that fostered multi-layered identification strengthened community belonging, thereby improving knowledge sharing behaviors. In a study by Idrees, Vasconcelos and Ellis (2018), Saudi employees had high collective cultural affiliations, making it easier for them to develop attachments with their peers at work and making knowledge sharing attitudes and behaviors more likely.

Shared Vision

Researchers have suggested a robust connection between shared vision among members of social networks and their knowledge sharing behaviors. Evans, Wensley and Choo (2012) indicated that shared vision was associated with more frequently sharing knowledge and using such information in work-related settings. In Magnini's (2008) study, a shared vision among teams working in the international tourism industry fostered knowledge sharing behaviors. Reporting similar findings, Rosen, Furst and Blackburn (2007) noted that shared values and commitment to the organization resulted in more frequent knowledge sharing.

A few studies have also documented weak or no association between shared vision and knowledge sharing behaviors. Kim and Tcha (2012) concluded that shared values among employees was insufficient to initiate knowledge sharing behaviors. They argued that only when proper channels of communication were established and reciprocal perceptions were present was knowledge sharing likely to occur. Evans, Wensley and Frissen (2015) demonstrated that the effect of a shared vision on knowledge sharing behaviors was indirect and mediated through trustworthiness in team members.

Saudi researchers have found having a shared vision in an organization to be related to improved knowledge sharing behaviors. Al-Beraidi and Rickards (2003) suggested that accounting teams were more likely to exchange procedural and substantive information if members believed in the objectives of their offices and organization. Alosaimi, Renukappa and Suresh (2018) indicated that once networks created a shared vision and team members aligned their aspirations with that vision, knowledge sharing was more frequent and valuable. In another study, Alammari and Chandran (2016) demonstrated that once members of virtual communities believed in the same vision behind the creation of their group, they were more likely to exhibit intentions and behaviors related to knowledge sharing.

Shared Language

Researchers interested in knowledge sharing attitudes and behaviors have examined the potential importance of shared language on knowledge sharing frequency and quality. Chang and Chuang (2011) documented a positive association between shared language and knowledge sharing behaviors. Chiu, Hsu and Wang (2006) found that shared language had statistically significant positive associations with the quantity and quality of knowledge sharing in virtual communities. Lefebvre et al. (2016) suggested a positive association between shared language and knowledge sharing behaviors, as a shared language created an engaging environment that facilitated knowledge sharing. Luring and Selmer (2011) concluded that consistency of English communication among members of multinational organizations facilitated knowledge sharing behaviors.

However, Tamjidyamcholo et al. (2013) found no association between shared language and knowledge sharing intentions or attitudes among information security professionals. Similarly, Evans (2013) suggested no direct association between shared language and knowledge sharing behaviors among employees in the largest Canadian multi-jurisdictional law firm. Evans, Wensley and Frissen (2015) showed that the effect of shared language on knowledge sharing behaviors was indirect and mediated through trustworthiness in team members. Li (2010) suggested that in culturally diverse teams where many languages were spoken, a shared language among certain members did not facilitate knowledge sharing.

Positive associations between shared language and knowledge sharing behaviors have also been observed in Saudi organizations. Eid and Nuhu (2011) found that speaking the same language (Arabic) facilitated the exchange of information on virtual networks among university students. Al-Qadhi et al. (2015) concluded that the use of Arabic in diverse Saudi teams fostered trust, which facilitated knowledge sharing. Aljuwaiber (2016) likewise found that Arabic use in highly diverse groups improved knowledge sharing behaviors.

THEORETICAL FRAMEWORK

Social Capital

Social capital is understood in many different ways in the social sciences and management fields. In the words of Bourdieu (1986, p.248), it refers to “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition.” This type of social capital is possessed by the elite due to an established network of favors exchanged between members of the upper classes. For instance, an elite club offering sporting and recreational services will have a network of members who help each other due to the strength of social ties created by club membership. In contrast, Coleman (1988, p.302) defined social capital as “a variety of different entities, having two characteristics in common: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure.” This conceptualization applies to all members of society regardless of socio-economic status. Any member of a social network, family, city council, library club or tribe can utilize his or her membership to achieve certain outcomes. For instance, single mothers in South Side, Chicago, can rely on neighbors to watch their children play in the streets due to perceived membership in the same community. In line with this understanding, Putnam (1993) defined social capital as any benefit accrued due to membership in a social network. A man getting a ride from a fellow book club member is benefiting from his group membership to obtain that service.

Social capital frameworks can explain knowledge sharing behaviors. For information to be exchanged among members, a social network must be in place (Kim and Tcha 2012). This network could be a work team, an organizational unit or a virtual community sharing a common interest. Supply and demand must also occur. One member requests certain information and awaits its provision by other members. The exchange of information, the act of knowledge sharing, is a benefit accrued from the social network (Evans, Wensley and Frissen 2015).

Social capital is a multidimensional construct with structural, relational and cognitive dimensions (Lee 2009). The structural dimension represents the strength of social ties within a given network. The relational dimension represents the exchange of relationships among members. This includes trust, reciprocity and group attachment or identification

(Robert, Dennis and Ahuja 2008). The cognitive dimension refers to perceived shared characteristics among group members like language and vision (Lee 2009). All such factors are said to influence knowledge sharing intentions and behaviors as the review of the literature demonstrated. The following section presents the research hypotheses and a discussion outlining how each factor could potentially affect knowledge sharing in social networks.

Research Hypotheses

Social ties and interactions refer to the frequency, intensity and depth of relations among members of a social or virtual group (Al-Beraidi and Rickards 2003). If relations are strong, institutionalized and durable, knowledge sharing becomes more frequent. The chain of intense relations creates a sense of responsibility for increasing the knowledge of group members, making individuals more willing to exercise knowledge sharing behaviors (Chiu, Hsu and Wang 2006). In addition, the strong bonds established by longstanding ties between group members create a cooperative reciprocal environment where members expect each other to collaborate in the future, exhibiting an assisting behavior by supplying information when requested (Rosendaal 2009). Furthermore, strong social ties create a sense of survival for the group where each member feels obligated to help others keep the group going. Therefore, *it is hypothesized that stronger and deeper social ties and interactions are associated with more frequent knowledge sharing intentions and behaviors.*

Trust is “the extent to which one is willing to ascribe good intentions and have confidence in the words and actions of other people” (Cook and Wall 1980, p.39). Members of social networks who perceive others as genuine, honest and helpful are more willing to exhibit assistive behaviors like knowledge sharing (Al-Beraidi and Rickards 2003). If mistrust, trickery and opportunism are ruled out in social network exchanges of information, members are more likely to share information. It becomes a personal duty to help those in need since one may require assistance in the future (Chiu, Hsu and Wang 2006). This is strengthened further in networks that have witnessed repeated honest and trustworthy patterns of behavior, increasing the willingness of members to exchange knowledge. Therefore, *it is hypothesized that higher levels of trust are associated with more frequent knowledge sharing intentions and behaviors.*

Group attachment or identification is the development and declaration of affiliation to a specific network or social structure (Rosendaal 2009). A community bond among members generates an expectation that all members will help each other, fostering a cooperative culture. Being an identifiable member of a network is also associated with accessing exclusive benefits only available to the group, making members more likely to help each other since they may need such help in the future. Based on this logic, *it is hypothesized that stronger feelings of attachment or identification to a social network are associated with more frequent knowledge sharing intentions and behaviors.*

Reciprocity refers to delivering favors in exchange for benefits received earlier. It establishes a system of quid pro quos. Individuals expect to be assisted once they help other members of a social network (Caimo and Lomi 2015). This creates a sense of obligation motivating individuals to respond positively when asked for help. Once knowledge is requested, it is more likely to be furnished by members given their expectation of reciprocity. Therefore, *it is hypothesized that high perceptions of reciprocity are associated with more frequent knowledge sharing intentions and behaviors.*

Shared language refers to the common lexicon utilized by members of a social group (Alammari and Chandran 2016). It facilitates communication, builds rapport and cultivates trust among members. In diverse groups where multiple languages are spoken, it is difficult to establish a common reference among members, hampering the development of trust. Shared language bridges differences to help members feel a common attachment to a unified reference, making cooperation more likely (Chiu, Hsu and Wang 2006). As such, *it is hypothesized that shared language in social networks is associated with more frequent knowledge sharing intentions and behaviors.*

Shared vision refers to the common values espoused by members of a social network (Rosendaal 2009). Working together to realize shared objectives regardless of their nature conveys a message of belonging and cooperation. This reinforces trust, reciprocity and collaboration in a group, developing an intrinsic motivation to be helpful. Once knowledge is demanded by a group member, other members are more likely to supply the requested knowledge out of concern for the group's survival and vision fulfillment (Caimo and Lomi 2015). Therefore, *it is hypothesized that shared vision in social networks is associated with more frequent knowledge sharing intentions and behaviors.* Figure 1 presents the theoretical model tested in this study.

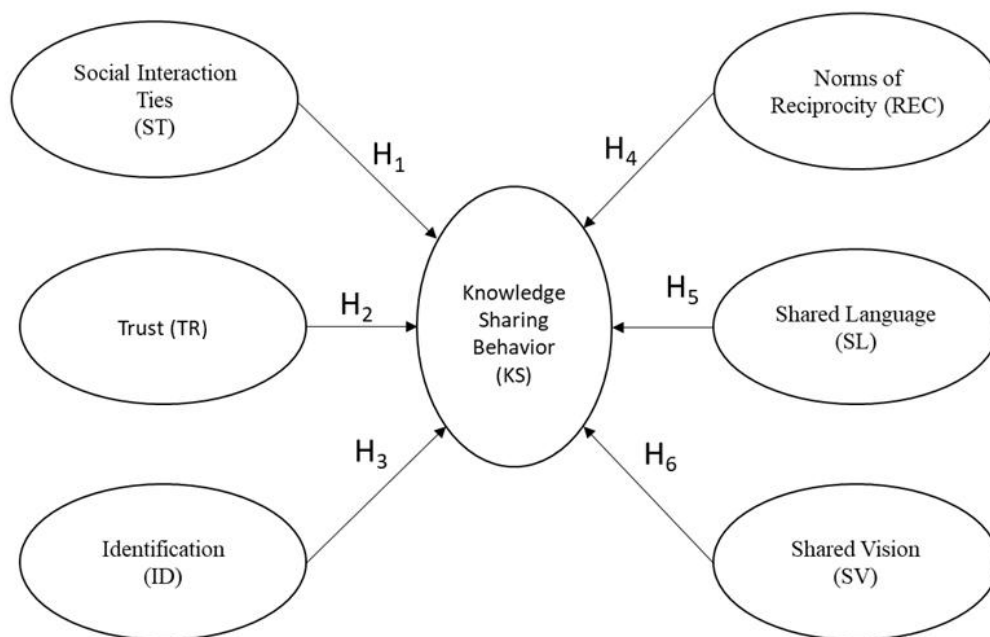


Figure 1: The Research Model to be Tested

METHOD

Research Design

This research is part of a larger mixed methods study investigating the effects of trust, reciprocity, group attachment (identification), social ties, shared vision and shared language on knowledge sharing intentions and behaviors in a sample of Saudi academics. The quantitative analysis reported in this study employed Structural Equation Modeling (SEM) to test the structural and measurement models proposed in Figure 1. The qualitative analysis, employing the Delphi method, featured open-ended interviews with a panel of

experts to establish consensus on the factors influencing Saudis' knowledge sharing intentions and behaviors.

The sample consisted of faculty members at a major public university in Saudi Arabia. Convenience sampling as a form of non-probability sampling was used due to the absence of a sampling frame containing all faculty members working for Saudi universities. A total of 531 invitations were sent to potential participants, and 404 completed questionnaires were returned, yielding a 76 percent response rate. Table 1 shows the demographic analysis of the sample.

Table 1: Participant Demographics

		Frequency	Percent
Mean Age		33	
Gender	Female	208	51.5%
	Male	196	48.5%
Education	Bachelor's	134	33.2%
	Master's	147	36.4%
	PhD	116	28.7%
	Other	7	1.7%
Major (College)	Art	32	7.9%
	Computer	38	9.4%
	Education	62	15.3%
	Engineering	39	9.7%
	Management	53	13.1%
	Medicine	43	10.6%
	Science	48	11.9%
	Other	89	22.0%
Have at least one social media account	Yes	404	100.0%
Have more than one social media account	No	105	26.0%
	Yes	299	74.0%
Years using social media	Less than 1 year	1	0.2%
	1-3 years	8	2.0%
	3-5 years	62	15.3%
	5+ years	333	82.4%
I am a member of	Facebook	202	50.0%
	Twitter	335	83.0%
	LinkedIn	140	34.7%
	WhatsApp	375	93.0%
	Snapchat	304	75.2%
	Other	183	45.2%

A web-based survey was used instead of a paper-based survey for its faster response collection, lower cost, and wider accessibility. Google Forms hosted the questionnaire for data collection. Due to security and privacy policies in the university, the survey link was emailed to the IT department, which sent the link to all faculty members and requested their participation. With the cooperation of the IT department, three more emails were sent at different times as reminders to participate. The email sent to faculty included a description of the research purpose and a request for participants to answer the questionnaire based on their knowledge and experience. Additionally, participants were informed that data collected would be kept confidential and used only for the purpose of this study. Participants were prompted to provide their consent before answering the questionnaire. Data were collected during the spring and summer of 2018.

The Instrument and Measurement of Variables

The questionnaire was adapted from validated scales to measure knowledge sharing and social capital constructs. It was tested using a pilot sample to ensure the items were clear and understandable. This step was accomplished by having five experts in management and information technology complete the questionnaire and suggest potential changes. Based on their feedback, minor modifications were made to item wording and sequencing.

The questionnaire collected demographic data and measured knowledge sharing, social interaction ties, trust, norms of reciprocity, identification, shared language and shared vision on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The researchers wrote the questionnaire in English (see Appendix) and translated it into Arabic, and two Arabic-English speakers reviewed the translation. The survey was thus offered in Arabic and English.

The eight questionnaire items for knowledge sharing behavior were adapted from Casimir, Lee and Loon (2012) and Hsu et al. (2007). The five items for social interaction ties were adapted from Chiu, Hsu and Wang (2006) and Hau et al. (2013). The six for trust were adapted from Chiu, Hsu and Wang (2006) and McKnight, Choudhury and Kacmar (2002). The four for identification were adapted from Chiu, Hsu and Wang (2006). The three for norms of reciprocity were adapted from Chiu, Hsu and Wang (2006) and Wasko and Faraj (2005). Finally, the three items for shared language and the three for shared vision were adapted from Chiu, Hsu and Wang (2006) and Nahapiet and Ghoshal (1998).

Moreover, a pilot study was conducted with help from 15 professors, 16 PhD students and 20 master's degree students from a major public university in Saudi Arabia. This helped with selecting the research method and assessing the appropriateness of the measurement items to the research variables. The IBM Amos 25 was used to evaluate the structural model and measurement model by applying the maximum likelihood method to guarantee validity. A strong internal consistency of all item constructs was confirmed with Cronbach's alpha coefficients of 0.77 or higher. Furthermore, the pilot sample was used to conduct confirmatory factor analysis on the measurement items. The results showed significant confirmatory factor loadings, high values of R^2 and confirmation of convergent validity.

RESULTS

Confirmatory factor analysis was employed to evaluate the validity of the scales. The correlation matrix was the input information for maximum likelihood estimation fitted using AMOS 22. All constructs were allowed to co-vary. The principles used to assess validity were the following: all measured loadings must exceed 0.6, reliability of constructs must exceed 0.8, and the average variance extracted (AVE) of each construct must be higher than 0.5 and more than the variance of the construct. Table 2 presents the item descriptive statistics and factor loadings. Note that all factor loadings exceeded 0.6, generating a consistently valid structure, as hypothesized. Table 3 presents inter-item correlations among constructs and their AVE values. Table 3 demonstrates further evidence for construct validity as all AVE values exceeded 0.5 and all inter-item correlations among constructs were below 0.5, indicating discriminant validity. In addition, diagonal elements, the square-root of AVE, were larger than off-diagonal elements, inter-item correlations, indicating discriminant validity.

Table 2: Descriptive Statistics and Factor Loadings for Items

Construct	Mean	SD	Factor Loading	Construct	Mean	SD	Factor Loading
KS1	3.42	1.12	0.82	ID4	3.21	1.07	0.81
KS2	3.13	1.16	0.84	TR1	2.64	1.12	0.73
KS3	3.34	1.14	0.81	TR2	2.34	1.03	0.75
KS4	3.34	1.25	0.84	TR3	2.51	1.18	0.78
KS5	3.12	1.21	0.79	TR4	2.91	1.12	0.74
KS6	3.32	1.12	0.81	TR5	2.83	1.14	0.81
ST1	3.52	1.16	0.76	REC2	3.59	1.16	0.83
ST2	3.21	1.17	0.81	REC3	3.61	1.19	0.76
ST3	2.87	1.21	0.82	SL1	3.54	1.15	0.72
ST4	3.38	1.25	0.75	SL2	3.76	1.17	0.82
ST5	3.53	1.21	0.80	SL3	3.21	1.14	0.79
ID1	2.93	1.12	0.73	SV1	3.34	1.09	0.76
ID2	2.98	1.09	0.81	SV2	3.12	1.15	0.81
ID3	2.79	1.12	0.73	SV3	3.09	1.12	0.72

Table 3: Correlations and AVE

Construct	AVE	KS	ST	ID	TR	REC	SL	SV
KS	0.62	0.78						
SIT	0.71	0.49	0.84					
ID	0.69	0.41	0.48	0.83				
TR	0.63	0.36	0.37	0.42	0.79			
REC	0.73	0.47	0.42	0.38	0.28	0.85		
SL	0.68	0.39	0.35	0.32	0.21	0.38	0.82	
SV	0.62	0.29	0.31	0.47	0.43	0.32	0.32	0.78

Note: Diagonal elements (in bold) are the AVE. Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Next, Cronbach’s alpha and composite reliability were utilized to verify the reliability of the scales. This tool guarantees the internal consistency of participants’ responses. According to prior studies, the reliability and composite reliability of a construct can be established if the Cronbach’s alpha and composite reliability values are more than 0.7 (Hair et al. 2006). Table 4 shows that reliability coefficients exceeded 0.7, indicating internal consistency and convergent validity. As illustrated in Table 5, in the confirmatory factor analysis, χ^2/df was 2.04 ($\chi^2 = 910$, $df = 443$), NNFI was 0.92, CFI was 0.95, and RMSEA was 0.058, demonstrating appropriate model fit.

Table 4: Reliability Metrics

Construct	Item	Cronbach’s Alpha	Composite Reliability
KS	8	0.81	0.86
SIT	5	0.85	0.82
ID	4	0.82	0.83
TR	6	0.83	0.83
REC	3	0.79	0.73
SL	3	0.81	0.78
SV	3	0.76	0.79

Table 5: Model Fit Results for the Structural Model

Index	Results	Ideal Acceptance Level
Chi-Square (χ^2 / df)	2.04	Value \leq 3.0
NNFI	0.92	Value \geq 0.9
CFI	0.95	Value \geq 0.9
RMSEA	0.058	Value \leq 0.08

Due to the negative consequences of common method bias, it was necessary to detect and diagnose its presence before digging deeply into the structural model analysis. Accordingly, Harman’s Single-Factor Test, commonly used in the field of information systems when common method bias is a concern, was employed using the 32 latent constructs of this study and SPSS (Version 25) (Aguirre-Urreta and Hu 2019; Harman 1976). The results showed no significant threat associated with common method bias. The first extracted factor was less than 38.67% of variance, which was an acceptable result as it was much less than the 0.50 recommended value.

As presented in Figure 2, the results showed a significant positive relationship between knowledge sharing behavior and social interaction ties, supporting Hypothesis 1 (path coefficient = 0.28, $p < 0.001$); trust among members, supporting Hypothesis 2 (path coefficient = 0.29, $p < 0.001$); identification, supporting Hypothesis 3 (path coefficient = 0.26, $p < 0.001$); norms of reciprocity, supporting Hypothesis 4 (path coefficient = 0.27, $p < 0.001$); shared language, supporting Hypothesis 5 (path coefficient = 0.22, $p < 0.001$); and shared vision, supporting Hypothesis 6 (path coefficient = 0.21, $p < 0.001$).

Figure 2 shows the values of R^2 (or the coefficient of determination), which is the relationship between the explained variation and the total variation. The value of R^2 for knowledge sharing behavior on social media was 0.36. This means 36% of the variance in knowledge sharing behavior of social network users was explained by the social capital variables of social interaction ties, trust, norms of reciprocity, identification, shared language and shared vision.

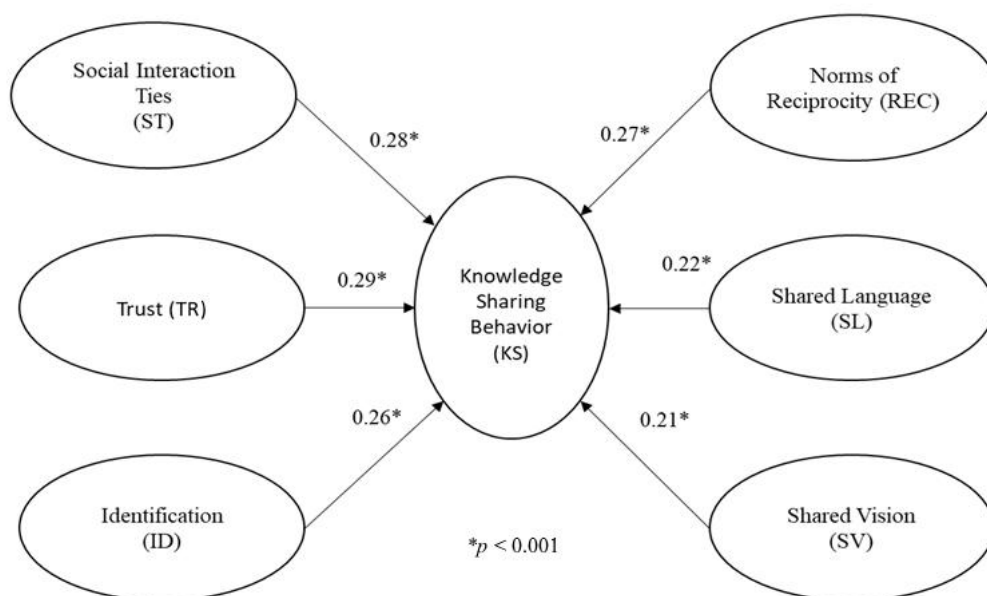


Figure 2: The Structural Research Model

DISCUSSION AND CONCLUSION

The results demonstrated the ability of social media users to exchange knowledge and perceive this exchange as fair. Norms of reciprocity were a significant factor supporting knowledge sharing on social networks. This factor was found to foster learning and encourage people to share their knowledge and experiences at individual and organizational levels. These findings were similar to those of Elsayess (2018), who suggested reciprocity increased the participation of software developers in the United States and contributed to 70 percent of their knowledge sharing behavior. Similarly, a study in Taiwan revealed that norms of reciprocity had a significant positive effect on knowledge sharing (Chang and Chuang 2011). This outcome can be explained because people usually like to help others when they can, hoping for future reciprocal exchanges and interaction. Due to the nature of social networks, reciprocity is more salient, and frequent interactions enhance the norms of reciprocity through shared understanding and knowledge.

The findings of this study support the overall weak statistical significance of social capital theory in explaining knowledge sharing intentions and behaviors in Saudi Arabia. This evidence contradicts some studies that reported medium to strong effects of social capital in Saudi Arabia and elsewhere. This discrepancy might be due to the study setting, as face-to-face networks could rely more than virtual networks on social capital. Furthermore, trust, social ties and reciprocity are harder to nourish and sustain in virtual networks.

The findings indicated that social ties, trust, reciprocity, identification, shared language and shared vision significantly improved knowledge sharing behavior. This contradicts previous studies that found no relationship or negative associations between such factors and knowledge sharing. This finding might also be due to moderating factors of the study context, as the participants all knew Arabic and worked for the same institution, which was not very diverse.

This research highlights the significance of social capital in harnessing knowledge sharing in higher education. For administrators, faculty and policymakers, the study proposes a strategy to make colleges and universities in Saudi Arabia knowledge sharing organizations. Two components are necessary for achieving high knowledge sharing outcomes: enabling environments and technical skills, as seen in Figure 3.

Academic leaders should model good knowledge sharing behaviors. Presidents, provosts and deans should create regular forums of information exchange with their subordinates and students sharing essential knowledge about their work, units, technical expertise and other requested essential information. This creates a conducive culture of information exchange. Leaders should also issue policies that encourage and reward knowledge sharing. For example, they could require departments to hold more conferences and forums, which facilitate knowledge exchange, and they could promote interdisciplinary cooperative research projects. In addition, policies and incentives should be linked to real financial outcomes, where participants benefit directly from knowledge sharing behaviors. Partnerships with local communities, organizations and global leaders should likewise be encouraged and rewarded.



Figure 3: The Two Components Necessary for High Knowledge Sharing Outcomes

In the realm of technical abilities, leaders in higher education should promote the identification and capture of contextual knowledge acquired by different departments and faculty. This can be achieved by providing financial incentives for faculty and units to teach their experiences to others within the institution. Codifying knowledge in faculty and operational development programs and workshops can also improve knowledge sharing. Knowledge should be explicitly presented in a meaningful form, such as seminars or courses taken by others. Most importantly, all such products should be shared with all members of the institution.

Along with its findings, this study had several limitations. A convenience sample, cross-sectional design and self-reported data introduced possible biases in estimating the effects of exogenous constructs on knowledge sharing behaviors. Random-probability-based designs could generate more externally valid conclusions, while panel and longitudinal designs could help draw more causal associations linking the hypothesized factors. To operationalize knowledge sharing in future research, direct measures could be used rather than relying on individuals' self-perceptions.

Future researchers should utilize more than one model to identify determinants of knowledge sharing behaviors. While social capital theory is a recurring important framework, knowledge sharing is not only a product of its effects. Organizational frameworks and other contextual factors should be included in models to better estimate the real effects of each model or factor hypothesized.

Close inspection of universities with strong knowledge sharing could shed light on specific practices that could be packaged and taught in standardized format. Future studies should thus focus on crucial cases that exhibit high standards of knowledge sharing and link their findings to the specific context (in this case, higher education). In addition, applicable recommendations should be offered to stakeholders in the industry being studied to maximize the use of knowledge sharing behaviors.

Some of the divergence in effect sizes reported in the literature concerning associations linking social ties, trust, reciprocity, identification, shared language and shared vision with knowledge sharing behaviors could be due to methodological differences. Different scales, measurement strategies, sampling designs and estimation techniques have been used by different researchers. Therefore, this study calls for using more standardized techniques to study the effects of social capital on knowledge sharing intentions and behaviors.

ACKNOWLEDGEMENTS

This research project was supported by a grant from the Research Center for the Humanities, Deanship of Scientific Research, King Saud University, as part of Initiative (4.4): *Promoting Interdisciplinary Research Among Social Sciences, Humanities, and Other Sciences* (PIR-1-19-09).

REFERENCES

- Aguirre-Urreta, M. I., and Hu, J. 2019. Detecting common method bias: performance of the Harman's single-factor test. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, Vol. 50, no. 2: 45-70.
- Alammari, A., and Chandran, D. 2016. *Knowledge-sharing adoption in Saudi universities' e-learning communities*. Paper presented at the 22nd Americas Conference on Information Systems, August 2016, at San Diego, United States.
- Alattas, M., and Kang, K. 2016. *The relationship between organization culture and knowledge sharing towards business system success*. Available at: <https://arxiv.org/ftp/arxiv/papers/1606/1606.02460.pdf>.
- Al-Beraidi, A., and Rickards, T. 2003. Creative team climate in an international accounting office: an exploratory study in Saudi Arabia. *Managerial Auditing Journal*, Vol. 18, no. 1: 7-18.
- Aljuwaiber, A. 2016. Communities of practice as an initiative for knowledge sharing in business organisations: a literature review. *Journal of Knowledge Management*, Vol. 20, no. 4: 731-748.
- Alosaimi, H., Renukappa, S. and Suresh, S. 2018. *Drivers and challenges for managing knowledge in the Kingdom of Saudi Arabia construction industry*. Paper presented at the 19th European Conference on Knowledge Management, September 2018, at University of Padua, Italy.
- Al-Qadhi, Y. H., Md Nor, K., Ologbo, A. C., and Knight, M. B. 2015. Knowledge sharing in a multi-nationality workforce: examining the factors that influence knowledge sharing among employees of diverse nationalities. *Human Systems Management*, Vol. 34, no. 3: 149-165.
- Bourdieu, P. 1986. The forms of capital. In M. Granovetter (ed.), *The sociology of economic life*. New York, NY: Routledge.
- Caimo, A., and Lomi, A. 2015. Knowledge sharing in organizations: a Bayesian analysis of the role of reciprocity and formal structure. *Journal of Management*, Vol. 41, no. 2: 665-691.
- Carmeli, A., Atwater, L., and Levi, A. 2011. How leadership enhances employees' knowledge sharing: the intervening roles of relational and organizational identification. *The Journal of Technology Transfer*, Vol. 36, no. 3: 257-274.
- Casimir, G., Lee, K., and Loon, M. 2012. Knowledge sharing: influences of trust, commitment and cost. *Journal of Knowledge Management*, Vol. 16, no. 5: 740-753.

The Explanatory Power of Social Capital in Determining Knowledge Sharing in Higher Education

- Chang, H. H., and Chuang, S. S. 2011. Social capital and individual motivations on knowledge sharing: participant involvement as a moderator. *Information & Management*, Vol. 48, no. 1: 9-18.
- Cheng, J. H., Yeh, C. H., and Tu, C. W. 2008. Trust and knowledge sharing in green supply chains. *Supply Chain Management: An International Journal*, Vol. 13, no. 4: 283-295.
- Chiu, C. M., Hsu, M. H., and Wang, E. T. 2006. Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories. *Decision Support Systems*, Vol. 42, no. 3: 1872-1888.
- Coleman, J. S. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, Vol. 94, no. 1988: 95-120.
- Cook, J., and Wall, T. 1980. New work attitude measures of trust, organizational commitment and personal need non-fulfilment. *Journal of Occupational Psychology*, Vol. 53, no. 1: 39-52.
- Eid, M., and Nuhu, N. A. 2011. Impact of learning culture and information technology use on knowledge sharing of Saudi students. *Knowledge Management Research & Practice*, Vol. 9, no. 1: 48-57.
- Eid, M. I., and Al-Jabri, I. M. 2016. Social networking, knowledge sharing, and student learning: the case of university students. *Computers & Education*, Vol. 99, no. 2016: 14-27.
- Elsayess, M. B. 2018. *The relationship of negotiation and reciprocity to knowledge sharing among software developers*. Doctoral dissertation, Capella University.
- Endres, M. L., and Chowdhury, S. 2013. The role of expected reciprocity in knowledge sharing. *International Journal of Knowledge Management*, Vol. 9, no. 2: 1-19.
- Evans, M. M. 2013. Is trust the most important human factor influencing knowledge sharing in organisations? *Journal of Information & Knowledge Management*, Vol. 12, no. 4. Available at: <https://doi.org/10.1142/S021964921350038X>.
- Evans, M., Wensley, A., and Choo, C. W. 2012. *How shared language and shared vision motivate effective knowledge sharing behavior*. Paper presented at the 13th European Conference on Knowledge Management, September 2012, Cartagena, Spain.
- Evans, M., Wensley, A., and Frissen, I. 2015. The mediating effects of trustworthiness on social-cognitive factors and knowledge sharing in a large professional service firm. *Electronic Journal of Knowledge Management*, Vol. 13, no. 3: 240-253.
- Fullwood, R., Rowley, J., and McLean, J. 2019. Exploring the factors that influence knowledge sharing between academics. *Journal of Further and Higher Education*, Vol. 43, no. 8: 1051-1063.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., and Tatham, R. 2006. *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hansen, M. T. 1999. The search-transfer problem: the role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, Vol. 44, no. 1: 82-111.
- Harman, H. H. 1976. *Modern factor analysis*. Chicago, IL: University of Chicago Press.
- Hau, Y. S., Kim, B., Lee, H., and Kim, Y. G. 2013. The effects of individual motivations and social capital on employees' tacit and explicit knowledge sharing intentions. *International Journal of Information Management*, Vol. 33, no. 2: 356-366.
- Ho, L. A., Kuo, T. H., and Lin, B. 2012. How social identification and trust influence organizational online knowledge sharing. *Internet Research*, Vol. 22, no. 1: 4-28.
- Hsu, M. H., Ju, T. L., Yen, C. H., and Chang, C. M. 2007. Knowledge sharing behavior in virtual communities: the relationship between trust, self-efficacy, and outcome expectations. *International Journal of Human-Computer Studies*, Vol. 65, no. 2: 153-169.

- Idrees, I. A., Vasconcelos, A. C., and Ellis, D. 2018. Clique and elite: inter-organizational knowledge sharing across five-star hotels in the Saudi Arabian religious tourism and hospitality industry. *Journal of Knowledge Management*, Vol. 22, no. 6: 1358-1378.
- Kim, Y., and Tcha, M. 2012. *Introduction to the knowledge sharing program (KSP) of Korea*. Available at: <https://core.ac.uk/download/pdf/51174414.pdf>.
- Lauring, J., and Selmer, J. 2011. Multicultural organizations: common language, knowledge sharing and performance. *Personnel Review*, Vol. 40, no. 3: 324-343.
- Lee, R. 2009. Social capital and business and management: setting a research agenda. *International Journal of Management Reviews*, Vol. 11, no. 3: 247-273.
- Lefebvre, V. M., Sorenson, D., Henchion, M., and Gellynck, X. 2016. Social capital and knowledge sharing performance of learning networks. *International Journal of Information Management*, Vol. 36, no. 4: 570-579.
- Lei, W. 2016. Building of social capital among workers in project teams and its effect on knowledge sharing: a Saudi Arabia's cultural context. *International Journal of Innovation and Economic Development*, Vol. 2, no. 2: 33-40.
- Li, W. 2010. Virtual knowledge sharing in a cross-cultural context. *Journal of Knowledge Management*, Vol. 14, no. 1: 38-50.
- Liang, T. P., Liu, C. C., and Wu, C. H. 2008. *Can social exchange theory explain individual knowledge-sharing behavior? A meta-analysis*. Paper presented at the 29th International Conference on Information Systems, December 2008, at Paris, France.
- Lin, M. J. J., Hung, S. W., and Chen, C. J. 2009. Fostering the determinants of knowledge sharing in professional virtual communities. *Computers in Human Behavior*, Vol. 25, no. 4: 929-939.
- Madichie, N. O., Alharbi, J., and Singh, S. 2013. Knowledge transfer, controls, and performance of MNE subsidiaries in the Kingdom of Saudi Arabia. *Foresight*, Vol. 15, no. 4: 294-306.
- Magnini, V. P. 2008. Practicing effective knowledge sharing in international hotel joint ventures. *International Journal of Hospitality Management*, Vol. 27, no. 2: 249-258.
- McKnight, D. H., Choudhury, V. and Kacmar, C. 2002. Developing and validating trust measures for e-commerce: an integrative typology. *Information Systems Research*, Vol. 13, no. 3: 334-359.
- Mushtaq, I., and Rizwan, A. 2018. Obstacles to knowledge sharing in engineering organisations: a quantitative approach. *International Journal of Knowledge Management Studies*, Vol. 9, no. 3: 293-307.
- Nahapiet, J., and Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, Vol. 23, no. 2: 242-266.
- Putnam, R. 1993. The prosperous community: social capital and public life. *The American Prospect*, Vol. 13, no. 4: 35-42.
- Robert, L. P., Dennis, A. R., and Ahuja, M. K. 2008. Social capital and knowledge integration in digitally enabled teams. *Information Systems Research*, Vol. 19, no. 3: 314-334.
- Rosen, B., Furst, S., and Blackburn, R. 2007. Overcoming barriers to knowledge sharing in virtual teams. *Organizational Dynamics*, Vol. 36, no. 3: 259-273.
- Rosendaal, B. 2009. Sharing knowledge, being different and working as a team. *Knowledge Management Research & Practice*, Vol. 7, no. 1: 4-14.
- Rosendaal, B., and Bijlsma-Frankema, K. 2015. Knowledge sharing within teams: enabling and constraining factors. *Knowledge Management Research & Practice*, Vol. 13, no. 3: 235-247.
- Sohail, M. S., and Daud, S. 2009. Knowledge sharing in higher education institutions: perspectives from Malaysia. *VINE: The Journal of Information and Knowledge Management Systems*, Vol. 39, no. 2: 125-142.

The Explanatory Power of Social Capital in Determining Knowledge Sharing in Higher Education

- Suh, A., and Shin, K. S. 2010. Exploring the effects of online social ties on knowledge sharing: a comparative analysis of collocated vs dispersed teams. *Journal of Information Science*, Vol. 36, no. 4: 443-463.
- Tamjidyamcholo, A., Baba, M. S. B., Tamjid, H., and Gholipour, R. 2013. Information security: professional perceptions of knowledge-sharing intention under self-efficacy, trust, reciprocity, and shared-language. *Computers & Education*, Vol. 68, no. 2013: 223-232.
- Tella, A. 2016. Knowledge-sharing intention among information professionals in Nigeria: a statistical analysis. *Libraries and the Academy*, Vol. 16, no. 2: 225-245.
- Van den Hooff, B., Elving, W., Meeuwsen, J. M., and Dumoulin, C. 2003. Knowledge sharing in knowledge communities. In M. Huysman, E. Wenger, and V. Wulf (eds.), *Communities and Technologies*. Dordrecht, The Netherlands: Springer.
- Wang, J. K., Ashleigh, M., and Meyer, E. 2006. Knowledge sharing and team trustworthiness: it's all about social ties! *Knowledge Management Research & Practice*, Vol. 4, no. 3: 175-186.
- Wasko, M. M., and Faraj, S. 2005. Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, Vol. 29, no. 1: 35-57.
- Willem, A., and Buelens, M. 2007. Knowledge sharing in public sector organizations: the effect of organizational characteristics on interdepartmental knowledge sharing. *Journal of Public Administration Research and Theory*, Vol. 17, no. 4: 581-606.
- Witherspoon, C. L., Bergner, J., Cockrell, C., and Stone, D. N. 2013. Antecedents of organizational knowledge sharing: a meta-analysis and critique. *Journal of Knowledge Management*, Vol. 17, no. 2: 250-277.
- Yeo, R. K., and Gold, J. 2014. Knowledge sharing attitude and behaviour in Saudi Arabian organisations: why trust matters. *International Journal of Human Resources Development and Management*, Vol. 14, no. 1-3: 97-118.
- Youssef, M., Haak-Saheem, W., and Youssef, E. M. 2017. A structural equation model for knowledge sharing behavior in an emerging economy. *Journal of Knowledge Management*, Vol. 21, no. 4: 925-945.

Knowledge sharing behavior

1. When using social media platforms, I actively share my knowledge with other social media users.
2. When using social media platforms, I voluntarily share my skills with other social media users.
3. When using social media platforms, I share my work experiences and knowledge with other social media users.
4. When using social media platforms, I share my ways to solve problems at the request of other social media users.
5. When using social media platforms, I try to share my expertise from education or training with other social media users in a more effective way.
6. When I have learned something new, I see to it that other social media users can learn it as well.
7. When using social media platforms, I actively answer questions posed by other social media users.
8. When using social media platforms, I often spend a lot of time sharing knowledge with other social media users.

Social interaction ties

1. I have a very good relationship with my friends on social media.
2. I am very close to my friends on social media.
3. I always hold lengthy discussions with my friends on social media.
4. I maintain close social relationships with some friends on social media.
5. I know some social media users on a personal level.

Trust

1. Social media users will not take advantage of others even when the opportunity arises.
2. Social media users will always keep the promises they make to one another.
3. Social media users would not knowingly do anything to disrupt the conversation.
4. Social media users behave in a consistent manner.
5. Social media users are truthful in dealing with one another.
6. I usually trust social media users until they give me a reason not to trust them.

Identification

1. I feel a sense of belonging toward social media users.
2. I feel a sense of togetherness or closeness toward social media users.
3. I have a strong positive feeling toward social media users.
4. I am proud to be a member of a social media community.

Reciprocity in knowledge sharing

1. I know that other social media users will help me, so it is only fair to help other users.
2. I believe that social media users will help me if I need it.
3. When I share knowledge with other social media users, I believe that my queries for knowledge will be answered in the future in these social networks.

Shared language

1. Social media users employ common terms or jargon.
2. Social media users employ understandable communication patterns during a discussion.
3. Social media users employ understandable narrative forms to post messages or articles.

Shared vision

1. Social media users share the vision of helping others solve their problems.
2. Social media users share the same goal of learning from each other.
3. Social media users share the same value that helping others is pleasant.