



The Influence of Leadership and Trust on the Sharing of Tacit Knowledge: Exploring a Path Model

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Abstract

Information systems engineers were investigated to determine the influence of servant leadership and the quality of the leader-member exchange relationship as influencers of trust and tacit knowledge sharing. This study proposed that there is a path of leadership to the sharing of tacit knowledge that required trust. Findings partially support this notion, as mediation procedures indicate partial mediation exists between servant leadership and tacit knowledge sharing as well as leader-member exchange and tacit knowledge sharing. A path analysis found a strong degree of model fit in the proposed relationship. Categorical moderation indicated that a high level of leader-member exchange will create a high level of tacit knowledge sharing regardless of what servant leadership is like, however, if a high level of leader-member exchange does not exist, servant leadership will strongly influence tacit knowledge sharing. This finding supports the idea that leadership will influence tacit knowledge sharing in general, however servant leadership poses specific advantages with regard to gaining experience and learning from the worker.

Keywords: Tacit knowledge sharing, Servant leadership, Leader-member exchange, Trust, IT Industry

1. Introduction

As we continue down the path of entering into the information age, the knowledge economy that comes with it presents new challenges with regard to the relationships and hierarchies that exist in the workplace in terms of the management and leadership of workers. The Taylorist-Fordist structures of work in the industrial age suggested a strong command and control system with robust bureaucracy and a paucity of autonomy for the worker in the technical core, and this was something that manifested in the positions of those in all other positions. The vestiges of the industrial age however are still with us. This new age that we are embarking upon suggests the need for new approaches to the management and leadership of people who perform in knowledge work positions because of an increasing sense of urgency for organizations to be able to be able to innovate in production, internal processes and the design of work systems. This urgency suggests that there needs to be a greater deal of understanding of the leadership of engineers. The

leadership and management of engineers is something that has traditionally posed a great deal of difficulty, with findings commonly expressing a lack of receptiveness to leadership and a difficulty in the interpersonal communication and relations that engineers will have, with some expressing the need for specialized approaches (Robledo, Peterson & Mumford, 2012). Nyman (2005) proposes that soft skills are a problem when it comes to engineers, something that aligns with Tenopir & King's (2004) identification of communication as being more complex for engineers. While this appears to be common among most engineers, information systems engineers offer a unique challenge because much of their work is applied and the unique culture that centers around information technology workers (Leidner & Kayworth, 2006).

There are a number of roadblocks that exist in the communication chain between supervisors and the engineers that work under them (Putti, Aryee & Phua, 1990). They include differences in technical knowledge, the design of their work limiting the amount of communication they would have and the increasingly common distribution of workers making it difficult for synchronous communication to take place (Akkirman & Harris, 2005). With the deficiency of communication that exists between information systems engineers and their supervisors, there is a substantial amount of knowledge that the information systems engineer will gain with regard to the nature of the innovations that their firm is developing, the fundamental concepts that undergird their product development or system design processes, and the way that the system will work most efficiently to ensure that design, development and implementation will happen in an expeditious fashion. This knowledge is tacit knowledge, and just as the manager or supervisor of the information systems engineer will have a difficult time communicating with the worker, the ability to go through the processes related to drawing out tacit knowledge and encouraging the worker to share it is something that is difficult to develop (Howells, 1996). Developing a quality exchange relationship between the leader and follower however is something that has been found to be related to effective knowledge management (Bock & Kim, 2001), but problems have continued to persist within the scope of how leadership can encourage the sharing of tacit knowledge insofar as what leadership practices can be most useful to implement.

2 Leader-Driven Path towards Tacit Knowledge Sharing

This writing is based on the proposition that for there to be a relationship between a worker and their supervisor where tacit knowledge is shared, the nature of what tacit knowledge is requires that there is a leadership approach that builds trust and develops a serving relationship with the worker, and that the supervisor has developed a relationship with the worker where there is a feeling that there is an exchange system in place. The servant leader is someone who becomes a source of emotional support for the people who follow them (Barbuto & Wheeler, 2006). They are listeners, healers and offer empathy and persuasion to the people who work under them. This is something that is essential for the development of both trust and the communication norms between the leader and the follower, especially as it pertains to the encouragement of tacit knowledge sharing. For information systems engineers these things can be particularly useful as these people are commonly under tight deadlines, will feel a great deal of stress with regard to the complexity of projects they work on and it is hard for them to relate their experiences to anyone. This makes servant leadership a way in for the supervisor to encourage the sharing of tacit knowledge. As the servant leader is also committed to the growth of people, taking part in what the information systems engineer does will give the supervisor the opportunity to draw out the tacit knowledge that the worker is holding. As Sipe and Frick (2009) indicate that servant leaders are able to communicate and collaborate, this is something that is essential in the process

of encouraging the sharing of this knowledge. Further, their proposition that they must be systems thinkers is something that can also contribute to the nature of their assembly of tacit knowledge once it is drawn out of the worker.

The relationship that exists between the supervisor and the information systems also relies on there being a quality leader member exchange. High-quality leader-member exchange relationships have been found to result in the creation of trust and commitment to the leader (Dirks & Ferrin, 2002). This trust is something that is part of the foundation of the creation of the relationship where the role of the follower in the team is being sorted out and made when they first come to work for their supervisor. Over time their role becomes routinized. As this happens, there is a social exchange that develops between the supervisor and the worker that is under them, and this is something that is continuously nurtured by showing empathy, trust and respect. Taking part in the work of the follower is something that can encourage the quality of the exchange relationship, and this is something that will encourage the worker to feel that they have a responsibility to share information with their supervisor because they come to understand that they care. In order to encourage tacit knowledge sharing, the quality of the leader-member exchange relationship should be high as the social exchanges between the leader and the follower would support there being a sharing of knowledge and the allowance of the leader into the thought processes of the worker with regard to what tacit knowledge they hold. In terms of the relationship between the information systems engineer and their supervisor, the creation of a quality leader-member exchange relationship would need to develop through the supervisor taking part in activities that their workers perform and developing a feeling of trust with the worker. As the supervisor gives the engineer more trust, the engineer will reciprocate these feelings, and with the supervisor taking part in their activities, they will let their guard down as the nature of their relationship routinizes. At this point, when they have accepted each other in, the sharing of how it is they understand things and the true nature of how things get done can be expressed at greater length. When servant leadership is coupled then with a quality leader-member exchange, the benefits of both can then encourage the development of trust, and all of these factors will result in the creation of tacit knowledge sharing in the organization.

As Figure 1 shows, what comes of this is the creation of an iterative process where the servant leadership of the supervisor onto the following worker increases the quality of the relationship leader-follower relationship, and as this happens, the capabilities for the servant leader to serve are enhanced as the follower allows the leader to be their servant leader. A manifestation of this process is the creation of a trust between the leader and the follower. In this trust the follower develops a belief in their leader as someone who they not only are able to trust to talk to about things, but also a trust in their capabilities and capacity to understand what it is that they have to say. This is key, because without trust it is difficult to encourage the sharing of tacit knowledge. This sharing of tacit knowledge however requires that the supervisor seek experience and the opportunity to work in service of their worker, and that as a leader they seek to provide a source of understanding, emotional support and the sharing of wisdom along with the sharing of responsibilities and knowledge. When taken in composite, these things will influence trust and through these behaviors, the development of the exchange relationship and establishment of trust, tacit knowledge sharing can be encouraged.

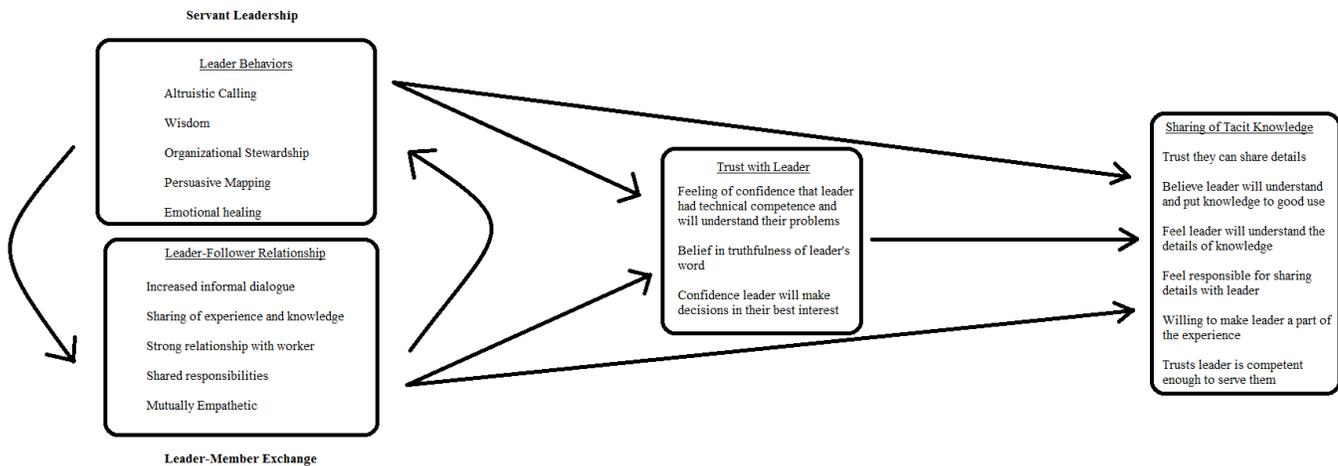


Figure 1. Conceptual model of servant leadership-inspired tacit knowledge sharing.

2.1 Tacit Knowledge Sharing and Trust

Tacit knowledge is knowledge that is not easily shared as it is essentially knowledge that is a part of what a person does or who a person is beyond what can be easily articulated (Howells, 1996). Polanyi (2012) expresses tacit knowledge as being what we know, but what we cannot tell. Further, those holding tacit knowledge may not know that they even have it, meaning that for the organization to be able to most effectively understand the nature of the knowledge that their workers are holding, it is important that their supervisor to manage this knowledge and do what they can to facilitate the exchange of tacit knowledge (Desouza, 2003). Essentially, having tacit knowledge shared is something that goes beyond a simple transaction of information from one to another, it involves development and preparation being given from one person to someone else for the knowledge to be drawn out. For the leader that the worker follows, this means that a transformational experience is something that can lead to the creation and sharing of knowledge (Bryant, 2003). A development of understanding in how it is that they think, approach a system and the competence that they hold is something that is necessary for their supervisor to facilitate the extraction of, and leadership behaviors can serve as an encouraging factor for the sharing of this knowledge (Erden, von Krogh & Nonaka, 2008).

The problem that emerges within the scope of tacit knowledge is the issue of how it is that workers can be encouraged to share this knowledge with supervisors (von Krogh, Ichijo & Nonaka, 2000). This is a problem that has been documented as being especially difficult to deal with in the IT industry based on the nature of workflow and the general design of work, the nature of the supervisor-worker relationship and the general approach to management taken by managers (Singh, 2008). To be able to gain access to the social sphere of a person in such a way that tacit knowledge will be shared, it is required that they gain experience from the person who holds the tacit knowledge (Mascitelli, 2000; von Krogh, Ichijo & Nonaka, 2000; Polanyi, 2012). This experience makes the processes and systems involved in the tacit knowledge sharing easier to understand as it exposes them to the thought processes involved in the development of tacit knowledge (Smith, 2001). In order to gain access to the experience that will give us tacit knowledge however, there needs to be the development of a trusting relationship and close interaction, that this experience is in the correct context and that there be the development of

close involvement with the holder of the tacit knowledge (Levin & Cross, 2004; Holste & Fields, 2010).

Trust is therefore an integral component to the development of the sharing of tacit knowledge (Collins, 2001; Levin & Cross, 2004). Trust has been found to both influence the development of the quality of the leader-member exchange relationships (Deluga, 1994; Brower, Schoorman & Tan, 2000) and knowledge sharing (Abrahams, Cross, Lesser & Levin, 2003; Chowdhury, 2005; Hsu Ju Yen & Chang, 2007). Further, many leadership theories have been found to influence the nature of trust in the organizational leadership setting (Dirks & Ferrin, 2002). As management is in a position where they need to develop relationships that encourage the information systems engineer to share this knowledge, the use of leadership concepts in their position that are in alignment with this goal can be key to optimizing the success of encouraging tacit knowledge sharing in the workplace. As the manager is seeking experience and guidance, leadership that shares power and puts the needs of the worker ahead of their own can encourage the worker to participate in tacit knowledge sharing as the manager seeks to have the worker give them guidance with regard to how things work and the processes that are involved in what they do. If the worker has power and in this power they have responsibility with regard to something the manager does for them, the manager can gain understanding of their tacit knowledge from the experience of the shared power and satisfying the needs of the worker.

2.2 Leadership, Trust and the Tacit Knowledge Sharing Process

Servant leadership gives the manager this experience as it is a leadership paradigm where the leader seeks to work in service of their follower (Greenleaf, 1977). Further, servant leadership acts as a means of developing the nature of the trust that exists between the leader and the follower (Joseph & Winston, 2005). It does this by operating on the underlying philosophy that it is the leader's job to serve the people who follow them, and that by showing caring for the people that allow them to be their leader they change the social system into one that is more trusting and where people will communicate on a more personal level (Reinke, 2004). If the goal is for there to be the creation of trust and that there is the sharing of tacit knowledge between the worker and the manager, servant leadership appears to be an effective leadership strategy to use as an influencer.

A quality leader-member exchange relationship is something that could potentially work to support the sharing of tacit knowledge as a quality leader-member relationship relies in part on sharing of knowledge, experience and values (Scandura & Schriesheim, 1994). Bock & Kim (2001) indicate that leader-member exchange quality will influence the sharing of knowledge, and that the development of these relationships will support the ability to gain experience from the worker. Developing high-quality leader-member relationships is something that is problematic however, as the teams that a supervisor will lead will form "in-groups" and "out-groups" (Yammarino & Bass, 1990). Mitigating the size of the "out-group" is something that is key to success of a leader (Graen & Uhl-Bien, 1995). This is because those in the "out-group" will be less likely to behave in a way that will support the goal of tacit knowledge sharing as these people will not seek to act in ways that will support the group (Ilies, Nahrgang & Morgeson, 2007).

When looking at propositions regarding leader-member exchange as a process, the general proposition is that there is a role-taking, role-making and routinization of behavior, and that in

this process, the quality of the leader-member relationship will emerge (Bauer & Green, 1996). While the role-taking stage is the point where the offer to join the team occurs, the role-making stage is where the leader and their follower will informally decide on the role that the worker will have, and the supervisor will decide whether they are an in-group or out-group member (Davis & Gardner, 2004). The trust that the leader and the follower have for one another will impact whether a worker will be an in-group or out-group member (Gomez & Rosen, 2001). Over time, this role becomes engrained into the culture of the group and it becomes routinized. What this suggests therefore is that there is a need for there to be a high-quality leader member relationship that exists so that the leader can maximize “in-group” members (Gomez & Rosen, 2001). This is important because if there will be tacit knowledge sharing, “in-group” membership would (a) support the development and maintenance of trust between the leader and their followers and (b) create working relations where gaining experience under the follower would be possible.

While prior research has determined that there are relationships that exist between leader-member exchanges and servant leadership, there has been a dearth of understanding proposed by researchers regarding why it is that these relationships exist (Barbuto & Wheeler, 2006). This research examines these relationships and makes propositions on why these relationships exist. The benefit of a relationship between servant leadership and leader-member exchange quality is that the behavior and the quality of the relationship between the leader and the follower can be jointly understood to be influencers of tacit knowledge sharing. While leader-member exchange is able to support there being the close relationship between a leader and the follower, the style of the servant leader is such that they will request the ability to work in service under the follower. Barbuto & Wheeler (2006) indicate that a servant leader is someone who has an intrinsic drive to serve others and that this is the basis for an altruistic calling. They further propose that the servant leader is also someone who will be empathetic and a listener. These leading behaviors, when coupled with a quality leader-member exchange relationship and a feeling of trust between the leader and the follower represent there being leader behaviors that will facilitate tacit knowledge sharing. Supporting this is the servant leader’s quest for knowledge and the development of wisdom. The servant leader is in essence able to satisfy themselves in part by seeking to gain tacit knowledge from their workers, much like they are able to satisfy their need to fulfill the needs of the organization by being good organizational stewards. Persuasion then becomes away to encourage greater sharing. These factors of servant leadership could then work along with the strength of the relationship they have with their workers to create trust, and in turn, all work to influence the sharing of tacit knowledge.

3 Methods

3.1 Sample

A sample of 105 survey responses were taken from information systems engineers in the mid-western U.S. who had responded to a call for participation from a regional non-profit community of practitioners. Of these 105, 103 were used as two surveys presented the same response for each item. Only those who work in information systems as engineers were included in the survey. The Midwest was defined among respondents as being Michigan, Ohio, Indiana, Illinois, Wisconsin, Missouri, Iowa, Minnesota, Kansas, Nebraska, North Dakota and South Dakota. The sample size is deemed appropriate for the analytical procedures performed in this study as Hair

et al. (2006) suggest that a sample of 100 is appropriate when there are 5 constructs or less and high communalities when constructing data models.

3.1.1 Collection. The data was collected through the use of an electronic survey that was placed on the web from 14 December, 2013 to 1 January, 2014. This survey collected 105 responses. Of the 105 responses collected two were discarded as they supplied the same response for every item. All other surveys were completed, giving this study a final response rate of 98.1 percent. Demographics of Respondents. Analysis of the profile of survey respondents shows that there is an equal amount of women that were surveyed as there was men. There seemed to be a slight skew towards older respondents, with 60.2 percent of respondents being 45 and older. There seemed to be a bell curve around income, with most workers having an annual income between \$50,000-99,999. The education level of 89.3 percent of respondents to the survey reported at least some college education, with 49.5 percent having at least an associate degree and 21.3 percent having a graduate degree (Table 1). Demographic data served as controls in this study

Table 1. Demographic Profile of Survey Respondents.

Profile Characteristic		Frequency	Percentage
Gender	Male	51	49.5
	Female	52	50.5
Age	18-29	20	19.4
	30-44	21	20.4
	45-60	36	35
	60+	26	25.2
Income	\$0-24,999	14	13.6
	\$25,000-49,999	15	14.6
	\$50,000-99,999	39	37.9
	\$100,000-149,000	12	11.6
	\$150,000+	23	22.3
Education	Less That High School Degree	1	1
	High School Degree	10	9.7
	Some College	41	39.8
	Associate or Bachelor Degree	29	28.2
	Graduate Degree	22	21.3
Region of U.S.	Midwest	103	100
Industry	Engineering (IS)	103	100

3.2 Measures

3.2.1 Servant leadership. Two items were chosen from each characteristic to measure each characteristic of servant leadership according to which items appears to be most effective in representing the characteristics observed in this study. The definitions of characteristics proposed by Barbuto and Wheeler (2006) were the basis for determining conformity of items to measuring for characteristics. As a whole the scale for servant leadership was found to be reliable with an α of .91 (Table 5).

3.2.2. Leader-Member Exchange. To measure Leader-member exchange, this study used an existing scale developed by Graen & Uhl-Bien (1995). The scale contains seven items, hence the name of the scale LMX-7. This study used all of the seven items to collect data on LMX. The

LMX is the result of a longitudinal study, 20 years, by Dansereau, Graen and Haga (1975). Leader-member exchange focuses on the relationship between leader and his or her employees. A leader can establish a leadership or supervision relationships with member in his or her unit (Dansereau, Graen, & Haga, 1975). LMX can be defined as a relationship between subordinates and their leaders, this relation can be categorized by the material resources, information, mental and physical effort, and / or emotional support exchange between the two parties (Liden, Sparrowe, & Wayne, 1997). The items measuring leader-member exchange were found to be reliable with a Cronbach's α score of .93 (Table 5). This is better than the .8 - .9 found in studies cited by Graen and Uhl-Bien (1995).

3.2.3 Trust. To measure trust, in this study we used three items. This study utilizes the Organizational Trust Inventory as a way to measure trust between a worker and the manager (Nyhan & Marlowe, 1997). Trust in this context focused on the ability of the worker to believe what the manager said or that their actions were in their best interest. The scale used to measure this was found to have a reliability of .89 (Table 5).

3.2.4 Tacit Knowledge sharing. To measure knowledge sharing this study adopted Tacit Knowledge Sharing Scale developed by Lu, Leung & Koch (2007). Tacit knowledge sharing is defined in this study as the efforts of a worker to share tacit knowledge with their supervisor on the job. 3 items were chosen from this scale. Measurement for reliability of the scale found that the scale was reliable at .89 (Table 5).

3.3 Data Analysis

Responses were loaded into SPSS for data analysis and the data was further analyzed through the use of SPSS AMOS. Data was first analyzed to determine means and standard deviations as well as correlations. There were significant relationships at $p < .001$ found between all the variables measured for in this study. Relationships were also found with controlling variables of gender, age, income and education. Theory and the findings from the analysis of correlations drove the design of a model. The model was designed in SPSS AMOS and tested to determine model fit. A strong degree of model fit was found. Mediation analysis was performed on the data in order to determine the ability of trust to mediate the relationship between the leadership constructs measured and the outcome of tacit knowledge sharing. Mediation was performed using Baron and Kenny's (1986) a-b-c-c' method. Partial mediation was found to exist.

4 Results

4.1 Categorization and Means: A Descriptive Investigation of In-Group/Out-group Relationships

Categorization of the data by low and high levels of leader-member exchange was performed as a means of determining the effect of in-group/out-group relationships with tacit knowledge sharing and trust. Data suggests that there is a 47.3 percent higher level of trust at high levels of leader-member exchange than at low levels of leader-member exchange and a 47.4 percent higher level of tacit knowledge sharing at high levels of leader-member exchange than at low levels of leader-member exchange. Servant leadership being 45.1 percent higher at high levels of leader-member exchange than at low levels of leader-member exchange could explain why it is that workers feel a perception of having lower quality leader-member relationship when servant leadership is low (Figure 2).

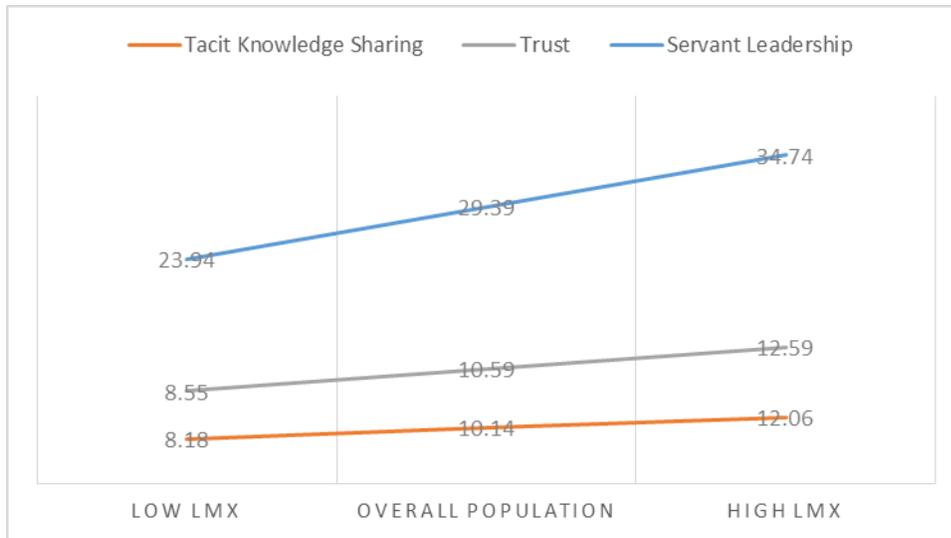


Figure 2. Graph of low leader-member exchange, high leader-member exchange and overall population means.

Regression analysis at low and high levels of leader-member exchange. Servant leadership's relationship with trust and tacit knowledge sharing is something that remains significant at both low and high levels of leader-member exchange. Further analysis of dimensions within the construct of servant leadership was performed as well to determine the impact of low and high levels of leader-member exchange. While relationships through the entire population were significant with all of the dimensions of servant leadership (Table 2), findings indicate that the relationships between trust and tacit knowledge sharing with the different dimensions become reduced.

Table 2. Correlation Matrix of entire population (including all dimensions of servant leadership).

Table of Entire Population										
	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Servant Leadership	29.39	8.17	(.91)							
2. Altruistic Calling	5.31	2.01	.76**	(.85)						
3. Emotional Healing	5.43	1.96	.78**	.67**	(.87)					
4. Wisdom	6.40	2.28	.81**	.54**	.49**	(.83)				
5. Persuasive Mapping	6.16	2.02	.82**	.56**	.47**	.76**	(.88)			
6. Organizational Stewardship	6.46	2.18	.74**	.47**	.50**	.53**	.53**	(.85)		
7. Trust	10.59	3.14	.77**	.56**	.48**	.80**	.72**	.58**	(.89)	
8. Tacit Knowledge Sharing	10.14	2.98	.69**	.58**	.59**	.60**	.57**	.47**	.63**	(.93)

NOTE: N = 103. †p < .1. *p < .05. **p < .01.

At low levels of leader-member exchange, the relationship that exists between a number of servant leadership's dimensions and trust become insignificant (Table 3). Namely, emotional healing's relationship with trust becomes insignificant. This suggests that when there is a low level of leader-member exchange, the worker will not be receptive to supervisors who may seek acceptance of forgiveness or to console workers who have had disappointments on the job because they will not trust that what they say to console them is grounded in fact. Altruistic calling is also something that has a faint relationship with trust. This suggests that the message of the supervisor is something that becomes lost on the worker when they have a low level of

leader-member exchange insofar as developing meaning in the worker’s life through the work that they do as this is something that is not associated with there being trust between the leader and the follower. The ability of organizational stewardship to influence tacit knowledge sharing is something that also becomes difficult at a low level of leader-member exchange indicating that when someone feels that the exchange relationship does not exist, having trust in their leader means less when influencing the sharing of tacit knowledge, making the job of the supervisor as an agent that pulls tacit knowledge out of the worker increasingly difficult.

Table 3. Correlation matrix at low level of leader-member exchange relationship quality.

Table of Cases with Low Level of LMX

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Servant Leadership	23.94	6.22	---							
2. Altruistic Calling	4.25	1.62	.67**	---						
3. Emotional Healing	4.23	1.85	.59**	.57**	---					
4. Wisdom	4.96	1.80	.65**	.21	.07	---				
5. Persuasive Mapping	5.06	1.89	.70**	.34*	.06	.58**	---			
6. Organizational Stewardship	5.55	2.25	.74**	.26	.35*	.37**	.39**	---		
7. Trust	8.55	2.77	.68**	.35*	0.16	.68**	.64**	.47**	---	
8. Tacit Knowledge Sharing	8.18	2.79	.55**	.43**	.36**	.45**	.38**	.28*	.43**	---

NOTE: N = 51. †p < .1. *p < .05. **p < .01.

When there is a high level of leader member exchange however, the influence of servant leadership on tacit knowledge sharing becomes faint (Table 4). What this suggests is that when someone is in the “in-group” of the supervisor then they will willingly give tacit knowledge up to them. Emotional healing, wisdom and persuasive mapping all have insignificant relationships with tacit knowledge sharing at high levels of leader-member exchange, and only altruistic calling and organizational stewardship maintain significant relationships with tacit knowledge sharing indicating that for there to be effective tacit knowledge sharing at high levels of leader-member exchange, there is a weak necessity for servant leadership to exist. Further, the findings indicate that when there is a high level of leader-member exchange in place, that trust is not something that is needed. Essentially, these findings indicate that in order to support a strong degree of tacit knowledge sharing, little more is necessary for a supervisor than making workers a member of their in-group.

Table 4. Correlation matrix at high level of leader-member exchange quality.

Table of Cases with High Level of LMX

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Servant Leadership	34.74	6.06	---							
2. Altruistic Calling	6.35	1.81	.62**	---						
3. Emotional Healing	6.60	1.22	.71**	.50**	---					
4. Wisdom	7.82	1.78	.71**	.42**	.34*	---				
5. Persuasive Mapping	7.23	1.52	.79**	.45**	.50**	.72**	---			
6. Organizational Stewardship	7.34	1.70	.63**	.40**	.35*	.40**	.40**	---		
7. Trust	12.59	1.99	.49**	.37**	.12	.68**	.45**	.39**	---	
8. Tacit Knowledge Sharing	12.06	1.57	.29*	.33*	.19	.13	.25	.33*	.20	---

NOTE: N = 52. †p < .1. *p < .05. **p < .01.

The problem with this posit however is that it is not possible for all workers to be a part of the supervisors in-group, however the finding that being a part of the in-group can have such an influence on performance of tacit knowledge sharing is something that is telling in regards to the efficacy of the exchange relationship that exists between the leader and follower. For this reason,

it is important to understand how it is that leader-member exchange and the performance of leadership by the leader are able to create tacit knowledge. Knowing that leader-member exchange and servant leadership both work to influence trust and trust is typically considered to be an antecedent to tacit knowledge sharing, further investigation of the influence of leadership on tacit knowledge sharing is important. Overall, these findings support the idea that when workers feel that there is a quality leader-member exchange relationship that exists that they can share their tacit knowledge with their supervisor.

4.2 Regression Analysis

Simple linear regression indicates that there are significant relationships that exist between all of the constructs measured, meaning that there is reason to believe that there is empirical rationale to back up the idea that servant leadership and leader-member exchange will influence trust and tacit knowledge sharing, as well as trust influencing tacit knowledge sharing (Table 5). Leader-member exchange was able to explain a greater degree of variance in tacit knowledge sharing (62.5 percent), however servant leadership was able to explain a greater degree of variance in trust (58.9 percent). Trust was able to explain 39.7 percent of variance in tacit knowledge sharing. Nevertheless, all constructs were able to explain a high degree of variance. A multiple regression of servant leadership, leader-member exchange and trust as predictors of tacit knowledge sharing was able to predict 62.1 percent of variance (adjusted R^2). When trust was removed from the multiple regression model, the 62.1 percent was again the variance explained by servant leadership and leader-member exchange. This finding suggested further analysis to determine the necessity of trust in a model explaining the relationship between leadership and tacit knowledge sharing.

Table 5. Correlation matrix of tested model.

Correlation Matrix. Means, std. dev., correlations and reliability.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. <i>Servant Leadership</i>	29.39	8.17	(.91)							
2. <i>Leader-Member Exchange</i>	22.86	6.93	.83***	(.93)						
3. <i>Trust</i>	10.59	3.14	.77***	.73***	(.89)					
4. <i>Tacit Knowledge Sharing</i>	10.14	2.98	.69***	.79***	.63***	(.89)				
5. <i>Gender</i>	1.52	0.50	-.07	-.14	-.1	-.06	----			
6. <i>Age</i>	3.65	1.05	-.31**	-.21*	-.24*	-.1	-.00	----		
7. <i>Income</i>	3.18	1.27	-.08	.01	-.01	-.05	.03	.18	----	
8. <i>Education</i>	3.55	0.95	-.18	-.09	-.19	-.09	-.06	.17	.40***	----

NOTE: N = 103. †p < .1. *p < .05. **p < .01. ***p < .001. Coefficient of reliability in parenthesis

4.3 Mediation

Mediation was run per procedures suggested by Baron and Kenny (1986). Mediation was performed with servant leadership and leader-member exchange both acting as independent variables separately with trust mediating the relationship with tacit knowledge sharing. Mediation between servant leadership and tacit knowledge with trust indicates that there is partial mediation at work as c' is still significant. Sobel test was run to further investigate findings (Preacher & Leonardelli, 2003). The Sobel test indicated that there was a significant amount of mediation at work ($p < .05$) and that trust explained 28.5 percent of the relationship between servant leadership and tacit knowledge sharing (Table 6). This indicates that trust should be considered to be a driving factor in the relationship that is shared between the servant

leader and the follower when the servant leader seeks to obtain tacit knowledge from the follower.

Table 6. Baron and Kenny (1986) mediation procedure (Servant leadership, trust, tacit knowledge sharing).

	Trust	Tacit Knowledge Sharing	Tacit Knowledge Sharing	Tacit Knowledge Sharing
Servant Leadership	.77***	.69***		
Trust			.63***	
Servant Leadership				.49***
Trust				
<i>R</i> ²	0.589	0.469	0.397	0.496 ¹
<i>F</i>	144.53	89.22	66.53	49.147

NOTE: N = 103. †p < .1. *p < .05. **p < .01. ***p < .001.

¹.486 observed as adj. R² for c'.

When the relationship between leader-member exchange and tacit knowledge sharing was mediated by trust, the findings indicated that there is partial mediation taking place (Table 7). When the Sobel test was run, findings indicated there was a significant amount of mediation taking place (p<.001) with trust explaining 66.5 percent of the relationship between leader-member exchange and tacit knowledge sharing. The leader-member exchange is therefore highly dependent on trust when the leader seeks to obtain tacit knowledge from the follower. This means that the leader should seek to develop trust with their follower if they seek to build a strong relationship.

Table 7. Baron and Kenny (1986) mediation procedure (leader-member exchange, trust, tacit knowledge sharing).

Mediation - Leader-Member Exchange - Trust - Tacit Knowledge Sharing

	Trust	Tacit Knowledge	Tacit Knowledge Sharing	Tacit Knowledge Sharing
Leader-Member Exchange	.83***	.79***		
Trust			.63***	
Leader-Member Exchange				.70***
Trust				
<i>R</i> ²	0.526	0.625	0.397	0.632 ¹
<i>F</i>	111.96	168.1	66.53	85.705

NOTE: N = 103. †p < .1. *p < .05. **p < .01. ***p < .001.

¹.624 observed as adj. R² for path c'.

These findings further support the notion that there may be a strong model that undergirds the relationship between servant leadership and leader-member exchange as predictors of tacit knowledge sharing when trust is a part of the process of encouraging this sharing of knowledge.

4.4 Model Fit

The model tested was found to have a strong level of fit as it meets prescribed thresholds for path models (Figure 3; Hair et. al, 2006). What this means is that there is an indication that leadership must work to build trust if it hopes to be able to develop relationships where tacit knowledge will be shared. While it is important for there to be a leadership behavior performed that requests the ability to act in service of the worker and that the leader develops a high-quality exchange relationship, without there being trust, the supervisor is inefficiently pursuing tacit knowledge sharing. It is important that the behaviors support the desire for experience, and conceptually servant leadership certainly does this. Further, the leadership performed should develop a high-quality leader-member relationship where followers feel that they are in their leader's in-group. These things will support the development of trust between the leader and the follower and encourage the sharing of tacit knowledge. Further, the general development of trust in the leader is something that will support this as well, so the behaviors of the leader should not work to subvert the trust that the followers feel for them. Ultimately, this model supports the conceptual model proposed in Figure 1 successfully.

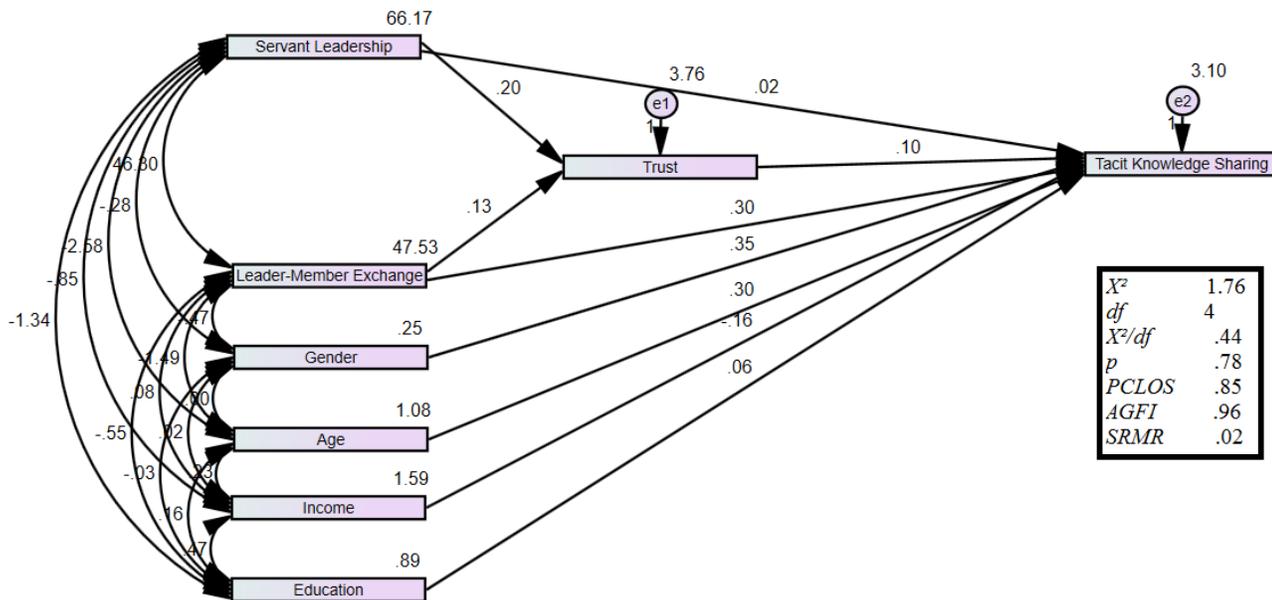


Figure 3. Graphical representation of the tested model when controlled by gender, age, income and education with unstandardized beta given.

5 Conclusion

In this study we find the value of leadership as an encouraging factor of the performance of tacit knowledge sharing. More importantly, we learn the nature of the behaviors that a leader should exude if they wish to encourage this sharing to occur. A leadership style that is founded in a dedication to service of their subordinates is something that will set the stage for the worker to

have reason for sharing this knowledge. The development of the relationship in such ways that the worker can believe in their supervisor and that there is a norm of exchange between the two is something that will then work in concert with the leader's behavior and influence sharing of tacit knowledge even further. Trust will then have the effect of enhancing the magnitude of the sharing that happens. Overall, this suggests that the vital tacit knowledge that information systems engineers hold is something that could be encouraged to be shared if there is the application of more effective leadership and the encouragement that the supervisor is someone who is trustworthy and that their relationship is solid. This makes complete sense however, because for there to be the sharing of tacit knowledge, the leader would need to be in a position where the follower has a strong relationship with them, and through servant leadership, this relationship can be built on the norm of the supervisor working in service of their follower and supporting their needs. As they do this, they learn from them, the trust they build can knock down the barriers that may exist to gaining insight regarding key aspects of the work of the information systems engineer that they may normally keep to themselves in order to protect their job or the status quo.

The findings from this research indicate that trust and a strong leading relationship with their worker are things that will allow the supervisor to accrue tacit knowledge from the people who work under them. This study was based on the assumption that the relationship between a supervisor and their worker works as an antecedent to trust. It is entirely possible however that the relationship between trust and the leader-member exchange is something where level of trust will predict the nature of the leader-member relationship. As prior literature has indicated that when trust is lost in the initial stages of the creation of the relationship between the leader and the follower that the outcome will be that the relationship may suffer and the team member will fall to the "out-group", a process of leader behavior-trust-quality of relationship-tacit knowledge sharing may exist. Further, this relationship could also be observed as being iterative, where trust and the exchange between the leader and follower feed one another.

All variables were found to relate with tacit knowledge sharing, however findings seem to indicate that while the relationship with the leader is important, it may be less about the leader and more about there being a relationship period. When looking at the categorization of the leader-member exchange qualities from low to high, when there is a high quality leader-member relationship present, the relationship between servant leadership and tacit knowledge sharing becomes greatly diminished, almost insignificant. Many of the factors of servant leadership become insignificant as a matter of fact in regards to their relationship with tacit knowledge sharing. This seems to suggest that if there is a high quality leader-member exchange in place, the style of leadership performed does not matter to the degree it does when there is a low level of leader-member exchange quality. At a low level of leader-member exchange quality however, servant leadership is greatly important. Such a finding seems completely reasonable because if there is the absence of the strong leader-member relationship, then the behaviors of the servant leader as someone who requests the opportunity to serve would be something that would give the chance to have experience to the supervisor. What is remarkable however is that trust becomes insignificant to tacit knowledge sharing when there is a high level of leader-member exchange quality. This suggests that the sharing of tacit knowledge will continue even when there is a level of distrust with the supervisor as long as they have the high-quality leader-member relationship.

Further, the impact of trust on the relationship between both the leader-member exchange and servant leadership with tacit knowledge sharing as a mediator was found to be partial. Sobel tests indicate significance in the mediation that is performed, and particularly with the relationship between leader-member exchange and tacit knowledge sharing where there was 66.5 percent of variance in the relationship explained by trust, trust should be seen as a factor that is important to develop if the most effective tacit knowledge sharing is to occur. This finding coincides with prior propositions regarding leader-member exchange and it also provides support for the notion that these two variables are greatly related not only between one another, but how it is that they will impact other variables. It is something that indicates that if there is trust, the relationship will be strong, and that it is through this trust that support for the relationship can occur. The supervisor is then able to solicit the opportunity to take part in the activities and experience that will then lead to the sharing of tacit knowledge to occur. Trust will act to support both the behavior and the relationship of the leader.

5.1 Practical Implications

These findings suggest a number of things with regard to how it is that managers should behave and the types of relationships that they should develop if they want to make the most of the knowledge management in their organizations. Management should seek to develop exchange relationships with subordinates where they feel comfortable telling their supervisor what their thoughts are and more importantly where they feel they can be a source of information for the supervisor and that the information is valued and will be reciprocated with something else. The exchange of ideas and knowledge is something that will support the sharing of tacit knowledge, however in order to build and sustain this relationship, the development of trust is important.

Without trust, it is difficult for management to gain key insight that can only be obtained from tacit knowledge being held by the worker. The development of trust is something that can come from how their leader has cultivated the relationship and the nature of their leadership approach. The servant leadership approach is an approach that can work to support the functional aspects of how it is that the leader will actually get in a position where they can gain the experience necessary to gain tacit knowledge from their worker.

5.2 Future Research

While this research works to answer several questions with regard to how it is that tacit knowledge sharing can be encouraged, it also proposes a great number of future questions to answer. One such problem that seems to emerge surrounds the leader-member exchange quality development and trust. How these things develop in the presence of one another when encouraging tacit knowledge sharing is something that future research should attempt to understand as these factors have a great impact on the sharing of tacit knowledge. Second, it is proposed that future studies of the influence of leadership on tacit knowledge sharing seek to understand if similar results could be found when categorized by low and high levels of leader-member exchange. This will give indication regarding how strong the in-group/out-group belongingness can be if similar findings are found when other forms of leadership are examined (i.e. transformational leadership, authentic leadership, path-goal leadership, etc.). Third, more robust modeling should be developed that seeks to understand the impact of leader and follower personality traits as predictors of the sharing of tacit knowledge. Emotional intelligence could suggest a great deal about how well a supervisor is able to solicit the sharing of tacit knowledge potentially. Finally, the ability of managers to do something with this knowledge should be evaluated and the response of the workers when their tacit knowledge is converted into

organizational knowledge is something that can be useful in understanding the nature of knowledge management and how workers feel about their personal knowledge being made public.

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