



THE PSYCHOLOGY OF COMMUNICATING TRUST: CONSENSUAL DEPENDENCY OF TRUST AND KNOWLEDGE SHARING

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KEYWORDS

Trust
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ABSTRACT

Trust indicates positive effects on mental and social health in the work environment. In this study it was aimed to analyze the bidirectionality of trust and knowledge sharing variables over time. Results showed that there is a time pattern in the relationship between the two measures, where in time 1 (initial stage) participants have higher trust through knowledge sharing. In time 2 (middle stage) trust decreases and finally in time 3 (matured stage) it again increases. Finally, implications of the study and how knowledge sharing can be an antecedent to trust building at least in the initial stage is discussed.

PALABRAS CLAVE

Confianza
Intercambio de conocimientos
Comunicación psicológica
Bidireccionalidad
Estudio longitudinal

RESUMEN

La confianza indica efectos positivos sobre la salud mental y social en el entorno laboral. En este estudio se tuvo como objetivo analizar la bidireccionalidad de las variables confianza e intercambio de conocimientos a lo largo del tiempo. Los resultados mostraron que existe un patrón de tiempo en la relación entre las dos medidas, donde en el tiempo 1 (etapa inicial) los participantes tienen una mayor confianza a través del intercambio de conocimientos. En el tiempo 2 (etapa intermedia) la confianza disminuye y finalmente en el tiempo 3 (etapa madura) vuelve a aumentar. Finalmente, se discuten las implicaciones del estudio y cómo el intercambio de conocimientos puede ser un antecedente para la construcción de confianza al menos en la etapa inicial.

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1. Introduction

Trust in organizational context, is measured often as unidimensional or multidimensional construct because of non-consensus in the literature, which often has resulted in differential results in the strengths of relationships (for e.g., organizational citizenship behavior and commitment) (Fischer et al., 2020). Furthermore, the psychological nature of trust formation within an interpersonal relationship acts in a non-independent manner, as research has shown that there are antecedents and precedent relationships to its degree of development (for e.g., Knowledge sharing as precedent, communication as antecedent measures). Knowledge sharing is almost always studied as a preceding consequence of a trustworthy relationship, but in its immature state, it may also behave as a trust determining measure. The present article aims to understand the communication of trust among individuals working in teams, specifically when they are recently formed teams working together, on the relationship between knowledge sharing and trust. We predict that they are constructs with bi-directional relationship in their behavior, especially in the beginning of an interpersonal relationship in a formal work-setting striving towards a common project.

Trust as a measure is in its form is of reciprocal nature. Trust, trustworthiness, propensity to trust, distrust, which are all components of trust behavior, do not act or react solo but in interaction with other relationships. Trust is defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer et al., 1995, 712). There needs a trustor and trustee to form the relationship which may take its form depending on the dyadic or triadic relationship (for e.g., employees, supervisors, and organization). In these lines, for some, knowledge sharing may be a means to gain the others respect and affection within a new work-setting and for others trust may begin only when knowledge is shared. Literature states that the propensity to trust is a state of mind which is more of a static declaration to oneself in discerning others' trustworthiness even before an initial influence has occurred between parties (Alarcon, et al., 2018). Therefore, we predict that trust and knowledge sharing may merge in a bi-directional state of association rather than a unidirectional relationship. To understand this relationship better in the study, recently formed working student team member responses over a 6-month period on a team project was used. The relationship between trust and knowledge sharing was studied over a three-time period using cognitive behavioral and social learning theories.

The present research study aims to demonstrate three main contributions, which are yet to be explored so far in this area of research. First, to explore the understanding towards the ongoing research regarding trust, its antecedents, and preceding relationships among team members. Second, findings from the study can help future researchers to relate knowledge sharing as an antecedent trigger for the formation of trust. Third, their relationship is subject to pattern of changes, which is yet to be explored in this area of research.

1.1. Theoretical Background

1.1.1. Trust and knowledge sharing

In recent years, academic research has directed its studies towards the dimension of organizational trust. Indeed, it occupies an important role in various fields of organizational psychology and organizational behavior (OP/OB) literature, including leadership, justice, psychological contracts, perceived organizational support, psychological ownership, and teams (Chamberlin et al. 2017, Colquitt et al. 2013, Costa et al. 2018, Hoch et al. 2018, Kurtessis et al. 2017, Martin et al. 2016, Zhang et al. 2021a, Zhao et al. 2007). The umbrella of the trust construct is very broad and gathers under it various dimensions, both cognitive and affective (Mayer et al., 1995), which make it a critical factor in the development of social exchange relationships (Blau, 1964).

Much of previous trust research drawing on social exchange theory, suggests that the trust of both parties may be an important influence on the behavior and intentions of the subordinate. When people trust their work teams, they will be more willing to make extra effort and increase job performance, having more favorable attitudes toward the exchange relationship and be more willing to maintain it (Dirks & Ferrin, 2002; Konovsky & Pugh, 1994; Mayer & Gavin, 2005). Also, a manager is more likely to delegate an important task to a trusted subordinate than to one who is not trusted because the manager has greater confidence that the task will be properly completed. In fact, belief in the employee's ability to successfully perform a task has been shown to be a precursor of trust (Mayer & Davis, 1999; Mayer et al., 1995).

Furthermore, researchers have found that trust changes over time—most teams begin with temporary, fragile team trust and as time continues, this trust can increase (Jarvenpaa & Leidner, 1999), change depending on trust variations (De Jong & Dirks, 2012), be replaced by other forms of trust (Robert, Denis, & Hung, 2009), or even transform to a multidimensional construct (Webber, 2008). In the past decades of trust research, it has been shown that, teams with higher levels of trust have a propensity to be higher performers. Nevertheless, trust is a process which may take its form over time as individuals interact creating interpersonal relationships within

teams. During this time the pattern of trust, initiation and its maturity state can have several impacts from the quality and quantity of knowledge sharing. Furthermore, many studies have discussed the significance of trust in facilitating knowledge sharing at workplaces.

1.1.2. The psychology of communicating trust in teams

Trust is a result of reciprocal behavior and encounters with the norms of reciprocity within an interpersonal behavior. It is always thought that trust produces knowledge sharing behavior towards another person, but it could be that knowledge sharing in a step before extends trustworthiness to the other which transforms towards trustworthiness in a reciprocal behavior.

According to social exchange theory, if the team members trust each other they tend to share their knowledge. This view has been demonstrated in many studies (Zhou Mi, 2006). Knowledge sharing refers to “the process wherein employees contribute and seek knowledge, experiences and skills among their peers with an intention to solve task-related problems at their workplace” (Bao et al., 2016). It is one of the key mechanisms by which knowledge gets transferred within organizations and the sustainability of organizations depends on how effectively knowledge sharing takes place among its employees (Cabrera and Cabrera, 2005).

Many studies have discussed the significance of trust in facilitating knowledge exchange at workplaces owing to the vulnerable nature of knowledge sharing. Knowledge sharing is generally avoided by employees because of reasons such as chances of the shared knowledge getting misused, fear of evaluation apprehension, losing one’s knowledge-based power and chances of the knowledge being misunderstood by others thereby leading to inappropriate application (Assem and Pabbi, 2016; Bordia et al., 2006; Muqadas et al., 2017; Riege, 2005).

Three trustee factors have been identified by Mayer et al. (1995) as core trustworthiness dimensions: ability, benevolence, and integrity. Ability and integrity showed the greatest influence on trust in teams in the case of temporary work teams (Aubert & Kelsey, 2003; Jarvenpaa et al., 1998; Robert et al., 2009) supporting the argument that benevolence is less important to short-term performance teams (Meyerson et al., 1996). Mayer et al. (1995) argue that judgments of ability and integrity can be formed relatively quickly during a relationship, whereas benevolence judgments will take more time as it requires the development of emotional attachment. Consistent with this point, Levin and Cross (2004) found that benevolence was an important source of trust in knowledge transfer in teams with strong ties.

The study of trust in work teams not only provides a privileged context to gather multilevel insights about factors and outcomes, but as many economies are moving towards knowledge-based and service-based work, organizations are become increasingly dependent on their capability to create, integrate, share, and transfer knowledge between their members (McEvily, Das, & McCabe, 2000). However, as many researchers have noted, sharing knowledge is personal, and it can be difficult when individuals are not motivated to share (e.g., McDermott, 1999). Work teams provide critical settings, as individuals working together need to share knowledge and the key enabling factor is trust (Staples & Webster, 2008).

Trust creates confidence among coworkers, leads to emotional openness and acts as an intrinsic motivation for employees to actively engage in knowledge sharing. Strengthening of trust at workplace makes knowledge exchange less costly, offers psychological safety to employees and positively influences knowledge-contribution willingness (Cheng et al., 2013a).

Therefore, the present study aims to propose that, in the individual’s psychology of communicating trust to another member of the team, may not always initiate knowledge sharing but rather at the initiation stage especially with new members forming teams. And moreover, knowledge sharing may be a tool for the initiation of trust, and it will be bi-directional in its dependency for other preceding team member relationships within organizations. While the effects of trust on knowledge sharing with team membership is well documented, it is yet to be investigated, the specific links between these factors bidirectionally, and moreover, none to our knowledge have studied on the relationship of these variables over time.

1.1.3. Objectives

Based on the above discussion on trust and knowledge sharing bi-directional role in the psychology of communicating trust in teams, the following objectives are proposed in the present study:

- Analyze the relationship between trust and knowledge sharing within team members
- Evaluate if trust and knowledge sharing have bi-directional relationship
- Evaluate if trust and knowledge sharing in team members have differences between the three-time frames.
- Gain understanding of the psychology of communicating trust in teams by knowledge sharing, specifically with patterns of changes in three stages of team composition (initial, middle, and maturity stage).

2. Methods

2.1. Participants and data collection

Data was collected from 168 final year graduate students who were part-time workers outside the university on a random basis from a private university. They were composed of 65.7% were woman and 35.3% were men, with an age range between 18 to 60 years ($M=21$ years). All the participants were randomly divided into teams of 3 and 4 people, with a total of 43 student teams from the start to end of the project. The teams had to collaborate to accomplish the project which had a duration of 5 months. Students were asked to rate trust and knowledge sharing during three different times, at the beginning, during, and at the end of the project.

The first collection of information about the sample was carried out in in-person at the university. A week after their first interaction with the teams they were asked to fill the first questionnaire via online. The second questionnaire was collected in the 3rd week to evaluate the development of the variables during the project. Finally, the last questionnaire was collected when the project was finished and delivered (5th month).

2.2. Measures

Trust: The measure of Trust was made with the 3-item survey of Jones & Shah (2016). Each item measures one of the three antecedents of trustworthiness: Ability, Benevolence and Competence. Each item was rated on a five-point response scale (1 = to a very small extent to 5 = to a great extent). This survey reports a Cronbach's alpha value from 0.83, which showed strong reliability.

Knowledge Sharing: For Knowledge Sharing the Faraj and Sproull's (2000) four-item instrument was used to measure perceptions of knowledge sharing by team members. A sample item is: 'Members in my team share their special knowledge and expertise with one another'. Each item will be rated on five-point response scale (1 = to a very small extent to 5 = to a great extent). This instrument reports a Cronbach's alpha value was 0.78, which shows strong reliability.

2.3. Data analysis strategy

In order to predict the hypothesis presented in the introduction section, we conducted various analysis appropriate to each of the hypothesis. First, for preliminary analysis we conducted descriptive statistics and correlations among each of the variables (i.e., trust which includes ability, integrity, benevolence, and knowledge sharing) to see their association.

Following, to analyze the changing pattern of trust development, we conducted a multivariate analysis of variance, used to determine whether there are any differences in their relationship over time. Finally, to evaluate the relationship between knowledge sharing and trust a multiple regression analysis was conducted.

3. Results

Table 1. shows the descriptive results which includes the means, standard deviations and correlations matrix to show the relationship between trust and knowledge sharing.

TABLE 1. Correlations between trust, knowledge, sharing

Variable	<i>M</i>	<i>SD</i>	1	2
Trust	3.75	0.58		
Knowledge sharing	3.86	0.56	0.83**	

Note: ** $p < 0.01$ (2-tailed); Source: Own source

Correlational analyses were used to examine the relationship between the variables (Table 1). The relationship between trust and knowledge sharing in teams was a positive significant correlation of $r = 0.83$, $p < 0.01$. Therefore, as positive associations were found between the variables, we set forth to do more complex analysis to find the development of trust through knowledge sharing over time.

3.1. Overall trust development

To analyze the changing pattern of trust development, we conducted a repeated measures ANOVA for each trust factor of the sample. In the theory section, the main aim was to find the differences in trust (ability, integrity, benevolence) development in teams across the three-time period. A repeated measures ANOVA with a Greenhouse-Geisser correction determined that mean Trust concentration differed statistically significantly between time points ($F(2.236, 48.247) = 4.113$, $P < 0.05$). Post hoc tests using the Bonferroni correction revealed that trust elicited decrease to increase from time 2 to time 3 in trust development (1.98 ± 0.82 vs 2.33 ± 0.89 , respectively),

which was statistically significant ($p < .05$). However, time 1 to time 2, trust reduced in time 2 to 1.79 ± 0.78 , which was statistically significantly different from time 1 to be 3.21 ($p < .05$). Therefore, we can conclude that trust development is different in time periods; at time 1 initially team members had higher trust but later at time 2 it decreased and at time 3 it increased again.

The ICC was $285/(285+300) = 0.48$, suggesting that about 48% of the total variation in the Trust indicator was due to interindividual differences. In other words, the estimated average stability of the Trust indicator was 0.48. Since the ICC values are above the threshold of 0.25, we continued to estimate fixed effects using linear growth curve model.

In this model, time variable was added to test the linear growth of the trust indicator over time. Furthermore, linear slopes were allowed to randomly vary across individuals by listing Time in the random statement.

The significant values in both the intercept and linear slope parameters indicate that the initial status and linear growth rate were not constant over time. There was a significant linear increase in the trust scores ($\beta = 0.24$, $SE = 0.12$, $p < 0.01$). The mean estimated initial status and linear growth rate for the sample were 176.91 and 0.34, respectively. This suggested that the mean trust indicator was 176.91 and increased with time. The random error terms associated with the intercept and linear effect were significant ($p < 0.01$), suggesting that the variability in these parameters could be explained by between-individual predictors. The correlation ($\beta = -43.98$, $SE = 3.64$, $p < 0.01$) between the intercept and the linear growth parameter was negative. This suggests that participants with high trust indicator scores had a slower linear decrease, whereas other participants with low trust indicator scores had a faster decrease in linear growth over time.

Since individual growth trajectories are usually nonlinear over time as shown in previous developmental studies, in the present study, two higher-order polynomial models were tested. The analyses examined whether the rate of growth accelerated or decelerated over time. To test the quad-ratic rate of change, a model with quadratic time (Time_sq) was ex-amin-ed by adding quadratic parameter in the previous model.

Results showed that all growth parameters were significant ($p < 0.01$), indicating that there were significant between-subjects variations in the initial status, and linear and quadratic time trajectories (i.e., reliably different from zero). The initial status (grand mean score at Time 1) of the trust indicator was 157.80 ($\beta = 157.80$, $SE = 0.17$, $p < 0.01$). The significant linear effect for the trust indicator was negative ($\beta = -5.77$, $SE = 0.30$, $p < 0.01$), revealing that the rate of linear growth decreased over time. The significant quadratic effect was positive ($\beta = 1.74$, $SE = 0.10$, $p < 0.01$), showing that the rate of growth in-creased over time. The expected deceleration was found after time 1 [$-5.77 / (2 (1.75)) = 1.64$]. This indicates that the decreasing effect gradually diminished after Time 1. Compared to the linear change trajectory (-5.77), the rate of quadratic growth (1.75) was small. Based on the above results, it showed that the trust indicator de-creased at the beginning, but this trend slowed down later. Given that the quadratic model improved model fit over the linear model ($\chi^2(1) = 334025.84 - 333749.96 = 275.88$, $p < 0.01$; $\Delta AIC = 334037.84 - 333763.96 = 273.88$, $p < 0.01$; $\Delta BIC = 334089.12 - 333823.79 = 265.33$), both linear and quadratic growth curve parameters were retained in the subsequent models. It indicated that the potential of curvature trajectories fit the data better.

4. Discussion

In many studies, trust is often considered as a unidirectional relationship, although in the literature it is highlighted that trust is a bidirectional, dyadic, or even triadic relationship in a multi-level set up within an organization. Means that the flow of data is not just one way but configured as two-way relationship when it comes to knowledge sharing and trust. Without trust individuals do not share knowledge, yes indeed, but also it could be said that knowledge sharing can be the first steppingstone to build trust in mutual interactions, where both trust and knowledge are bidirectional relationships which enable data to be automatically updated when either of them are connected and modified each time they encounter.

Therefore, trust relationship can be configured as a two-way relationship in a team especially a newly formed team. This study examines the relationship between trust, knowledge sharing and their bi-directional dependency on the repercussions of team performance over time. Additionally, it is aimed to analyze the process of development of relationship among these variables over time.

the results of our study suggest that the relationship is more complex than just a simple direct relationship for participants' learning at the University undergraduate level. It has long been assumed that a high level of trust is related to better knowledge sharing in organizations or teams, though how this occurs is less clear in participant learning and motivation. Consistent with the results reported elsewhere (Dirks, 1999; Cos-ta, 2003; Webber, 2008), this study provides empirical support for the statement that trust within teams allows members to share knowledge. The results showed how the three variables were highly correlated nonetheless the relation between them changed across the time the teams worked together.

The results also go along with recent work which highlights the idea that it takes time for emergent constructs, like trust and knowledge sharing, to develop enough to be perceived by team members as a shared team characteristic (Carter, Carter, & DeChurch, 2018).

Talking about trust development we could see that at the beginning of the project trust was high between student team members. At the middle, trust decreased in comparison to the beginning of the project. Finally, in the last stage of the project trust increased again, showing higher scores compared to the ones in the beginning. This supports research that says initial trust is very different than trust during the project, and it also changes when the team is approaching a deadline or milestone (Cheng et al. 2013b; Rose & Schlichter 2013).

In the case of the relationship between trust and knowledge sharing, the results showed how both variables highly correlate, but this relationship changed across time. At the beginning and during the project, the variable of knowledge sharing predicted trust, nonetheless, at the end of it, there were no significant predictions for these variables. This last result could be explained because a relationship of trust could be already developed between the teammates and knowledge sharing wasn't necessary anymore to increase it.

Focusing on the components of trust identified by Mayer et al. (1995), it is supported that, benevolence is an important source of trust in knowledge transfer in teams (Levin & Cross, 2004) and ability influences on trust in teams in the case of temporary work teams (Aubert & Kelsey, 2003; Jarvenpaa et al., 1998; Robert et al., 2009).

Regarding the practical implications of the results, first, it is shown that both trust and knowledge-sharing have bi-directional relationship. In much practical management, knowledge sharing can only be a mere formality because of lacking trust in the team. So, the enterprises must pay attention to trust development and knowledge sharing. Second, as we saw in the results, trust, and knowledge sharing change over time, this is a characteristic that organizations must take into account in order to provide interaction spaces or practices where trust could be built faster. Organizations could also build the constraints and incentive system of knowledge sharing based on trust. Constrained by the system can reduce the risks and costs for the knowledge holders. An incentive system could increase the future expected benefits for the knowledge holders, which will enhance their sharing willingness.

We found that knowledge sharing positively influenced trust at the team level, which has the practical implication that, if organizations increase knowledge sharing in teams, they will increase team-level trust. To do that, organizations should invest in ways to strengthen coworker relationships and provide environments that support knowledge exchange. Organizations should recognize the importance of knowledge sharing as a long-term way to develop trust within their teams.

Finally, related to the theoretical implications of the results found in the present study, results contribute theoretically to social exchange theory (Blau, 1964). Our findings supported the assumption, suggesting that the expectation of reciprocity among team members is the motive for trust and knowledge sharing. It is important to note that the results also support what researchers have found so far about trust change over time increasing knowledge in this area. As pointed before, no research was found about how trust develops in student teams, the present paper contributes to the growing literature on how trust develops over a short period of time.

The results importantly also contribute to the fact that results show how the two variables develop and change with time. This contributes to answering to the meta-analysis made by Feitosa, Jennifer & Grossman et.al. (2020), where they recommend on examining how team trust and its relationship with knowledge sharing evolves over time. This research goes in line with longstanding calls for more studies with longitudinal designs, assessing team trust at multiple points can be crucial in determining the trajectory of this emergent state.

5. Conclusions

In summary, the purpose of our research was to understand the interaction between trust, knowledge sharing, and trust across student learning in teams. The results of the study suggest that the interaction among trust and knowledge sharing change through the development of projects during a course of time for students. Despite the limitations, this study contributes to the growing literature on team-level phenomena and the trust and knowledge-sharing domain of bi-directional relationship.

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