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Article

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Empirical paper

The effect of organizational justice on knowledge sharing: Empirical evidence from the Chinese telecommunications sector



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ABSTRACT

This study assessed the impact of organizational justice on knowledge sharing among employees of Chinese telecommunications firms. The study focused on five forms of organizational justice (distributive, procedural, interactional, temporal, and spatial) and two forms of knowledge sharing (donating and collecting). A self-administered questionnaire yielded data for 245 employees. The data were analyzed using a two-step process in Amos 21. First, the measurement model was determined through CFA. Second, SEM was applied to test the hypotheses. The results suggest that if employees have positive perceptions of distributive, procedural, interactional, and temporal justice, they are intrinsically encouraged to share their knowledge with colleagues. Spatial justice, however, was found to affect knowledge sharing negatively and significantly. In an organizational work context, each form of organizational justice has a unique contribution toward knowledge sharing. Therefore, all forms of organizational justice should be considered.

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El efecto de Justicia Organizacional en el Intercambio de Conocimiento: Una evidencia empírica del Sector de las Telecomunicaciones Chino

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Este estudio es un intento de determinar el impacto de la justicia organizacional en el intercambio de conocimiento entre los empleados del sector de las telecomunicaciones en China, dándosele particular atención a las formas de justicia organizacional: justicia distributiva, procedimental, interaccional, temporal y justicia espacial. El intercambio de conocimiento, en este sentido, se definirá como donación de conocimiento y colección de conocimiento. Se distribuyó un cuestionario autoadministrado con el objetivo de obtener respuestas de 245 empleados, cuyo análisis de datos se llevó a cabo en dos etapas: la primera, mediante el Análisis Factorial Confirmatorio (AFC) y, la segunda, por medio del Modelo de Ecuaciones Estructurales (SEM). En ambas etapas se hizo uso de AMOS 21. Los resultados del estudio sugieren que si los empleados tienen percepciones positivas sobre la justicia distributiva, procedimental, interaccional y temporal, están intrínsecamente motivados a compartir sus conocimientos con sus compañeros de trabajo. La justicia espacial, por su parte, resultó ser negativa pero con un significativo efecto en el intercambio de conocimiento. Cada forma de justicia organizacional contribuye de forma especial en el intercambio de conocimiento; de ahí que, en el contexto organizacional de trabajo, se sugiera considerarlas todas y cada una de ellas como igualmente importantes.

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Introduction

Due to rise in the realization of employee's rights and government regulations, organizations are now more concerned to treat employees fairly than ever (Singh, 2013). Fairness is also highly demanded in current business environment due to the fact that today's economy is knowledge and innovation based economy. Businesses are surviving only due to competitive knowledge of their employees in the highly competitive and technology oriented markets. Therefore, it is very important for the firms to determine those factors that hinders or promotes the knowledge sharing within organization (Llopis & Foss, 2016; Yesil & Dereli, 2013). Beside number of other factors, perceived fairness in organizations affects the behavior of the employees utmost. Particularly, it is true for those high-tech service oriented jobs that require employees to donate and receive high quality knowledge to perform their day-to-day job activities (Afsheen, Rabia, Hina, & Sehar, 2015; Kaewchur, Anussornnitisarn, & Pastuszak, 2013; Safa & Solms, 2016). Most of the organizational behavior studies stressed on how to motivate employees to share their knowledge with others, however, very few has focused on the aspect of organizational justice that actually effects the knowledge sharing among employees (Tea Moon, 2015). In addition to this many researchers have explored the effect of organizational justice on numerous organizational and individual outcomes (Fadel & Durcikova, 2014); however, very little attention is conferred upon the interaction between organizational justice and knowledge sharing (Wang & Noe, 2010; Yesil & Dereli, 2013). Further, in organizational behavior literature, knowledge sharing is rightly assumed as an ethical behavior (Lin, 2007). As knowledge sharing is considered a key element in organizational competitiveness and growth, therefore, not

sharing knowledge might impede organizational survival (Lin, 2007). Hence, it is crucial for the organizations to find out the factors that enhance or impede the knowledge sharing on behalf of the employees. This is important to note that knowledge management is considered the most important organizational issue in terms of its operations of different organizations. According to Tea Moon (2015), the most essential factor to guarantee knowledge management is knowledge sharing. Different researchers have defined knowledge sharing differently, but in general it is known as the delivery of knowledge.

Particularly, telecommunication is among those service sectors that demands high levels of knowledge sharing by its employees, therefore, employees need great motivation to become successful in performing their work activities. This is specifically true for most of the employees that if they perceive a fair treatment from their organizations, they are motivated and are more willing to share their knowledge with others in organization. However, fairness is not uni-dimensional phenomena and it may comprise of different organizational aspects of justice in the eyes of employees. Therefore, this study is an attempt to discover the impact of five dimensions of organizational justice on the knowledge sharing (Donating and collecting) of the employees working in the telecommunication sector of China. The rationale behind this choice is that telecommunication sector of China is one of the fastest growing sectors in the world (China Outlook, 2015). Additionally most of the knowledge management and organizational justice literature focused western countries, while eastern countries are found having few studies if any.

Hence, this study extends and adds in the previous studies about organizational justice and knowledge sharing in several ways. First and foremost, this study is the first known attempt to find out the effect of five different forms of organizational

justice on knowledge sharing. Previous studies focused on distributive, procedural and interactional justice, while other forms of organizational justice were neglected. This study analyzes the effect of temporal and spatial justice along with distributive, procedural and interactional justice on the knowledge sharing of telecommunication workers in China. Second, previously most of the studies focused on knowledge sharing as knowledge transfer or intention to share knowledge, whereas, knowledge donating and knowledge collecting, as antecedents of knowledge sharing were not considered adequately. Third, since most of the studies related to the phenomena under study were conducted in western context, the focus of this study is on the most growing service sector of China, which is still under tapped and deserves further exploration in this regard. Fourth and final contribution is provided at the end of this research paper in the shape of theoretical and practical implications for managers.

Literature review

Organizational justice

Fairness has been and continues to be an important matter of concern for people (Colquitt, Greenberg, & Zapata-Phelan, 2005; Heidari & Saeedi, 2012). It is among those organizational factors that shape the actions of individual employees in contemporary organizations (Usmani & Jamal, 2013). According to Greenberg (1990), organizational justice or fairness in organizations refers to “the extent to which the employees consider that the organizational decisions are fair”. Organizational justice is important because fair treatment leads to better social interactions and overall organizational effectiveness (Coetsee, 2005; Heidari & Saeedi, 2012). It has deep effects on the ways the workers show job behaviors and the work attitudes that ultimately result in a positive if confirmed or, otherwise negative organizational outcome (Usmani & Jamal, 2013). Hence, such notion has great and significant implication for the individuals and the organizations as a whole (Yesil & Dereli, 2013). Although organizational justice is a multi-dimensional concept, but basically, organizational justice is defined as “individuals’ perception about the fairness in organizations they are working for (Coetsee, 2005; Cropanzano & Greenberg, 1997; Yesil & Dereli, 2013). Due to its practical and theoretical importance, researchers have been studying the concept of organizational justice since long (Cropanzano, Bowen, & Gilliland, 2007; Fadel & Durcikova, 2014).

Literature about organizational justice suggested that this phenomenon has been under study for long. Homans (1961) studied distributive justice and discovered important effects of employees’ perception about the equal distribution of organizational outcomes on the attitude of individuals and also outcomes related to those behaviors that they follow after organizational decisions (distributive justice). Other researchers (e.g. Adams, 1965; Blau, 1964) verified this concept regarding distributive justice. Distributive justice is, therefore, rendered as the fairness of outcomes that one individual receives (Adams, 1965). Individuals assess the distribution of outcomes in accordance to some distributive decree and the most shared of that is equity. Equity evaluation involves an

assessment of one’s inputs and his/her obtained outcomes with others’ input and obtained outcomes in the organization. Further study expansion on justice phenomenon led to the identification of procedural justice that refers to “the perception that the procedures determining outcomes and resolving conflict are fair” (Thibaut and Walker, 1975). Procedural justice is the fairness about organizational procedures and it ensures that they are unbiased, consistent, accurate, representative, correctable and also ethical. Another addition in the family of organizational justice was interactional justice by Bies and Moag (1986). It was further divided into two sub categories namely interpersonal justice and informational justice. Interpersonal justice is defined as “the perception of fairness about the interpersonal treatment such as dignity and respect that an individual receives”, whereas, informational justice is related to fairness perception of that fashion in which information is communicated in the organization (Brockner & Greenberg, 1990; Colquitt et al., 2005). Altogether, interpersonal justice and informational justice formed interactional justice; therefore, interactional justice refers to the employees’ perception about the fairness of the interpersonal treatment received by them from the decision makers in that organization. Present study considers interactional justice as a whole rather than considering two separate sub categories of interactional justice.

Although, past studies have identified different forms of organizational justice, however, due to its complex phenomenon, literature still lacks some aspects of organizational justice (Usmani & Jamal, 2013), therefore, it continued to evolve. Consequently, Usmani and Jamal (2013) attempted to identify two further dimensions of organizational justice namely temporal and spatial justice. Temporal justice is defined as having a discretionary power or control over one’s time. In other words, “fair distribution of time by the organization to its employees for the completion of organizational tasks” (Usmani & Jamal, 2013). Hence, it is argued that time itself is a resource; therefore, it is not a component of distributive justice and holds its separate identity as a form of organizational justice. On the other hand, spatial justice refers to “the perception about the fairness of resource distance and budget discrimination among different organizational members/branches in the allocation of organizational resources” (Usmani & Jamal, 2013). Spatial justice is a focused and intentional emphasis on the geographical and spatial attribute of organizational justice (Usmani & Jamal, 2013). Therefore, it is about the elucidation of distributing space of “socially valued” resources as well as opportunities for the utilization of those resources. This study considers distributive, procedural, interactional, temporal and spatial justice as the independent variables, whereas, knowledge sharing in the form of knowledge donating and knowledge collecting as the dependent variable, which is now discussed below.

Knowledge sharing

Currently, businesses are heavily dependent on the knowledge asset which they possess in the shape of organizational employees (Safa & Solms, 2016). Survival and prosperity of any business and even any nation is dependent on the possession of competitive knowledge (Afsheen et al., 2015; Lin,

2007; Yesil & Dereli, 2013). Therefore, knowledge (such as skills and expertise), when used in daily business practices of an organization, plays the role of competitive advantage (Afsheen et al., 2015; Hu, Horng, & Sun, 2009; Yesil & Dereli, 2013). It requires the firms not only to share the knowledge but to also integrate it into daily organizational processes at large (Llopis & Foss, 2016). Organizations are now knowledge-integrating institutions that combine different groups and people to collect as well as donate their knowledge to produce goods and services (Ibragimova, Ryan, Windsor, & Prybutok, 2012). Moreover, while obtaining and donating knowledge, knowledge sharing is found as a significant method to further generate the knowledge (Xinyan & Xin, 2006). Therefore, for burgeoning knowledge management initiatives in the organization, knowledge sharing is very crucial (Wang & Noe, 2010). It can be said that knowledge sharing is a mechanism by which knowledge can be transmitted between individuals. Consequently, through such knowledge transmission, individuals acquire new edge to facilitate new actions. Thus, it can be infer that knowledge sharing contributes value to existing knowledge within the organizations. In the knowledge management literature, knowledge management is defined as “those strategies that comprise of such activities of creating, codifying and sharing knowledge for obtaining the right information for right person in the right place at right time” (Jean-Paul & Shih, 2011, p. 3). This definition highlights the importance of knowledge management in day-to-day organizational matters. Additionally, importance of knowledge sharing is also well accredited in psychology literature related to work (Wang & Noe, 2010). Knowledge sharing is referred as “provision of task information and the know-how to help others and to collaborate with others to solve problems, develop new ideas or implementing policies and procedures” (Cummins, 2004; Wang & Noe, 2010). It is defined as the endowment, reception, exchange and transfer of information and work know-how in order to collaborate with and help others to solve problems, develop ideas, implement policies and procedures and various other work-related matters (Cummins, 2004; Wang & Noe, 2010). Knowledge sharing is further divided into two important sub-components or activities as knowledge donating and knowledge collecting (van den Hooff & De Ridder, 2004). Knowledge donating refers to the communication that is based upon a person’s volunteer wish to transfer his intellectual capital, whereas, knowledge collecting is the attempt to persuade others to share their intellectual capital (van den Hooff & De Ridder, 2004). These both activities are unique in a sense that they require intrinsic motivation by the individuals for knowledge sharing by consulting and seeking for knowledge and by communicating to transfer own intellectual capital (Alhady, Hilmie, Idris, Azmi, & Zakaria, 2011). Knowledge sharing helps in improving and maintaining the relationship among the knowledge donating and knowledge collecting parties. Accordingly, this process involves two parties in the process of knowledge sharing. However, most of the research studies considered knowledge transfer as a single feature of knowledge sharing while ignoring knowledge collection (Goh & Sandhu, 2014). Knowledge transfer is a uni-directional process whereas, knowledge sharing is multi-directional, involving both, knowledge donating and collecting. Eventually, present study considers knowledge sharing as a combination of both knowledge donating

and knowledge collecting facets. The theoretical interaction of organizational justice and knowledge sharing is discussed in next part.

Relationship between organizational justice and knowledge sharing

Organizational justice and knowledge sharing, both are standing on the basis of Social Exchange Theory and the norms of reciprocity that suggests those individuals’ voluntary actions are actually motivated by those returns which they expect they will receive from others (Blau, 1964, p. 91). It also suggests a pattern of reciprocally fortuitous exchanges of favors between two parties and obligating the recipient of those favors to pay back in return (without specifying the nature of return and time) to the donor (Cheung & Law, 2008). Empirical studies provided enough proof about the effect of employees’ fairness perception on the number of organizational outcomes, for example commitment, trust, job satisfaction, turnover, counterproductive behaviors, motivation, organizational citizen behavior and job performance (Al-Zu’bi, 2010; Bies, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Cropanzano, Byrne, Bobocel, & Rupp, 2001; Latham & Pinder, 2005; Moorman, 1991; Schilpzand, Martins, Kirkman, Lowe, & Chen, 2013). However, researchers has found that very little, if any, attention is particularly assigned to the interaction of organizational justice and knowledge sharing notions (Wang & Noe, 2010; Yesil & Dereli, 2013). Mostly, researchers considered two (Brockner & Greenberg, 1990), three (Al-Zu’bi, 2010; Cropanzano et al., 2001; Latham & Pinder, 2005) and even four factor model (Colquitt et al., 2001) of organizational justice. However, up to the knowledge of researchers, five factor model comprises of temporal and spatial justice along with distributive, procedural and interactional justice is not presented previously.

It is a matter of fact that knowledge sharing is entirely self-motivated behavior; therefore, if employees are not motivated, the chances of converting individual knowledge into organizational knowledge are very rare (Ibragimova, 2007). Consequently, organizations are required to provide motivational working environment to their employees that leads them to share their knowledge voluntarily (Yesil & Dereli, 2013). Researchers suggested that different forms of perceived fairness may lead to a number of benefits including knowledge donating and knowledge collecting (Cropanzano et al., 2007; Yesil & Dereli, 2013). Therefore, this study attempts to investigate the impact of five factor model of organizational justice (distributive, procedural, interactional, temporal and spatial justice) on the knowledge sharing of employees working in the telecommunication sector of China.

Theoretical framework

According to Tea Moon (2015), theoretically, organizational justice can be considered as an essential factor of knowledge sharing. Social exchange theory suggests that those employees, who recognize or perceive organizational justice, are inclined to exhibit a cooperative behavior in exchange. As, knowledge sharing in the form of knowledge donating and

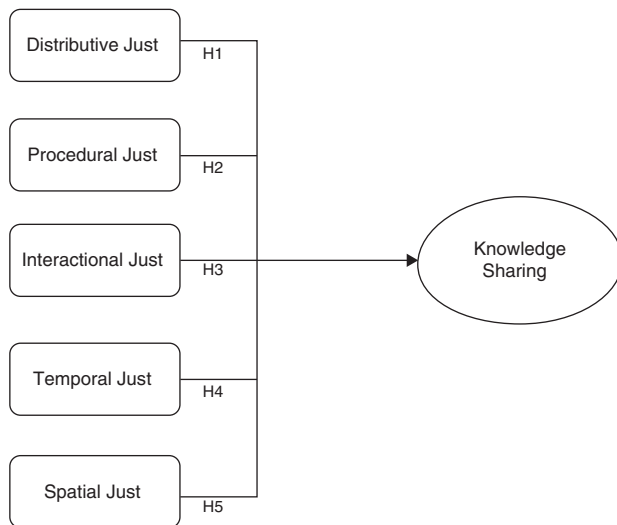


Fig. 1 – Theoretical framework.

knowledge collecting, is considered an exchange and cooperative behavior, therefore, those employees who perceive organizational justice (distributive, procedural, interactional, temporal and spatial), are expected to share their knowledge more effectively (Tea Moon, 2015). They may not only encourage to collect knowledge from their co-workers but also donate them their valuable knowledge without hesitating. Another theoretical base for supporting the hypotheses of this study is Motivation Theory that suggests that individuals are encouraged to behave in a specific manner when they are motivated (Ryan, Lynch, Vansteenkiste, & Deci, 2010). It is the motivation that signifies the reasons for individuals' actions, desires and needs (Safa & Solms, 2016) and the lack of motivation has been mentioned as a major obstacle in sharing knowledge (Hung, Durcikova, Lai, & Lin, 2011). It is proposed that when employees perceive that they are treated fairly in terms of outcomes, procedures that brought those outcomes, communication about organizational decisions, time and organizational resource allocation, they are motivated to share their precious knowledge with others. In other words, when employees perceive that they have distributive, procedural, interactional, temporal and spatial justice, they incline to share their knowledge easily. On the basis literature review in previous section and the theoretical arguments presented in this section, five hypotheses are generated as under. Theoretical interaction between the independent and dependent variables is depicted in Fig. 1.

H1. Distributive justice effects knowledge sharing positively and significantly.

H2. Procedural justice effects knowledge sharing positively and significantly.

H3. Interactional justice effects knowledge sharing positively and significantly.

H4. Temporal justice effects knowledge sharing positively and significantly.

H5. Spatial justice effects knowledge sharing positively and significantly.

Methodology

Participants and procedure

The data for this study was collected from the employees of the telecommunication sector of China in Shanghai. Participants were contacted and requested to fill up the questionnaire. Both male and female participants were included in the sample of the study. However, due to inaccessibility to the employees' data base, it was not possible for the researchers to contact each and every participant; therefore, convenience sampling technique was implied for collecting the data. Participants were included in the study only if they were willing to respond to researchers' request. All participants were ensured that their provided information will only be used for academic purposes and will be kept secret. In total, more than 330 questionnaires were distributed among participants of the study, however only 245 were resumed for final analysis. This provides 74% response rate for this research study which is quite adequate to conduct the further analysis. Among these respondents, 143 were female and 102 were male participants. Finally, sample error was calculated and it was $\pm 6.26\%$ with 95% confidence level ($p \leq .05$).

Questionnaire design

For measurement purposes, the scale of organizational justice was adapted from Usmani and Jamal (2013), who actually adapted the scale from Al-Zu'bi (2010) for the dimensions of distributive justice, procedural justice and interactional justice. However, Usmani and Jamal (2013) developed the scale for temporal justice and spatial justice through focus group. Distributive, procedural, interactional, temporal and spatial justice have 5, 5, 9, 4 and 3 items respectively. Usmani and Jamal (2013) mentioned an Alpha reliability value of .872 for the overall scale in their study. This indicates that the above mentioned scale of organizational justice is quite reliable and provides reliable grounds for using it in current study. The measurement scale for knowledge sharing was adapted from Lin (2007), who used the scale of Van den Hooff and Van Weenen (2004). Knowledge donating consists of three items with reported Alpha reliability value of .78 whereas; knowledge collecting includes four items with aforementioned Alpha reliability value of .80 in the previous studies

Table 1 – Descriptive statistics of the main variables of the study (n = 245).

Study variables	Minimum	Maximum	Mean	Std. deviation
Distributive justice	1	5	4.04	.572
Procedural justice	1	5	4.24	.575
Interactional justice	1	5	4.15	.587
Temporal justice	1	5	4.14	.609
Spatial justice	1	5	4.28	.477
Knowledge donating	1	5	4.12	.564
Knowledge collecting	1	5	4.17	.574

Table 2 – Pearson product moment correlation between the study variables (n = 245).

Study variables	1	2	3	4	5	6
1. Distributive justice	1	.423**	.499**	.520**	.338**	.548**
2. Procedural justice	–	1	.609**	.405**	.408**	.576**
3. Interactional justice	–	–	1	.441**	.407**	.643**
4. Temporal justice	–	–	–	1	.439**	.559**
5. Spatial justice	–	–	–	–	1	.106
6. Knowledge sharing	–	–	–	–	–	1

** Correlation is significant at the 0.01 level (2-tailed).

(Goh & Sandhu, 2014; Lin, 2007; Yesil & Dereli, 2013). In order to ensure maximum response from the Chinese respondents, the questionnaire was translated into Chinese language.

Results and analysis

Descriptive statistics

The nature of the data and the variables is analyzed through the descriptive statistics presented in Table 1. This table provides details about the minimum, maximum, mean and standard deviation values for the independent and dependent variables of the study. This study also reports two control variables, gender and age that are included to find out whether or not, they control for the results of this study.

Common method bias test

Common method biasness is the “variance that is attributed to the measurement method rather than to the construct of interest” (Bagozzi & Yi, 1991). Testing for common method biasness is required prior to testing the study hypotheses (Sharma, Yetton, & Crawford, 2009), because it is a potential validity and generalizability threat for the research findings (Jones, 2009) and it may result in distorted conclusions. In order to eliminate this potential threat, researchers applied the Harman’s single factor test on the data of present study (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Using maximum likely hood method and promax rotation, the number of factors was fixed to one. This resulted into total number of variance explained 32.658 which is quite less than 50% (Podsakoff et al., 2003). The present study is therefore, found to be free of common method biasness and therefore, poses no threat for the empirical results.

Face and content validity

In order to ensure the content validity of the scales used in present study, it was ensured that the language used in questionnaire should be clearly and precisely understandable and accurately translated. Respondents were provided clear instructions about how to respond to questionnaire. Moreover, it was also ensured that there should be no use of double barreled, unfamiliar or confusing terms in questionnaire statements (Podsakoff, MacKenzie, & Podsakoff, 2012). Respondents were ensured of anonymity and all ethical considerations of data collection were taken into account.

Correlation analysis – convergent validity

In order to assess the strength and the nature of the relationship between independent variables-distributive, procedural, interactional, temporal and spatial justice and dependent variables – knowledge donating and knowledge collecting, Pearson Product moment correlation analysis were conducted in SPSS and are presented in Table 2. Results in Table 2 are suggestive about the positive and strong correlation between independent variables and dependent variables of the study, except spatial justice. Results suggests that distributive justice is significantly and strongly correlated with knowledge sharing ($r = .548^{**}$, $n = 245$, $p < .00$). Whereas, procedural justice ($r = .576^{**}$, $n = 245$, $p < .00$), interactional justice ($r = .643^{**}$, $n = 245$, $p < .00$) and temporal justice ($r = .559^{**}$, $n = 245$, $p < .00$) all are also found positively and strongly correlated with knowledge sharing. However, spatial justice ($r = .106$, $n = 245$, $p < .113$) was found having no correlation with knowledge sharing. These results are helpful in interpreting that when distributive, procedural, interactional, and temporal justice increases, knowledge sharing in employees also increases positively. The reasonability of the correlation among the variables of the

Table 3 – Discriminant validity.

	CR	AVE	MSV	ASV	SPATJUST	INTJUST	KNOWS	PROJUST	DISJUST	TEMPJUST
SPATJUST	0.924	0.753	0.156	0.106	0.868**					
INTJUST	0.949	0.573	0.353	0.234	0.377	0.757**				
KNOWS	0.956	0.554	0.353	0.228	0.092	0.594	0.744**			
PROJUST	0.929	0.627	0.316	0.199	0.362	0.562	0.533	0.792**		
DISJUST	0.941	0.551	0.244	0.177	0.305	0.452	0.494	0.365	0.742**	
TEMPJUST	0.916	0.549	0.251	0.180	0.395	0.392	0.501	0.364	0.457	0.741**

** Correlation is significant at 0.01 level.

Table 4 – Pattern matrix.

	Factor					
	1	2	3	4	5	6
Distributive justice						
DJ 1				.748		
DJ 2				.684		
DJ 3				.701		
DJ 4				.814		
DJ 5				.697		
Procedural justice						
PJ1			.662			
PJ2			.899			
PJ3			.722			
PJ4			.878			
PJ5			.772			
TJ1						.730
TJ2						.849
TJ3						.628
TJ4						.634
Spatial justice						
SJ1				.754		
SJ2				.894		
SJ3				.913		
Knowledge sharing						
KS1		.862				
KS2		.733				
KS3		.737				
KS4		.628				
KS5		.594				
KS6		.721				
KS7		.767				
Interactional justice						
IJ4	.716					
IJ7	.691					
IJ6	.638					
IJ3	.781					
IJ8	.703					
IJ9	.745					
IJ2	.792					
IJ1	.771					
IJ5	.891					

Extraction method: maximum likelihood.
 Rotation method: promax with Kaiser normalization.
^a Authors' estimation.

study is suggestive of positive relationship between study variables except spatial justice and knowledge sharing.

Discriminant validity

Table 3 presents the additional information about the convergent validity. It also provides the discriminant validity by using IBM Amos 21. All average variance explained (AVE) values are above .5 which provides the evidence for convergent validity, all composite reliability (CR) values are above .7 suggesting the inter-item reliability, whereas, square root of average variance explained (AVE) are also greater than any inter-factor correlation in the Table 3, that suggests very good discriminant validity (Fornell & Larcker, 1981).

Table 5 – Cronbach's Alpha reliability of the study variables (n = 245).

Sr. no	Study variables	Number of items	Cronbach's Alpha reliability
1	Distributive justice	5	.862
2	Procedural justice	5	.865
3	Interactional justice	9	.935
4	Temporal justice	4	.814
5	Spatial justice	3	.730
6	Knowledge donating	3	.706
7	Knowledge collecting	4	.788

Exploratory factor analysis – construct validity

By using IBM SPSS 21, exploratory factor analysis (EFA) was used to test for the construct validity in present study. 6 factors were extracted by using Maximum Likelihood Method of factor extraction. Kaiser–Myer–Olkin value was .906 that is greater than the minimum suggested value of .6 (Kaiser, 1974), whereas, the Bartlett's Test of Sphericity was significant at p value of .00 (Bartlett, 1954). Six extracted factors having the Eigen values of greater than 1, explained a cumulative variance of 61.431 and loaded above .3 (Pallant, 2013). Table 4 provides the pattern matrix from EFA.

Reliability analysis

Although, previous studies mentioned quite reasonable Alpha reliability for the measurements that are used in this study, however, validation was fairly essential before conducting the tests for hypotheses of this study. Consequently, Cronbach's Alpha reliability analysis were conducted in IBM SPSS. The results of reliability analysis are provided in Table 5. Table 5 validates the claim of previous researches about the reliability of organizational justice and knowledge sharing scales. All the measures used in present study postulated higher Cronbach's Alpha reliability values i.e. all these values are above .60, which is suggested threshold for the Cronbach's alpha reliability and acceptability (Pallant, 2013). Hence, all the variables were highly reliable for present study and for the assessment of the hypotheses regarding five forms of organizational justice and knowledge sharing, CFA and SEM analysis in next sections.

Measurement model – confirmatory factor analysis

According to Byrne (2012), confirmatory factor analysis model (CFA), explains the relationship between latent variables and measured variables. Therefore, a CFA was performed by using 6 loaded factors i.e. distributive justice, procedural justice, interactional justice, temporal justice, spatial justice and knowledge sharing, with 33 final loaded items. A combination of model fit indices, i.e., Chi-square test, the Comparative Fit Index (CFI), the Root mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) were conducted. The reason of this choice was due to their superiority over other model fit indices in terms of their insensitively to sample size and misleading parameter

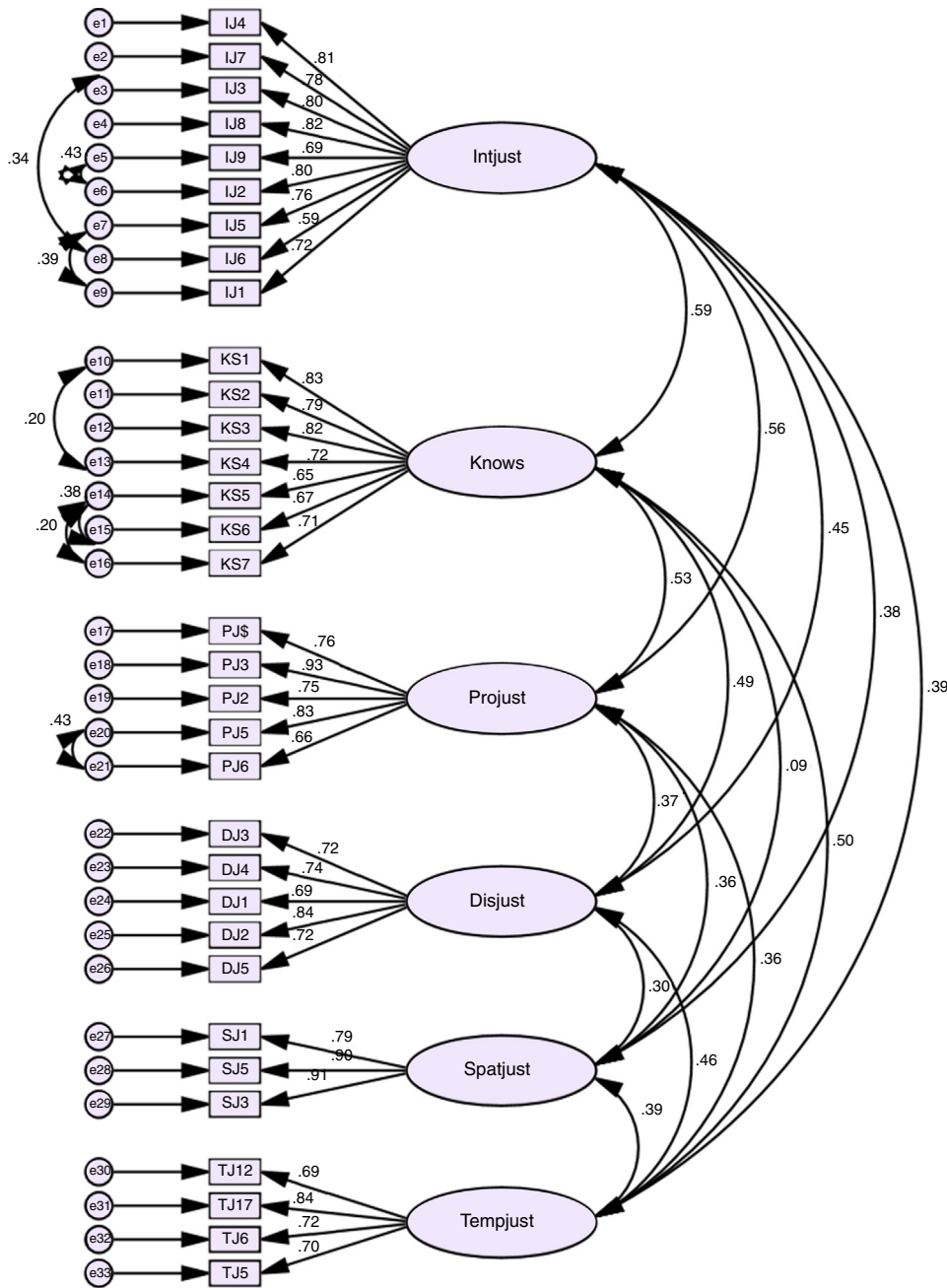


Fig. 2 – CFA model.

Table 6 – CFA model fit indices.

Indices	Final measurement model
$\chi^2(df)$	702.167 (473)***
CMIN/df	1.484
CFI	0.950
RMSEA (P-close)	.047 (.778)
SRMR	.0527

Source: Authors' estimation.
 *** Significant at 0.000.

estimates (Kline, 2005). Table 6 provides the goodness of fit indices for final model, whereas, Fig. 2 provides the CFA model.

It is suggested by the indices in Table 6 that overall the data fit the measurement model very well. The CMIN/df value is 1.484 that is suggested to be less than 2 (Tabachnick & Fidell, 2013). Comparative Fit Index (CFI) is also higher than the standard level of .9 (Hu & Bentler, 1999) and indicates excellent model fit. Further, the Root Mean Square Error of Approximation (RMSEA) is lower than the threshold of .07 (Steiger, 1990). Additionally, the Standardized Root Mean Square Residual (SRMR) is also smaller than the suggested value of .08 by Hu and Bentler (1999). All these values suggests a good fit for the measurement model and therefore, provide the basis for the test of hypotheses in the next section.

Table 7 – SEM hypotheses testing.

Hypothesis	Hypothesis path	Path coefficient	S.E.	C.R.	p-Value	Final remarks
H1	KNOWS ← DISTJUST	.159	.095	2.177	.030	Supported
H2	KNOWS ← PROJJUST	.255	.062	3.474	***	Supported
H3	KNOWS ← INTJUST	.391	.061	4.959	***	Supported
H4	KNOWS ← TEMPJUST	.327	.129	3.615	***	Supported
H5	KNOWS ← SPATJUST	-.368	.058	-5.103	***	Not supported

R² = .578.

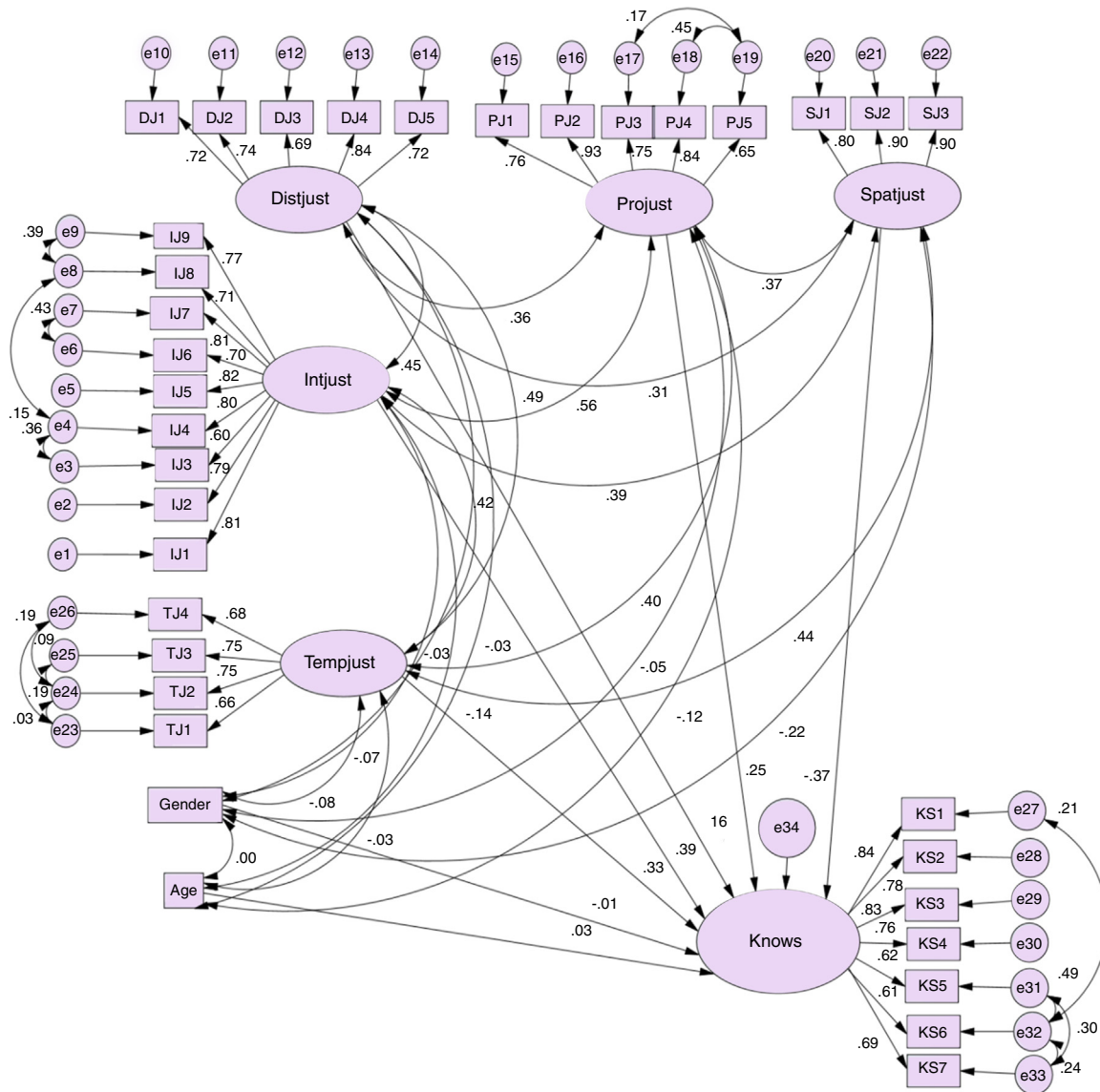


Fig. 3 – SEM model.

Structure Equation Modeling (SEM)

Structural Equation Modeling method was used to test the hypotheses of this study by using Amos 21. The results presented in Table 7 provides the values of regression paths, standardized regression weights, critical ratios (C.R), standard errors (S.E), probability values (p) and acceptance/rejection of hypotheses. The final tested model is displayed in Fig. 3.

The model suggested no significant effect of control variables on the knowledge sharing, therefore, not included in further analysis. Results supported the positive and significant effect of distributive ($\beta = .15; p < .030$), procedural ($\beta = .255; p < .000$), interactional ($\beta = .391; p < .000$), and temporal ($\beta = .327; p < .000$), justice respectively. However, it suggested a negative but significant effect of spatial justice on the knowledge sharing ($\beta = -.368; p < .000$). These results supported all hypotheses H1,

H2, H3, H4, whereas, H5 of the study is not supported. Results provided the overall R^2 value of 57.8%, suggesting that overall model explains 57.8% variance in the knowledge sharing.

Discussions

This study intended to find out the effect of five factor model of organizational justice on knowledge sharing in employees working in the telecommunication industry of China. The findings from current research data analysis through CFA and SEM analyses revealed that all forms of organizational justice have a significant effect on knowledge sharing. Distributive justice has a moderate but significant effect on the knowledge sharing. On the other hand, procedural, interactional and temporal justice were found having a strong, significant and positive effect on knowledge sharing. However, knowledge sharing was found negatively but significantly affected by the spatial justice facet of organizational justice. Therefore, H1, H2, H3 and H4 are all accepted. However, on the basis of current study results, H5 is rejected.

The results are helpful in interpreting the facts that when the Chinese employees perceive fairness in the distribution of job responsibilities and treatment of respect and dignity, while making job related decisions, they tend to be more inclined toward sharing their valuable and work related knowledge. Further, the perception of fairness in job related procedures and process and allocation of appropriate work time also lead to the knowledge sharing in the form of knowledge donation and knowledge collection by Chinese workers in the telecommunication sector. Particularly, for Chinese employees, interactional and temporal justice dimensions of organizational justice are found chief contributors toward knowledge sharing. This strengthens the fact that higher the level of perceived fairness about the interactions with supervisors regarding job related decision making, better the motivation level of employees to share the knowledge and perform knowledgeable job activities. It indicates that employee has a positive perception regarding the treatment with respect, dignity and considerations while making decisions about his/her job. On the other hand, positive temporal justice perceptions (having enough time for personal life and family) also lead to higher knowledge collecting activities on behalf of Chinese employees. Culture is the major factor in explaining the importance of both interactional justice and temporal justice in Chinese context. According to the Hofstede (2016) report, Chinese culture is very low at individuality index and therefore, it represents a collectivist society. Hence, Chinese people, like many other eastern people, value a lot to personal relationships and prefer interactions with their people. These results are consistent with prior empirical researches (Wang & Noe, 2010; Xinyan & Xin, 2006; Yesil & Dereli, 2013). Particularly, as supported by previous studies, distributive justice has indicated a relatively moderate impact on the knowledge sharing (Yesil & Dereli, 2013). It can be interpreted that if the employees have a perception that they are not treated fairly regarding the free time available for personal life, their say and consideration in job related decisions, fairness in receiving organizational resources, fairness in job related procedures and processes and fairness regarding the

distribution of overall job responsibilities, they might not be willing or motivated to collect or donate the knowledge to perform better job activities. Spatial justice, however, indicated a strong negative impact on the knowledge sharing of these employees. The best explanation for this negative relationship may be is that most of the Chinese organizations, including telecommunication sector, are owned and controlled strictly by the government. Mostly, offices are also located in less spacious buildings and having close office work spaces for the employees. Therefore, spatial justice is affecting knowledge sharing negatively in Chinese telecommunication organizations.

Conclusions

The findings of this study helped in concluding that all forms of organizational justice have impact on the knowledge sharing. Particularly, knowledge sharing is effected more by interactional and temporal justice than any other form of organizational justice. Interestingly, spatial justice is found to have a negative impact on the knowledge sharing. It is concluded that these five forms of organizational justice have unique contribution in explaining variance in knowledge sharing activities and therefore, they should be analyzed individually, rather considering as a single form of organizational justice. Finally, the results suggest that various forms of organizational justice have distinct impact on knowledge sharing activities and hence need specific considerations in the literature and in organizational matters.

Theoretical and practical implications

The findings of this study have many theoretical and practical implications for researchers and managers. Theoretically, although many researchers have shown a general agreement about the multi-dimensionality of organizational justice, however, some studies found it difficult to discriminate between the different types of organizational justice or successfully confirming that these different forms of organizational justice have, somewhat, differential impact on appropriate organizational outcomes (Colquitt et al., 2001; Fadel & Durcikova, 2014). Further, very few if any, considered two important forms of organizational justice i.e. temporal and spatial justice in research studies (Usmani & Jamal, 2013). This study fills the gap by including temporal and spatial justice into the organizational justice model and looking for the contribution that these distinct forms of organizational justice made (along with other three organizational justice dimensions) in knowledge sharing. This study imparts support for theoretical and practical distinction between the different forms of organizational justice and their important and distinct role in explaining knowledge sharing (Charash & Spector, 2001; Fadel & Durcikova, 2014). Moreover, by analyzing the effect of distributive, procedural, interactional, temporal and spatial justice on knowledge sharing, this study contributes in the previous knowledge management literature, particularly, in the context of eastern countries. It identifies and includes more influential factors effecting knowledge sharing. Practically, this study suggests that every approach, method or tool

should be used to improve the internal organizational climate for organizational justice. This can help in providing intrinsic motivation to employees to share knowledge in better ways. Organizational justice should be given an important space in organizational culture and therefore, in generating particular organizational outcomes. Thus, current organizations, particularly in eastern countries, are encouraged to support and enhance the perception of organizational justice, in different forms, among its employees. This can help them to decrease the negative outcomes that may occur due to the negative perception of employees about organizational justice. It is also important that organizational leaders and other representatives should be trained to differentiate between variant forms of organizational justice and their variant and specific effect on organizational outcomes. This may help them to identify the most important contributor for their organization, as well as, in the light of this research findings, organizations may design future organizational and human resource policies, particularly for analyzing spatial justice.

Study limitations and future research suggestions

There are few limitations of this study. First, this study is a cross-sectional study; therefore, its ability to establish a definite causal relationship between the variables of the study is limited. Although, the directionality of study hypotheses is reinforced by organizational justice and knowledge sharing theories, however, it is suggested that for the better establishment of causal relationship between the independent and dependent variable, longitudinal study may be conducted. Second, due to lack of access to all employees of the telecommunication sector, convenience sampling technique was used. For a better generalization of the results and findings, future studies may employ other forms of probability sampling. Third, present study analyzed the effect of five forms of organizational justice on the dependent variable knowledge sharing, however, there are number of other organizational and employee related factors that are affected by organizational justice or may effect knowledge sharing. Therefore, it is suggested to investigate the relationship of these factors with organizational justice or knowledge sharing. Few of such organizational factors are employee turnover, employee innovative work behavior, employee proactive behavior, organizational social capital, organizational performance etc. Further, as all these five dimensions of organizational justice are very important and indicated strong effect on the knowledge sharing, it is suggested that for better understanding, the effect of each and individual dimension of organizational justice may analyze further in detail and in other countries. Spatial justice was found having negative impact on the knowledge sharing; therefore, for a better understanding, it is suggested to investigate this relationship in more detail.

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