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The impact of cultural collectivism on knowledge sharing among information technology majoring undergraduates

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ABSTRACT

The aim of the present study is to investigate the impact of cultural collectivism on knowledge sharing among information technology majoring undergraduates in Turkey. The study proposes a research model based on the theory of reasoned action (TRA). A structural equation model was used to test the research model against the data collected by means of a self-report questionnaire. Results show that cultural collectivism has a positive and significant impact on attitudes toward and subjective norms with regard to knowledge sharing. Confirming the TRA, results also suggest that behavioral intentions are jointly determined by attitudes and subjective norms. Implications of these findings are discussed.

1. Introduction

Culture can be defined as a system of values, norms, and beliefs that influence and affect attitudes, subjective norms, and in turn, behaviors, including knowledge sharing. In this context, knowledge sharing is partaking information and experiences with others in organizations, teams, or classes (Gibbert & Krause, 2002; Wang & NOE, 2010; Lytras & Ordóñez de Pablos, 2011; Zhang, Ordóñez de Pablos, & Zhou, 2013). Such a definition of knowledge sharing includes both explicit and tacit knowledge. Explicit knowledge exists in symbolic or written forms (i.e., reports, proposals), whereas implicit knowledge may be expressed in a written form but is not yet expressed (i.e., experience, know-how, know-whom, know-where) (Nonaka & Takeuchi, 1995; Lee, 2001; Alavi & Leidner, 2001; Zhang, Ordóñez de Pablos, & Zhang, 2012).

The impact of culture on knowledge sharing has been a frequent theme of recent research. For example, Zhang, Ordóñez de Pablos, and Xu (2014) investigated how cultural values affect explicit and implicit knowledge sharing within a multi-national virtual class. Their findings suggest that whereas some cultural dimensions (i.e., collectivism) have direct effects on knowledge sharing, most others (i.e., uncertainty avoidance, power distance, and Confucian dynamism) have interactive effects. Similarly, Xiao, Li, Cao, and Tang (2012) investigated the effect of culture on knowledge exchange in online social networks based on the Social Capital Theory (Bourdieu, 1985) and the Social Exchange Theory (Blau, 1964). They developed a theoretical model that predicted the knowledge exchange behavior in online social networks, where outcome expectation and trust mediated the relationship between personal culture orientation, online social tie, online social identity, and the effect of knowledge exchange. Their findings show that online social attributes are key facilitators in knowledge exchange in the online social networks.

Jarvenpaa and Staples (2000) investigated the effects of information culture on knowledge sharing in online communities and found that perceived information usefulness, task interdependence, and the user's computer comfort were most strongly associated with the use of collaborative electronic media. However, results also indicated that the use of collaborative electronic media for sharing knowledge was weakly associated with a more structured, closed-information culture. Ardichvili, Maurer, Li, Wentling, and Stuedemann (2006) conducted a qualitative study of national and ethnic cultural impacts on knowledge sharing in virtual communities at Caterpillar Inc. They found that culture played a significant role in knowledge sharing in virtual communities. More recently, Siau, Erickson, and Nah (2010) investigated whether national culture affects communication and the types of knowledge sharing in virtual communities and found national culture differences between the U.S. and China.

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The impact of national culture on knowledge sharing in an organizational context has also recently received increasing attention. For example, Howell and Annansingh (2013) investigated whether path-dependency existed in relation to the cultural expectations of knowledge generation and sharing in knowledge intensive organizations. They adopted a constructivist approach facilitated by focus-group discussions, which were conducted in two U.K. universities. Results showed that institutional culture and path dependency play a major role in the willingness of institutions to generate and share knowledge. Mueller (2014) aimed to investigate the cultural antecedents of knowledge sharing among project teams. Results of this quantitative survey indicated that time, structure, output orientation, and openness have positive effects on knowledge sharing among project teams.

Shao, Feng, and Liu (2012) developed a theoretical model to explore the mediating effects of organizational culture and knowledge sharing on transformational leadership and the Enterprise Resource Planning (ERP) success. Results suggest that transformational leadership is directly related with organizational culture and indirectly related with knowledge sharing and the ERP success. Specifically, developmental culture has a direct impact on the ERP success, whereas hierarchical culture, group and rational culture are indirectly related with the ERP success, mediated by explicit and tacit knowledge sharing. DeLong and Fahey (2000) investigated the impact of organizational culture on knowledge-related behaviors (i.e. creating, sharing, and using) based on a multi-site case analysis of chief knowledge officers and found that organizational knowledge-related values shape subsequent knowledge-related behaviors. For example, values that embrace the individual ownership of knowledge do not facilitate knowledge sharing. On the other hand, values that embrace the organizational ownership of knowledge facilitate knowledge sharing.

Bock, Zmud, Kim, and Lee (2005) developed an integrative understanding of the factors supporting or inhibiting knowledge sharing intentions. They found that attitudes toward and subjective norms with regard to knowledge sharing as well as the organizational climate affect intentions to share knowledge. In addition, results show that anticipated reciprocal relationships affect attitudes toward knowledge sharing whereas both the sense of self-worth and the organizational climate affect subjective norms.

Chow, Deng, and Ho (2000) investigated the impact of national culture on knowledge sharing among professionals based on the data collected from the U.S. and Chinese managers and found that the U.S. professionals were much more willing to share knowledge with out-of-group members than the Chinese counterparts were. However, consistent with their collectivistic value system, Chinese professionals were more likely to share knowledge within group members. In another study, Rocha, Antonsen, and Ekstedt (2014) investigated whether the effect of behavioral information security governance factors on the establishment of security knowledge sharing differed based on national culture. They found that national culture has a significant moderating effect on the association between the proposed relations. Their findings also suggest that national culture has a significant impact on knowledge sharing behavior and decision making.

In sum, studies reviewed provide convincing evidence that national culture plays a significant role on knowledge sharing behavior. However, we have not come across any research investigating such relations in the Turkish population. Therefore, the present study focuses on cultural collectivism as we hypothesized that there would be a strong relationship between this cultural value and knowledge sharing behavior in the context of Turkish culture.

2. Theoretical background and hypotheses

This study adopted the theory of reasoned action (TRA, Fishbein & Ajzen, 1975) as an initial theoretical framework to develop an integrative view of the impact of cultural collectivism on knowledge sharing. The TRA is a widely recognized model in explaining human behavior (Ajzen, 2002). The theory suggests that behaviors are predicted by intentions and that intentions are jointly determined by attitudes and subjective norms about the behavior. Fig. 1 presents the proposed research model to be empirically tested in the present study. The research model suggests that behavioral intentions to share knowledge are predicted by attitudes and subjective norms about knowledge sharing, whereas attitudes and subjective norms are predicted by collectivism.

2.1. Collectivism

Hofstede (1980) introduced a number of national cultural dimensions, including individualism-collectivism, power distance, uncertainty avoidance, and masculinity-femininity. Later, short term-long term orientation (Hofstede & Bond, 1988) and indulgence-restraint (Hofstede, Hofstede, & Minkov, 2010) were added to the model. Among these dimensions, Turkey has significantly diverged in collectivism from other countries (Hofstede, 2001). Previous studies suggest that collectivism constitutes the most important dimension of national culture in social behavior (e.g., Kâğıtçıbaşı, 1987; İmamoğlu, 1998; Triandis, 1995). Furthermore, dominant collectivist and individualist values in a society are considered as the main reasons for the cultural differences in self-construal (İmamoğlu, 1998; Hofstede, 2001; Triandis, 2001). Therefore, this study focused on the impact of collectivism on knowledge sharing through attitudes toward and subjective norms about knowledge sharing among information technology majoring undergraduates in Turkey.

Collectivism is “the degree to which individuals are integrated into groups” (Hofstede & Bond, 1988, p. 10). Turkey may be considered as an example of traditional collectivist society (McConatha, Hayta, Rieser-Danner, McConatha, & Polat, 2004). Although she attempts to achieve independence and autonomy, the Turkish society has a strong loyalty to family and the group (Kâğıtçıbaşı, 1994). Naturally, individuals living in a collectivistic society consider the interests of the group (e.g., family members or friends) before theirs (Hofstede, 2001). This suggests that students living in Turkey may have positive attitudes toward knowledge sharing. Therefore, we hypothesized that collectivism would have a significant positive impact on attitudes toward knowledge sharing (H1) and that collectivism would have a significant positive impact on subjective norms about knowledge sharing (H2).

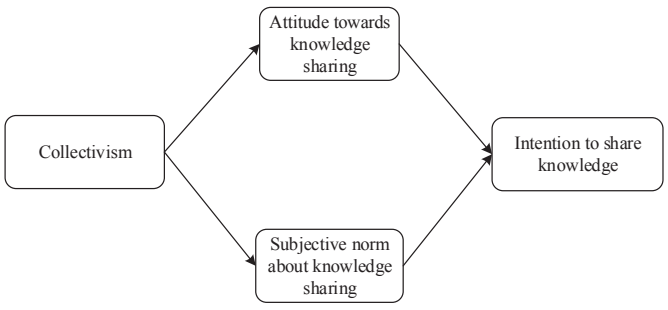

Fig. 1. Proposed model.

2.2. Attitudes

The present study defines knowledge sharing as transferring or disseminating knowledge and experience to help others and to collaborate with others in solving problems. Attitudes toward knowledge sharing can be defined as the degree of an individual's favorable or positive feelings about knowledge sharing (Hutchings & Michailova, 2004). However, intention to share knowledge can be defined as the degree of an individual's belief that he or she will engage in knowledge sharing (Hutchings & Michailova, 2004). The TRA suggests that behavioral intention to share knowledge is determined by attitudes toward knowledge sharing. This implies that the more favorable the students' attitudes toward knowledge sharing, the greater will be their intention to share knowledge. Therefore, we hypothesized that attitudes toward knowledge sharing would have a significant positive impact on intention to share knowledge (H3).

2.3. Subjective norms

The TRA suggests that subjective norms have a strong and positive impact on the intention to perform a behavior (Ajzen, 1991). Individuals who perceive greater social pressure will have a stronger intention to share knowledge. This suggests that the more favorable the subjective norms about knowledge sharing, the stronger will be the intention to share knowledge. Accordingly, we hypothesize that subjective norms about knowledge sharing would have a significant positive impact on intention to share knowledge (H4).

3. Method

3.1. Population and sample

Population of the study is students majoring in information technology in Turkey. From this population, a total of 399 students who were selected using convenience sampling willingly participated in the study and completed an online questionnaire in a regular class meeting. The participants' ages ranged from 17 to 34 years old (mean = 21.50, S.D. = 2.31). Of the sample, 61.2% were women ($n = 244$) and 38.8% were men ($n = 155$). In terms of college status, 53.1% were freshmen, 10% were sophomores, 14.5% were juniors, and 22.3% were seniors.

3.2. Instruments

Singelis, Triandis, Bhawuk, and Gelfand (1995) developed a scale called INDCOL to measure the levels of individualism-collectivism orientations. In the scale, culture was divided into four dimensions as horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism. In the vertical individualist cultural contexts, people tend to improve their individual status via achievement, competition, and power. In contrast, in the horizontal individualist cultural contexts, people prefer to view themselves as equal to others in status. In the vertical collectivist cultural contexts, individuals focus on complying with authorizes and enhancing the cohesion of their groups, whereas in the horizontal collectivist cultural contexts, they focus on sociability and interdependence with others (Shavitt, Lalwani, Zhang, & Torelli, 2006). Triandis and Gelfand (1998) provided evidence for the reliability and convergent and divergent validity of the INDCOL. The items measuring the collectivism dimension had been translated and adapted into Turkish by Wasti and Erdil (2007) and were used in this study. Using the data from 1577 Turkish employees, Wasti and Erdil (2007) reported that the reliability, convergent and divergent validity of the Turkish version were satisfactory. In addition, items measuring subjective norms, attitudes, and behavioral intention were adapted from the TRA (Fishbein & Ajzen, 1975). The instrument has a total of 31 items, including 19 items for collectivism, 5 items for attitudes, 4 items for behavioral intention, and 3 items for subjective norms. Participants were asked to indicate their level of agreement using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.”

3.3. Results

3.3.1. Common method bias

Harman's one-factor test was used to test for common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). All dependent and independent variables were subjected to an exploratory factor analysis, using unrotated principal components factor analysis, principal component analysis with varimax rotation, and principal axis analysis with varimax rotation. Results showed the presence of four distinct factors with eigenvalues higher than 1.0, rather than a single factor. The four components together accounted for 62.90% of the total variance, where the first factor explained only 22.91%. Moreover, confirmatory factor analysis (CFA) showed that the one-factor model did not fit the data (chi-square/$df = 3.77$, GFI = .70, AFGI = .65, NFI = .71, IFI = .78, TLI = .75, CFI = .77, RMSEA = .11). These results suggested that common method bias is not of a concern in the data set.

3.3.2. Validity and reliability

Prior to conducting the main analyses, data set was checked for the adequacy of factor analysis through with Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity (Kaiser, 1970; Bartlett, 1951). Table 1 shows the suitability of the set for factor analysis. In addition to KMO, the results of Bartlett's test of sphericity verified the sampling adequacy of the data set for factorability.

An exploratory factor analysis (EFA) was conducted using principal components extraction to test the construct validity of the scale. Based on the results, six questionnaire items were omitted from the scale due to lower item-total correlations. Thus, the remaining 25 questionnaire items were subjected to factor analysis. The Bartlett's test of sphericity indicated that the measures for four latent constructs were interdependent and the KMO measure of sampling adequacy was well above the minimally accepted level of .50 (Leech, Barrett, & Morgan, 2005). On the basis of the scree plot of eigenvalues, a one-factor solution appeared to be most appropriate for each measurement. The percentage of total variance explained ranged from 55.70 to 92.76, which are higher than acceptable value of .40 for measures with one factor (Scherer, Wiebe, Luther, & Adams, 1988). Moreover, each measurement item has a factor loading above .50 and a communality value of above .46, which are higher than acceptable value of .40 (Field, 2005). The corrected item-total correlation coefficients ranged from .34 to .86, indicating acceptable to high homogeneity of the items. Item analysis using the item discrimination index also indicated that the measurement items can reliably discriminate the subjects.

Table 1
The suitability of the data for factor analysis.

	KMO	Chi-Square	Sig.
Collectivism	.90	1556.67	.001
Attitudes	.89	1528.40	.001
Behavioral Intention	.82	1074.23	.001
Subjective Norms	.70	336.98	.001

Reliability analysis indicated that the instrument has a strong internal consistency in that Cronbach alpha values ranged from .78 to .93, indicating good to very good internal consistency (Creswell, 2005). The results of principal component analysis (total variance explained, factor loadings, and communality values) and internal consistency reliability measures (item discrimination indices (t), corrected item-total correlations, and Cronbach alpha values) are shown in Table 2.

3.3.3. Measurement models

Structural equation modeling (SEM) was employed via maximum likelihood using SPSS AMOS (version 22.0) to test the research model based on the data collected from information technology majoring undergraduates in Turkey. The model produced acceptable fit indices as shown in Table 3. The results of confirmatory factor analysis demonstrated that all scales used in this study formed adequate measurement models, and thus, provided evidences for the construct validity of the measures.

3.3.4. The structural model

Hypothesized relationships were tested through a structural model which was developed based on the TRA. Consistent with the hypotheses, results indicated that all proposed path coefficients among the latent variables are statistically significant. Fig. 2 shows the results of SEM analysis, including the path coefficients with significance levels along with respected error terms.

3.3.5. Hypothesis testing

A summary of the hypothesis testing results was listed below:

H1: Collectivism has a significant positive impact on attitudes toward knowledge sharing ($\beta = .83$; $t = 8.83$; $p < .001$).

H2: Collectivism has a significant positive impact on subjective norms about knowledge sharing ($\beta = .67$; $t = 6.62$; $p < .001$).

H3: Attitudes toward knowledge sharing have a significant positive impact on intention to share knowledge ($\beta = .64$; $t = 9.14$; $p < .001$).

H4: Subjective norms about knowledge sharing have a significant positive impact on intention to share knowledge ($\beta = .24$; $t = 3.74$; $p < .001$).

4. Discussion

The cultural theory developed by Hofstede (1980) has five distinctly different dimensions: “individualism-collectivism, uncertainty avoidance, power distance, masculinity-femininity, and long term-short term orientation.” These dimensions have become the de facto standard in cultural studies and validated by various researchers (Shin, 2012; Zhang et al., 2014). Among these five dimensions, Turkey has significantly different scores along individualism-collectivism and uncertainty avoidance (Hofstede, 2001).

Uncertainty avoidance is defined as “the degree to which members of a society feel comfortable with uncertainty and ambiguity” (Hofstede, 1980). Cultures with high uncertainty avoidance prefer less ambiguity as their perceived risk is higher than cultures with low uncertainty avoidance. On the other hand, people in individualistic cultures are encouraged to make decisions on their own, whereas people in collectivistic cultures are encouraged to decide as a community. This suggests that external influences may have strong effects on the knowledge sharing behavior in

Table 2
Validity and reliability evidence.

Construct and items	Total variance explained	Factor loading	Communality	Item discrimination indices (t)	Corrected item-total correlation coefficients	Cronbach's α
Collectivism	55.70					.85
C1		.80	.66	7.32[a]	.34	
C2: I usually sacrifice my self-interest for the benefit of the group.		.67	.53	6.32[a]	.40	
C3		.50	.46	7.44[a]	.52	
C4		.58	.48	11.73[a]	.59	
C5		.64	.59	10.33[a]	.66	
C6		.69	.51	8.39[a]	.50	
C7		.70	.54	11.01[a]	.56	
C8		.57	.50	10.86[a]	.55	
C9: I feel good when I cooperate with others.		.74	.55	11.90[a]	.51	
C10		.56	.51	9.69[a]	.62	
C11		.77	.66	8.15[a]	.55	
C12		.80	.64	5.89[a]	.41	
C13		.73	.62	9.32[a]	.57	
Subjective Norms	69.70					.78
SI1: People who are important to me think that I should share my knowledge.		.83	.69	7.76[a]	.61	
SI2		.86	.74	9.36[a]	.66	
SI3		.82	.67	7.97[a]	.60	
Attitudes	92.76					.93
A1		.87	.76	9.68[a]	.80	
A2		.89	.79	11.82[a]	.82	
A3		.89	.78	12.89[a]	.82	
A4: Knowledge sharing with my friends is valuable to me.		.91	.83	11.81[a]	.86	
A5		.84	.70	12.70[a]	.75	
Behavioral Intention	89.32					.91
BI1: I will share my reports and documents with my friends more frequently in the future.		.90	.82	8.52[a]	.82	
BI2		.89	.80	9.09[a]	.81	
BI3		.91	.83	11.56[a]	.83	
BI4: I will try to share my experience with my friends in a more effective way.		.83	.68	8.77[a]	.71	

[a] $p < .001$.

Table 3
Model fit indices.

	Model	Acceptable Values
$\chi 2$	424.20	
p value	<.001	.05 ≤ p ≤ 1.00 (Hoyle, 1995)
$\chi 2$/df	1.61	<3 (Kline, 2005)
Goodness of Fit Index (GFI)	.88	≥.90 (Hair, Tatham, Anderson, & Black, 2006)
Adjusted Goodness of Fit Index (AGFI)	.85	≥.80 (Marsh, Balla, & McDonald, 1988)
Standardized Root Mean Square Residual (SRMR).	.05	≤.10 (Kline, 2005)
Root Mean Square Residuals (RMR)	.04	<.05 (McDonald & Moon-Ho, 2002)
Root Mean Square Error of Approximation (RMSEA)	.05	<.08 (Hair et al., 2006)
Normed Fit Index (NFI)	.89	≥.90 (Hair et al., 2006)
Non-Normed Fit Index (NNFI; Tucker–Lewis index)	.95	≥.90 (Bentler & Bonett, 1980)
Comparative Fit Index (CFI)	.95	≥.90 (Bentler, 1990)
Incremental Fit Index (IFI)	.95	≥.90 (Bollen, 1989)

collectivistic cultures. The Turkish culture has been influenced by its religion and nationalism, whereas individualism has largely shaped the Western culture (Hofstede, 1984). The Turkish culture is "collectivistic" with a strong emphasis on the group (Hofstede, 2001). Therefore, the effect of collectivism on the knowledge sharing behavior is investigated throughout this study.

The moderating and causal effects of the dimensions of the cultural theory developed by Hofstede (2001) have been validated by many other researchers. For example, Arpaci, Yardimci Cetin, and Turetken (2015) investigated the moderating effect of individualism-collectivism and uncertainty avoidance on the organizational adoption of smartphones in Canada and Turkey. Their results suggested that national culture has a significant effect on adoption behavior and there are major differences in adoption characteristics between the two countries. Organizational characteristics have a stronger effect on the adoption of smartphones by organizations in Canada, whereas environmental characteristics, including customer expectations, competitive pressure, and partner expectations have a stronger effect on the adoption in Turkey. In a similar study, Pavlou and Chai (2002) investigated the moderating effects of the Hofstede's (2001) cultural dimensions on e-commerce adoption. They conducted an empirical study to test the proposed cross-cultural model using data from consumers in China and the United States. The results indicated that cultural differences play a significant role in consumer e-commerce adoption.

In another study, Van Slyke, Lou, Belanger, and Sridhar (2010) examined the causal effect of culture on consumers' intentions to purchase goods or services online. Their results indicated that culture seems to have a direct effect on e-commerce use intention. Similarly, Kim (2008) examined the impact of culture on trust determinants in e-commerce transactions. A theoretical model of self-perception-based versus transference-based trust determinants in an e-commerce context was developed and tested using cross-cultural data collected from the U.S. and Korea. The results showed that national culture significantly affects the trust determinants through which trust is built. Genis-Gruber and Tas (2011) explored cultural factors that affect participation in online procurement auctions and identified cultural barriers for the adoption of e-procurement. More recently, Zhang et al. (2014) investigated the effect of national culture on knowledge sharing within a multi-national virtual class. Their results suggested that collectivism has a direct effect on knowledge sharing, whereas power distance, uncertainty avoidance, and Confucian dynamism have interactive effects with knowledge sharing motivations.

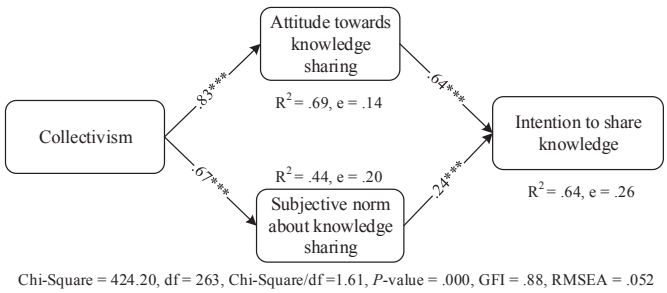

Fig. 2. Casual model of the students' intention to share knowledge.

5. Conclusion

The present study investigated the factors associated with information technology majoring students' intentions to share knowledge with their peers. A TRA-based research model was proposed and the findings supported the proposed model and stressed the effect of collectivism, which contributes substantially to the explanatory power of the TRA in predicting attitudes and subjective norms.

This study hypothesized that the individualism-collectivism dimensions of national culture has a positive significant impact on students' attitudes and subjective norms about knowledge sharing, which in turn positively affect knowledge sharing intentions. The results, along with previous studies, supported these hypotheses on the Turkish population. The results show that collectivism has a higher level of effect on attitudes toward knowledge sharing than it has on subjective norms about knowledge sharing. In turn, attitudes have a higher level of effect on intention to share knowledge than subjective norms about knowledge sharing have.

Previous studies suggested that national culture has a significant effect on user behavior. For example, Straub, Keil, and Brenner (1997) investigated the effect of national culture on the user acceptance of e-mail across three different countries (i.e., the U.S., Japan, and Switzerland) and found that Japan as a collectivistic culture differentiated from the others. This suggests that collectivism has a significant impact on user behavior. In another study, Milberg, Burke, Smith, and Kallman (1995) investigated the effect of national culture on regulatory approaches to privacy across 30 countries and found that the countries with a collectivistic culture exhibited the higher levels of government involvement. In a similar study, Leidner, Carlsson, Elam, and Corrales (1999) examined the impact of cultural differences on the perceptions of the relationship between Executive Information Systems (EIS) use and various outcomes related to decision-making behaviors across many organizations in Mexico, Sweden, and the U.S. They found significant differences, predicted by cultural factors, in the impact of EIS use on senior management decision-making.

Previous studies also suggest that the major determinants of an individual's knowledge sharing behavior are egoistic (i.e., expected reciprocal benefits, reputation) and altruistic motivations (e.g., Deci, 1975). Altruistic motivation assumes that an individual is willing to increase the welfare of others with no expectation of any personal return (Davenport & Prusak, 2000; Bock & Kim, 2002; Hsu & Lin, 2008). Ma and Chan (2014) found that perceived online-attachment-motivation and perceived online-relationship-commitment have significant positive effects on online knowledge sharing. Moreover, the results show that altruism has a significant direct effect on online knowledge sharing. Similarly, Chumg, Cooke, Fry, and Hung (2015) investigated the factors that affect knowledge sharing in virtual organizations. They found that social capital positively affects the employees' sense of well-being and that increasing well-being positively affects explicit and tacit knowledge sharing. In another study, Van Acker, Vermeulen, Kreijns, Lutgerink, and van Buuren (2014) investigated the role of self-efficacy in teachers' knowledge sharing behavior. They found that self-efficacy to share knowledge explains some of the differences in sharing behavior and in intention to share. More recently, Oliveira, Curado, Maçada, and Nodari (2015) investigated the relationship between knowledge sharing behavior and innovation and the mediating effect of absorptive capacity. Their results suggest that knowledge sharing behavior influences innovation and that influence is partially mediated by absorptive capacity.

This study has several practical implications for academics and educational institutions. First, students' cultural orientations should be considered in planning learning models and instructional methods in information technology education. Findings suggest that students with collectivistic orientations are willing to share explicit and implicit knowledge with peers and are more open to collaboration. This implies that academics should use appropriate instructional methods such as creating a collaborative learning environment in which students work together on a project or a problem. By achieving so, students can learn through co-problem-solving, co-participating, and co-cognizing.

In addition, academics can apply various learning approaches such as peer learning, constructivism, collaboratism, and socio-culturism in which the instructors' role is not to transmit information, but to serve as a facilitator providing support and scaffolding during the learning process. Thereby, students who are responsible for their own learning process may enhance their critical thinking and problem-solving skills and become more autonomous learners. Educational institutions may also design collaborative learning environments such as virtual environments, communities of practices, blogs, inter-organizational networks, wikis, and social network groups, which help students learn together and facilitate knowledge sharing.

Finally, this study has a number of limitations. First, actual knowledge sharing behaviors were not assessed in the study. We measured the intention to share knowledge. It should be noted that there may be differences between intention to share knowledge and the actual sharing behavior. Second, because data were collected from students living in Turkey, findings should be generalized to individuals in other countries with different cultural backgrounds with caution. Therefore, additional research should involve respondents from other countries to better understand the cultural differences. Finally, it may be useful to employ a mixed-method approach that incorporates both quantitative and qualitative methods for a deeper investigation of how culture impacts knowledge sharing.

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