



# When Nonprofit Organizations Meet Information and Communication Technologies: How Organizational Culture Influences the Use of Traditional, Digital, and Sharing Media

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**Abstract** In contrast to previous studies that emphasized how resources and institutional forces influence nonprofit organizations (NPOs)' use of information and communications technologies (ICTs), specifically on using social media for external stakeholder engagement, we examine the relationship between the organizational culture and NPOs' use of old and new ICTs for external and internal communication. Drawing from surveys of 500 Korean NPOs, we found that cultural values and communication practices influence NPOs' use of traditional, digital, and sharing media differently for different communication goals. NPOs with authoritarian cultures used every possible medium, including traditional media, for internal communication to improve their performance, while family-like NPOs lagged in using new ICTs. Information-transparent practices predicted more use of ICTs, whereas collaborative and democratic communication practices did not. Implications for understanding NPOs' use of varied ICTs by considering the organizational cultures and different communication goals are discussed.

**Keywords** Organizational culture · Nonprofit organizations (NPOs) · Information and communication

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technology (ICT) · Traditional media · Digital media · Sharing media · External communication · Internal communication

## Introduction

Many studies have explained how information and communication technologies (ICTs) provide opportunities for nonprofit organizations (NPOs) to overcome barriers of limited financial and human resources (Gorbis, 2013) and maximize their social impact (Seo & Vu, 2020; Zorn et al., 2011). However, reality deviates from the assumptions and expectations inherent in prior research's examination of nonprofit use of ICTs in three ways. First, many studies have focused on new ICTs such as social media (Fu et al., 2019; Seo & Vu, 2020; Xu & Saxton, 2019) despite the fact that many NPOs still use traditional media such as telephone instead of or in addition to new ICTs. Second, while research focuses on the possibility that using ICTs may overcome predicaments caused by nonprofit resource deficiencies, some NPOs cannot use ICTs because of such deficiencies (Briones et al., 2011; Campbell et al., 2014; Zorn et al., 2011). Third, research assumes NPOs choose to adopt new ICTs, but in fact institutional pressures, based on "the technical rationality" argument that ICTs may increase efficiency and effectiveness of *all* organizations, may force them to (Zorn et al., 2011, p. 5). As a result, many NPOs end up not using ICTs actively after they adopt them (Briones et al., 2011).

These realities suggest that while resource sufficiency and coercive forces may increase the likelihood of NPOs' ICT adoption, these factors may not determine and cannot fully explain how NPOs actually (do not) use new ICTs in combination with traditional media. For instance, many

NPOs in South Korea, a country at the top of the ICT index (e.g., access and use of Internet and mobile broadband, and skills in using them; International Telecommunication Union 2017), are not using ICTs actively (Kim & Hwang, 2014). With high-speed Internet and sufficient personnel to harness various digital devices readily available, why would these organizations not use ICTs as actively as these many advantages would predict? We need to look beyond the external, standardized factors of limited resources or isomorphic pressures and delve inside the organizations to examine what determines NPOs' use of ICTs and how.

The purpose of this study is to investigate how organizational culture, such as which values NPOs appreciate (Leidner & Kayworth, 2006; Rice & Leonardi, 2014) and how NPOs enact those values in their communication practices, may influence NPOs' use of *old* and *new* ICTs, in comparison to the resource and institutional factors emphasized in previous studies. We classify NPOs' use of ICTs according to whether they are external or internal communication, extending the focus of previous research on ICT uses for external stakeholder engagement. We also chose Korea as our study context for two reasons: its global status in active ICT uses and the clannish and authoritative culture of Korean NPOs stemming from their history of resisting political oppression during the dictatorship of the 1960–1980s (Kim, 2009). We thought that Korea's global status in active ICT uses in general, inactive use of ICTs among Korean NPOs, and the specific history and organizational culture of Korean NPOs may provide unique angles to explain how the organizational culture stemming from a specific historical context may affect organizations' ICT uses above and beyond the effect of resource sufficiency and institutional pressures addressed in previous research (Briones et al., 2011; Finn et al., 2006; Zorn et al., 2011).

### Predicting Nonprofit Use of ICTs for External and Internal Communication

Many studies have addressed the importance of ICTs for NPOs in facilitating their organizational work and accomplishing nonprofit missions. For instance, research has explained that NPOs' Web sites, blogs, and social media provide efficient and effective ways to reach a broad public and have dialogic interactions with current and potential supporters (Guo & Saxton, 2014; Lovejoy & Saxton, 2012; Rice et al., 2017; Seo & Vu, 2020; Xu & Saxton, 2019; Zorn et al., 2011). Other studies also described NPOs' use of ICTs in task coordination and case or client management (Chewning et al., 2012; Fu et al., 2019; Le Dantec & Edwards, 2008); shared repositories and databases, or scheduling software may aid knowledge sharing (e.g., best practice), automatic updates and tracking

of program progress and services, or client information management, specifically with interorganizational collaboration partners.

Most studies on NPOs' ICT use have focused on the use of ICTs to communicate with external stakeholders (e.g., funders, beneficiaries, suppliers, or interorganizational collaboration partners: Briones et al., 2011; Guo & Saxton, 2014; Nah & Saxton, 2013). Even when previous studies discussed using ICTs within and outside the organization simultaneously (Chewning et al., 2012; Fu et al., 2019; Le Dantec & Edwards, 2008), the contexts dealt with interorganizational collaboration. Scholars have paid less attention to how NPOs use ICTs to communicate with internal stakeholders such as employees or volunteers.

However, focusing on NPOs' ICT uses for *internal* communication is as imperative as focusing on external communication, for two reasons. First, ICTs play important roles in internal communication by making efficient the internal collaboration process and improving organizational performance. For instance, communal drives, intranets, or teleconferencing systems may support internal work coordination and knowledge sharing (Rice et al., 2017; Treem & Leonardi, 2013; Verčič et al., 2012), particularly among many part-timers, volunteers, and a small staff, all of whom have different work times and roles. Social media may also contribute to relationship management among internal stakeholders, particularly among virtual volunteers and employees who have fewer opportunities for direct interactions and engagement with the focal NPOs (Ihm, 2017). In this way, NPOs may continuously engage the internal stakeholders to pursue organizational missions together, which is essential for organizational survival (Farrow & Yuan, 2011).

Second, NPOs' use of ICTs for two types of communication may have different impact and implications for society and focal NPOs. While internal and external communication are intertwined and each communication may ultimately influence one another (Cheney et al., 2014), each communication targets different audience and goals. For instance, NPOs may use social media for external communication to promote their campaigns to a broad public, while they may use the same media for internal communication to interact with virtual volunteers efficiently. The former may lead to success in changing policy and generating social impact, whereas the latter may facilitate internal task coordination and enhance organizational performance. Considering the different aspects of using ICTs for external and internal communication, investigating what influences NPOs to use ICTs differently is necessary. Such investigation may provide a more comprehensive understanding on the current organizational communication phenomenon and direct practical ways to enhance nonprofit performance for social impact. In light

of this, the next section explains what may lead NPOs to use ICTs differently for external and internal communication.

### **Influence of Nonprofit Organizational Culture on Using ICTs**

Focusing on benefits of ICTs, many studies have explained what motivates NPOs to adopt ICTs. One of the most prevalent views was that organizational resources determine likelihood of ICT adoption (Briones et al., 2011; Finn et al., 2006; Zorn et al., 2011). Studies have found positive relationships between NPOs' adoption of ICTs and number of employees (Finn et al., 2006; Zorn et al., 2011) or organizational revenue and budget (Finn et al., 2006). These studies posited that a lack of financial resources results in inability to buy ICTs and ICT-related training and procedures (e.g., technology plans); limited human resources also make it difficult for NPOs to assign a responsible person to take care of ICT use after the adoption.

However, these studies have not explained why NPOs use ICTs differently for external and internal communication. While NPOs may need resources to adopt new ICTs, other internal factors may determine how NPOs use the adopted ICTs for each communication differently. Further, buying computer hardware or server equipment in the past necessitated mobilizing resources, but recent ICTs such as social media do not cost as much to adopt and provide more cost-efficient ways of reaching a broad audience for nonprofit promotion and advocacy than more traditional ICTs. Correspondingly, Nah and Saxton (2013) found that organizational assets were negatively related to social media adoption; NPOs with smaller budgets were more likely to adopt social media to overcome resource deficiencies.

In addition to nonprofit resources, some studies have emphasized the effect of institutional pressures on NPOs' adoption of ICTs. They explained that an increasingly competitive environment has led NPOs to adopt ICTs to appear legitimate because of "the technical rationality" argument that ICTs may increase efficiency and effectiveness (Zorn et al., 2011, p. 5). Researchers also found that informal isomorphic pressures or formal legal directives to adopt ICTs are stronger in certain nonprofit sectors (e.g., arts and culture) than in other sectors (e.g., health and human services), forcing nonprofits in the former sectors to adopt ICTs more (Finn et al., 2006). These studies indicate that external forces rather than genuine need may induce NPOs to adopt ICTs.

However, when external forces drive ICT adoption, it is difficult to be certain the adopted ICTs will be actively utilized and sustained. External pressures may not fully

determine how NPOs actually use ICTs for different communication (i.e., external and internal) after they adopt them. Further, while informal isomorphic pressures to use ICTs may affect some nonprofit sectors (Finn et al., 2006), organizations in the same sector may still vary in what they use ICTs for. For instance, some health NPOs may use social media to promote health campaigns to the public (e.g., Relay for Life or Pink Ribbon campaigns) while others (e.g., university hospitals) may use the same media for internal emergency call systems.

Nonprofit resources and institutional pressures may not fully explain how NPOs use ICTs after adopting them and how NPOs use ICTs differently for external and internal communication. NPOs use ICTs not only because they have resources or are forced to do so, but also because they need ICTs to achieve their communication goals. NPOs' particular ways of using ICTs for external or internal communication reflects their values and assumptions about ICTs (e.g., what they prioritize in communicating via ICTs and what they think ICT-mediated-communication can accomplish). Different organizational communication practices and norms may also determine what NPOs deem normative and appropriate to communicate via ICTs. In other words, the organizational culture, or "the specific norms, values, assumptions, and social structures that shape members' beliefs and behaviors within these organizations" (Gallivan & Srite, 2005, p. 299), may influence how NPOs use ICTs for external and internal communication differently.

For instance, traditional Korean NPOs have a unique, yet contradictory culture (Kim, 2009). The origin of these NPOs dates back to the dictatorship of the 1960s, when NPOs resisted political oppression and demanded democracy. This period required many NPOs to operate in secrecy, which created a legacy of non-democratic internal workings. They developed an organizational culture consisting of authoritatively and secretly giving orders and obeying them to maximize their impact and protect themselves against repression. This legacy may play a significant role in how members of NPOs optimize ICTs for their communication goals above and beyond the effect of resource sufficiency and institutional pressures. Some members in these NPOs, especially those in managing positions, may not value or see the need for horizontal communication among members, which may lead them not to use ICTs for internal communication. On the other hand, these NPOs may emphasize massive engagement of the public, which may invigorate ICT uses for external communication. In other words, NPOs' cultures may influence how NPOs use ICTs for external and internal communication (e.g., top-down giving orders among internal members or symmetric dialogues with the external public). Therefore, this study examines how NPOs' culture may

influence the organizational use of old-to-new ICTs for external and internal communications differently. Specifically, this study classifies NPOs' culture into two categories (i.e., cultural values and communication practice), because which values the organization pursues (i.e., cultural values) and how the organization realizes the values into practice (communication practice) represent different aspects of organizational culture and may affect the organizations' use of ICTs differently.

### Cultural Values

Cultural values represent the core values about the organization's performance that members in the organization prioritize and what is seen as good and relevant in the organization (Cameron & Quinn, 2011). Previous research suggests that organizations' cultures determine their use of ICTs and that particular values lead to more active use. For instance, organizations that emphasize flexibility, innovation, and creativity are likely to use ICTs more actively than other organizations (Leidner & Kayworth, 2006). Because these organizations foster entrepreneurship and focus on creating a vision for the future, they are likely to invest in cutting-edge ICTs and encourage the use of new ICTs.

However, previous research provides contradictory findings on the influence of other cultural values on using ICTs. For instance, organizations whose cultures prize authoritarian values are more likely to use ICTs actively, as internal members did not question the use of ICTs (Al-Shohaib et al., 2010), but non-authoritarian cultures in other organizations provided comfortable environments for members to share information and advice for using ICTs regardless of work positions, which led to an active use of ICTs (Leidner & Kayworth, 2006). Additionally, risk-averse cultures led to more active use of ICTs in some organizations as a way of minimizing risks, while other organizations pursuing the same values did not aggressively use ICTs because they did not want to take the risk of using new ICTs (Leidner & Kayworth, 2006). These studies suggest that organizational cultures may not influence ICT uses in a simple way.

Indeed, some research provides more nuanced understandings on how organizational cultures may influence the varied ways of using ICTs. For instance, Lopez-Nicolas and Meroño-Cerdán (2009) found that organizations pursuing creativity were likely to use ICTs for collaboration and communication as well as for knowledge management, while organizations with collaborative cultures were likely to use ICTs for collaborative and communication tools, but not for knowledge management tools. Another study by Orlikowski (2000) also found that when an organization implemented use of an online database management tool,

the organization's culture of valuing non-hierarchy and participation allowed the engineers to use the ICT to share more technical expertise and construct a better understanding of collaborative designs. These studies suggest that organizational cultures may affect not only the focal organizations' decision to use ICTs, but also their decision to use ICTs in ways that corresponds with the organization's cultural values. Therefore, this study examines how the cultural values of NPOs may influence diverse use of ICTs and how the influence may differ between external and internal communication:

*RQ1* How do NPOs' cultural values differently influence their use of ICTs for internal and external communication?

### Communication Practice

Communication practices in NPOs represent how NPOs realize the organizations' cultural values into practice. Communication practices represent a different aspect of the organizational culture from cultural values, because how organizations translate the values into actual practices may differ from what organizations value (Rice & Leonardi, 2014). Communication practices of NPOs (e.g., how members discuss their implementation of ICTs, and how they share knowledge and information while using ICTs) represent two things in the context of the NPOs' use of ICTs. First, communication practices represent the necessary support and environment for organizations' use of ICTs. Organizations may have communication practices such as information transparency in communication, active collaboration, or democratic communication among members, which this study refers to as active communication practices. Active communication practices may contribute to choosing appropriate ICTs for the organization in effective and efficient ways; members may have candid discussion about which ICTs to implement and how to implement them to correspond with particular tasks. When the adoption decision has been made based on such active communication practices, the probability of active organizational use of ICTs may also increase. Active communication practices may also encourage members to share knowledge and perception of ICTs, which contributes to the successful use of ICTs. For instance, Leonardi (2009) explained that the "misalignments" between how members communicated about interpretations of a newly implemented ICT and how they directly experienced the material features of the ICT reduced the use of the ICT. Active communication practices in NPOs may diminish such misunderstandings of or misinformation about ICT uses and provide favorable environments for members to share the appropriate knowledge and skills they need to use ICTs (Potter, 2018).

Second, communication practices determine the organizations' (mis)fit with using ICTs. Orlikowski (1993) provided an example of a management consulting organization that had implemented a groupware ICT. The organization had a competitive culture that values information as an individual power and asset, so employees' communication practices involved withholding information from colleagues. The misfit between the communication practices and the groupware ICT resulted in inactive use of the ICT. In contrast to this example, NPOs with active communication practices may need and can take advantage of groupware ICTs to share information transparently, collaborate, and have democratic communication among internal members. Such practices may also facilitate external communication for revelation of financial reports to the public, dialogic communication with supporters, or collaboration with partners (Chewning et al., 2012; Fu et al., 2019; Le Dantec & Edwards, 2008). In other words, organizations with active communication practices fit with using ICTs, because they need ICTs and they can benefit from using ICTs to maintain the active communication practices. Therefore, this study hypothesizes a positive relationship between active communication practices and the use of ICTs for external and internal communication:

*H1 NPOs with more active communication practices will use ICTs more actively both for external and internal communication.*

## Methods

### Study Context: Nonprofit Sector in South Korea

This study was conducted among executive directors or their equivalents at 500 NPOs in South Korea. Corresponding with the worldwide expansion of the nonprofit sector, the Korean nonprofit sector is growing continuously based on the increased attention to the value of volunteering and charitable giving (Ministry of the Interior & Safety, 2020, 3.5% in the previous 5 years) and has become a highly visible and independent element in Korean society (Casey, 2016). The total assets of Korean NPOs is about \$230 billion (profit: \$151 billion; expenditure: \$152 billion), consisting of 8.8% of the country's GDP (Ministry of the Interior & Safety, 2020). The Korean nonprofit sector has gone through three stages of evolution since the end of the Korean War (Kim & Hwang, 2002). During the first stage, the NPOs launched development projects and provided welfare services for the poor after the war. The second stage began with the 1961 military coup when underground student organizations and political opposition groups agitated against the regime. The third

stage began with the end of the authoritarian regime in June 1987 where the student organizations and political groups transformed along with new organizations. While these shifts may seem unique to Korea, they also concur with many other countries that evolved along with the political and economic changes.

### Sample and Procedures

This study was part of a larger project by Daum Foundation, one of the largest foundations in South Korea. It interacts with most Korean NPOs and grants large funds to support the nonprofit sector. Daum Foundation conducted surveys on digital media use of Korean NPOs every 2 years from 2008 to 2016, and this study is based on their 2014 survey. We used the 2014 survey because it is the most recent version that includes questions about organizational culture.

Before conducting the survey, Daum Foundation and one of the authors agreed to use existing measures as well as to create new measures to capture unique aspects of Korean NPOs' media using cultures and practices. The process of creating new measures consisted of two steps. First, one of the authors conducted in-depth interviews (lasting about 2 h each) with three experienced ICT professionals who are in charge of communications for three of Korea's largest NPOs, which specialize, respectively, in education, social service, and humanitarian works. The three interviews generated varied items that describe media using cultures and communication practices of Korean NPOs. Second, one of the authors and 3–4 people from Daum Foundation who were in charge of this survey communicated about survey items in three face-to-face meetings and as necessary via e-mail and telephone over the course of the 3 month development process. This process included generating new items based on previous literature (e.g., Kim & Hwang, 2014; Leidner & Kayworth, 2006; Nah, & Saxton, 2013) and nonprofit experiences, examining the relevance and importance of items generated by the three nonprofit interviewees, and modifying those items.

We worked with Insight Korea ([www.insight-korea.com](http://www.insight-korea.com)), an online survey company in South Korea to reach out to NPOs from the total of 11,124 NPOs officially registered to the Ministry of the Interior and Safety at least since the year 2012. We used stratified random sampling to collect a representative sample of Korean NPOs, which corresponds with the proportion of the total Korean NPOs then registered with the central government (11%) and each of the 16 local governments. In August and September of 2014, the survey company sent invitation e-mails to executive directors or their equivalents at 4672 NPOs in South Korea. Among those who received the link, 500 of

them completed the survey (response rate: 10.7%). The chosen NPOs participated in the anonymous survey by voluntarily clicking the link in the e-mail. Twenty-nine of the completed responses were excluded from the analysis because of invalid data.

**Measures**

*Use of ICTs for Internal and External Communication*

We measured how much NPOs use 13 types of ICTs for external and internal communication, respectively, by 5-point Likert scales (1: not at all, 5: very much, see Table 5 for actual question format). For external communication, we asked about three types of ICT uses mentioned in previous literature (Chewning et al., 2012; Fu et al., 2019; Lovejoy & Saxton, 2012; Rice et al., 2017; Zorn et al., 2011): (1) campaign or program promotion, (2) resource acquisition (fundraising and volunteer recruitment), and (3) relationship maintenance. We added together the three answers and averaged them for using each of the 13 ICTs for external communication (see Table 1 for correlations and descriptives of main variables).

For internal communication, we asked about four types of ICT uses addressed in existing literature (Le Dantec & Edwards, 2008; Rice et al., 2017; Treem & Leonardi, 2013; Zorn et al., 2011): (1) knowledge management, (2) enhancement of task efficiency, (3) collaboration among internal members, and (4) daily talks for relationship maintenance. We added together the four answers and

averaged them for using each of the 13 ICTs for internal communication.

To reveal NPOs' ICT using patterns more clearly, we conducted an exploratory factor analysis with varimax rotation for each type of communication and categorized the 13 types of ICTs into a smaller number of groups. The factor analysis produced three types of ICTs with eigenvalues over 1 (Kaiser–Meyer–Olkin [KMO] = 0.87,  $\times 2 = 4875.80$ ,  $df = 78$ ,  $p < 0.001$ ; see Table 6 for factor analysis results). In other words, Korean NPOs show three different patterns in using the three groups of ICTs. We named each ICT group to capture the characteristics of ICTs in the group. We labeled each factor as traditional media (i.e., face-to-face meeting; fax; phone call; or cell phone text message); digital media (i.e., social networking service such as Facebook; mobile community service such as Naver band; mobile messenger such as Kakaotalk; e-mail; or website or blog); or sharing media (i.e., sharing document service such as Google Docs; sharing image service such as Flickr and YouTube; cloud service such as Dropbox; schedule management software such as Google Calendar). The terms “digital media” and “sharing media” may not be exactly the same as their use in communication disciplines. For instance, “digital media” in this study were media used mainly for conversation among the communicators. “Sharing media” in this study represent media or applications that provide services to share information and data without necessarily having conversation, either in the form of internal communication or external communication among collaborating partners.

**Table 1** Correlation matrix and descriptives of main variables

	External communication			Internal communication			Culture type			Communication practice		
	Traditional	Digital	Sharing	Traditional	Digital	Sharing	1	2	3	Transparency	Collaboration	Democracy
(1)	–											
(2)	.45*	–										
(3)	.35*	.60*	–									
(4)	.66*	.22*	.19*	–								
(5)	.29*	.67*	.40*	.41*	–							
(6)	.19*	.44*	.73*	.24*	.50*	–						
(7)	.13*	.05	.17*	.15*	.13*	.20*	–					
(8)	.11*	.21*	.19*	.08	.18*	.16*	.37*	–				
(9)	.15*	.08	– .03	.12*	.12*	– .07	.19*	.55*	–			
(10)	.17*	.17*	– .06	.19*	.16*	– .09	– .03	.25*	.37*	–		
(11)	.12*	.05	– .09*	.14*	.07	– .12*	– .05	.19*	.38*	.50*	–	
(12)	– .05	.03	– .07	– .02	.03	– .09	– .34*	.13*	.13*	.18*	.17*	–
<i>M</i>	39.10	43.57	23.79	53.53	63.59	35.60	3.01	3.19	3.58	3.39	3.38	3.68
<i>SD</i>	9.46	12.47	9.80	11.20	14.70	13.71	0.62	0.60	0.57	0.52	0.47	0.61

\* $p < .05$ ; Culture type 1: hierarchy-outcome-oriented type, culture type 2: entrepreneurial-type, culture type 3: family-type

### Cultural Values

We adapted previous measures on cultural value of organizations (Cameron & Quinn, 2011) by changing the 100 score items to 5-point Likert scales (1: strongly disagree, 5: strongly agree). While the original 16-item measures classified organizations into four culture types (Hierarchy, Market, Clan, and Adhocracy), we conducted an exploratory factor analysis with varimax rotation to examine whether the four types are appropriate to the cultures of Korean NPOs. The factor analysis produced three culture types with eigenvalues over 1 (KMO = 0.86,  $x^2 = 3347.67$ ,  $df = 120$ ,  $p < 0.001$ ). Examining items' meanings and coherency in accordance with the adopted theoretical framework (Cameron & Quinn, 2011), this study labeled factors as type 1 culture ( $\alpha = 0.85$ ), type 2 culture ( $\alpha = 0.82$ ), and type 3 culture ( $\alpha = 0.77$ ). The results described the Type 1 culture, or the *hierarchy-outcome-oriented type*, as hierarchical, authoritarian, obeying rules, competitive, and results-oriented (see Table 7 for factor analysis results and descriptions). The Type 2 culture, or the *entrepreneurial-type*, represented entrepreneurial, innovative, and creative cultures. The Type 3 culture, or the *family-type*, represented family-like, bonding, and collaborative cultures.

### Communication Practice

This study created 12 items to measure communication practices of NPOs. The process of creating measures consisted of the aforementioned two steps. Because the newly created items addressed diverse dimensions, we conducted an exploratory factor analysis with varimax rotation to extract different dimensions of communication practices in NPOs. The final solution produced three types of communication practices with eigenvalues over 1 (KMO = 0.91,  $x^2 = 4074.17$ ,  $df = 66$ ,  $p < 0.001$ ; see Table 8 for factor analysis results). We labeled each factor as information transparency ( $\alpha = 0.88$ ), collaboration ( $\alpha = 0.84$ ), and democracy in communication ( $\alpha = 0.92$ ).

### Control Variables

In order to examine the unique role of organizational cultures on nonprofit ICT uses, this study controlled for effects of organizational and environmental factors on NPO's ICT uses (Briones et al., 2011; Finn et al., 2006; Seo & Vu, 2020; Zorn et al., 2011). First, we controlled the organizational *yearly budget* ( $M = \$352,000$ ,  $SD = 75,000$ ) and the *total number of full-time employees* ( $M = 5.27$ ,  $SD = 6.90$ ) in the analysis to take account of the influence of organizational resources. We also controlled for *organizational age* by measuring the number of years the

organization has operated ( $M = 17.63$ ,  $SD = 15.77$ ) and *leaders' perceived importance of using ICTs* ( $M = 3.53$ ,  $SD = 0.55$ ) and *of ICT staff training* ( $M = 3.29$ ,  $SD = 0.71$ , see Table 9 for full items).

Second, we controlled the influence of the institutional norms and pressures by using dummy variables on the type of nonprofit strategy (i.e., expressive: advocating for causes vs. institutional: providing services and resources, Frumkin, 2002) and the type of nonprofit sector (International Classification of Nonprofit Organizations; Salamon & Anheier, 1996): Environmental (10.8%), Human Service (9.8%), and Art and Education (17.6%, see Table 10 for full classifications).

### Analysis

We first conducted three regressions to examine the effect of the organizational culture on NPOs' use of traditional, digital, and sharing media for *external* communication, respectively (see Table 2). We also conducted three other regressions to examine the influence of the organizational culture on NPOs' use of traditional, digital, and sharing media for *internal* communication (see Table 3 for results and Table 4 for the summary of findings, stepwise regression results available upon requests from the authors). The cultural value and the communication practice were measured by three factors extracted from factor analysis. Every variable met the Variance Inflation Factor criteria under 2.5.

### Results

RQ1 asked the different influence of cultural values on NPOs' use of ICTs for external and internal communication. The results suggest that hierarchy-outcome-oriented culture was positively related to using every type of media for both external (traditional:  $\beta = 0.16$ ,  $p < 0.01$ ; sharing:  $\beta = 0.12$ ,  $p < 0.05$ ) and internal communication (traditional:  $\beta = 0.20$ ,  $p < 0.01$ ; digital:  $\beta = 0.14$ ,  $p < 0.01$ ; sharing:  $\beta = 0.15$ ,  $p < 0.01$ ) except for using digital media for external communication. Entrepreneurial-type culture was negatively related to using traditional media for both types of communication (external:  $\beta = -0.10$ ,  $p < 0.05$ ; internal:  $\beta = -0.11$ ,  $p < 0.05$ ). It was positively related to using digital media for external communication ( $\beta = 0.15$ ,  $p < 0.01$ ) and using sharing media for both types of communication (external:  $\beta = 0.23$ ,  $p < 0.01$ ; internal:  $\beta = 0.18$ ,  $p < 0.01$ ). Family-type culture was negatively related to using digital media for external communication ( $\beta = -0.12$ ,  $p < 0.05$ ) and sharing media for both types of communication (external:  $\beta = -0.20$ ,  $p < 0.01$ ; internal:  $\beta = -0.18$ ,  $p < 0.01$ ).

**Table 2** Influence of organizational culture on using ICTs for external communication

		Traditional media		Digital media		Sharing media	
		$\beta$	(SE)	$\beta$	(SE)	$\beta$	(SE)
Organizational characteristics	Budget	-.09	.57	-.05	.73	-.11*	.59
	No. of employees	-.01	.07	.09	.09	.05	.07
	Years	.07	.03	-.06	.04	-.002	.03
Leaders' perceived importance	Using ICTs	.04	.90	.16**	.14	-.06	.94
	Staff training	.16**	.69	.22**	.87	.24**	.71
Sector	Environmental	.04	.10	.03	.11	.03	.13
	Human service	.04	.12	.04	.41	.01	.15
	Art/education	.09	.01	.05	.04	-.02	.04
Strategy	Service delivery	-.07	.41	-.02	.12	-.02	.92
Cultural value	Type 1	.16**	.76	.04	.96	.12*	.79
	Type 2	-.10*	.92	.15**	.17	.23**	.96
	Type 3	.04	.10	-.12*	.39	-.20**	.14
Communication practice	Transparency	.15**	.95	.16**	.21	-.04	.99
	Collaboration	.03	.07	-.08	.36	-.05	.12
	Democracy	.06	.01	.02	.28	.02	.05
<i>n</i>		471		471		471	
<i>F</i>		7.81		3.97		12.44	
<i>R</i> <sup>2</sup>		.18		.22		.22	

\* $p < .05$ , \*\* $p < .01$ ; Culture type 1: hierarchy-outcome-oriented type, culture type 2: entrepreneurial-type, culture type 3: family-type

**Table 3** Influence of organizational culture on using ICTs for internal communication

		Traditional media		Digital media		Sharing media	
		$\beta$	(SE)	$\beta$	(SE)	$\beta$	(SE)
Organizational characteristics	Budget	-.06	.71	.01	.90	-.05	.83
	No. of employees	.01	.09	.10	.11	.13*	.10
	Years	.03	.03	-.06	.04	-.05	.04
Leaders' perceived importance	Using ICTs	-.03	.11	.12	.41	-.07	.30
	Staff training	.14**	.84	.18**	.07	.28*	.46
Sector	Environmental	.05	.25	.04	.58	.01	.12
	Human service	.02	.57	.03	.99	-.04	.12
	Art/ education	-.04	.09	.04	.08	-.02	.03
Strategy	Service delivery	-.10*	.10	-.06	.38	-.09	.57
Cultural value	Type 1	.20**	.93	.14**	.18	.15**	.09
	Type 2	-.11*	.13	.06	.44	.18**	.33
	Type 3	.01	.35	-.07	.71	-.18**	.58
Communication practice	Transparency	.17**	.17	.12**	.49	-.04	.37
	Collaboration	.06	.32	-.05	.68	-.07	.55
	Democracy	.07	.24	.08	.58	.01	.45
<i>n</i>		471		471		471	
<i>F</i>		10.81		3.83		7.36	
<i>R</i> <sup>2</sup>		.18		.16		.18	

\* $p < .05$ , \*\* $p < .01$ ; Culture type 1: hierarchy-outcome-oriented type, culture type 2: entrepreneurial-type, culture type 3: family-type



**Table 4** Summary of findings

		External communication	Internal communication
Cultural value	Type 1	Traditional (+), sharing (+)	Traditional (+), digital (+), sharing (+)
	Type 2	Traditional (-), digital (+), sharing (+)	Traditional (-), sharing (+)
	Type 3	Digital (-), sharing (-)	Sharing (-)
Communication practice	Transparency	Traditional (+), digital (+)	Traditional (+), digital (+)
	Collaboration	-	-
	Democracy	-	-

Only significant results are reported, and the valence is in the parentheses

H1 predicted a positive relationship between an active communication practice and using ICTs. The regression analyses indicate that information transparency was positively related to using traditional and digital media for both external (traditional:  $\beta = 0.15$ ,  $p < 0.01$ ; digital:  $\beta = 0.16$ ,  $p < 0.01$ ) and internal communication (traditional:  $\beta = 0.17$ ,  $p < 0.01$ ; digital:  $\beta = 0.12$ ,  $p < 0.01$ ), but not to using sharing media. Collaboration and democracy in communication practice did not have any influence on using ICTs. Thus, H1 was partially supported.

## Discussion

This study examined NPOs' use of varied types of ICTs for external and internal communication separately. Answering RQ1, results showed that three types of cultural values have different relationships with three types of media for external and internal communication. Hierarchy-outcome-oriented culture was the only positive predictor of using traditional media for both types of communication. This result suggests that organizations with authoritarian cultures based on strict rules may be old-fashioned and maintain a traditional way of communicating with their external and internal stakeholders. However, this culture was also positively related to using all other types of media for both external and internal communication, except for using digital media for external communication. As with other NPOs worldwide, Korean NPOs may face "increased pressure to be accountable, competitive, and professional" (Zorn et al., 2011, p. 3), and active use of ICTs may enhance organizational proficiency, competency, and legitimacy. Because NPOs with hierarchy-outcome-oriented culture focus on increasing efficiency for better outcomes while following rules and procedures authoritatively, they seem to use every possible medium, including traditional media, to improve their performance. This finding corresponds with a previous study which found a positive correlation between the authoritarian culture in Saudi Arabian organizations and the use of digital media

(Al-Shohaib et al., 2010); the authoritative decision-making culture generated efficiency and rapidity in adopting and using the ICTs. However, the lack of association between authoritarian culture and using digital media for external communication suggests that NPOs may use ICTs actively for immediate organizational efficiency and effectiveness, while lacking interactive relationships with the public (Lovejoy & Saxton, 2012).

Entrepreneurial-type culture was positively related to using non-traditional ICTs and negatively related to using traditional media. Corresponding with previous studies (Leidner & Kayworth, 2006), entrepreneurial-type culture in Korean NPOs also seems to contribute to using non-traditional media. Because this organizational culture is open to innovation, NPOs with it may invest in new ICTs progressively, attempt new strategies for stakeholder engagement, and easily transition from traditional media to new ICTs.

Family-type culture was negatively related to using new media, except for using digital media for internal communication. It might seem possible that this culture's negative influence on using sharing media for internal communication suggests they already cooperate and communicate extensively like a clan or a family, such that they do not require sharing media for internal communication. However, the history of Korean NPOs tells a different story. In order to advocate for their opinions and protect their beliefs against the dictatorship, Korean activist groups maintained a strong-bonding, clannish culture. As such, the negative relationships with using new ICTs for both types of communication suggest that such NPOs may be closed to outsiders and inflexible in adopting new ICTs to communicate with their stakeholders.

Regarding H1, only one aspect of communication practices had a significant relationship to using ICTs. Collaboration and democracy in communication practice did not influence the use of ICTs; information transparency was positively related to using traditional and digital media for both types of communication, but not to using sharing media. NPOs with information-transparent practices may

not require or avoid ICTs for *sharing* information, but may provide a more concrete and necessary environment than other communication practices to use other types of ICTs. The results may also suggest that NPOs may use ICTs when they require precise information exchange.

Results suggest that cultural values influenced the use of *digital media* for external and internal communication differently. Among the three culture types, only entrepreneurial-type culture was positively related to using digital media for external communication. Using digital media (including social media) for external communication may represent a new way of developing symmetrical relationships with external stakeholders, as it allows dialogic interactions (Lovejoy & Saxton, 2012). Entrepreneurial-type culture may be the only culture that is open to symmetrical relationships with external stakeholders.

On the other hand, the hierarchy-outcome-oriented-type culture was the only culture positively related to using digital media for internal communication. This result may reflect the current Korean organizational problems of giving work orders via digital media anytime for better outcomes even after work (Lee & Lee, 2016). This result aligns with no significant relationship between the entrepreneurial-type culture and using digital media for internal communication. The results together suggest that NPOs may use digital media for internal communication not because their cultures are innovative, democratic, or actively communicative; NPOs may use digital media internally to maximize efficiency for the organizational goals.

Communication practice did not have different effects on using ICTs for different communication goals (i.e., external and internal communication). This result has an important implication for NPOs' use of ICTs. Whereas cultural values seem to direct NPOs to use their ICTs for specific communication goals (i.e., external or internal communication), actual communication practices (i.e., information transparency) may provide basic environments for NPOs to use ICTs for any type of communication.

In comparison to the influence of organizational culture, resources did not have as much influence on NPOs' use of ICTs. Budget was *negatively* related to using sharing media for external communication ( $\beta = -0.11, p < 0.05$ ); it did not predict the use of any other types of ICTs. This result contrasts with previous studies (Briones et al., 2011; Finn et al., 2006; Zorn et al., 2011); the role of financial resources may not surpass that of organizational culture in determining NPOs' embrace of ICTs. Different organizational cultures may have the potential to mitigate or diminish the resource gaps by different use of ICTs, specifically considering that NPOs with smaller budgets use sharing media for external communication more.

Additionally, the number of full-time employees was positively related to using sharing media for internal communication ( $\beta = 0.12, p < 0.05$ ). A large workforce may allow NPOs to assign a particular person to be responsible for ICTs (Briones et al., 2011). NPOs with a greater number of employees may also require sharing media (instead of face-to-face) for internal communication more than smaller NPOs; small NPOs may not need sharing media to share information among a few employees. Indeed, there was a correlation between the number of full-time employees and using sharing media for internal communication ( $r = 0.12, p < 0.05$ ).

Unlike other control variables, leaders' support was mostly related to active use of ICTs. Specifically, leaders' perception of staff training was positively related to every type of media for all communication purposes. Whereas research has emphasized the role of leaders' perception of the importance of using ICTs (Briones et al., 2011; Hackler & Saxton, 2007; Nah & Saxton, 2013; Zorn et al., 2011), this result indicates that leaders' perception of staff training, which is more directly related to practical support, may be more crucial in encouraging any type of ICT use.

In summary, the answers to RQ1 represent the recent phenomenon of NPOs' transition from using traditional media to new ICTs. NPOs with entrepreneurial-type culture seem to take the lead in using new ICTs. NPOs with hierarchy-outcome-oriented culture seem to use every type of media, from old to new, simultaneously for goal accomplishment; they may be transitioning to new ICTs and may eventually stop using old ICTs. Their hierarchical culture does not seem to hinder them from using new ICTs; it may even expediate the process of adopting and using them (Al-Shohaib et al., 2010), but how internal members perceive the authoritarian process needs more investigation.

NPOs with family-type culture seem to be most conservative in using new ICTs. Under the name of "collaboration" or "family," this type of NPOs may have developed a clannish culture with exclusivism and inflexibility in the crucible of the Korean history. This type of culture may be only collaborative in the abstract without actual practices of sharing or communicating via ICTs. The clannish culture of Korean NPOs may be comparable to family businesses. While family businesses seem to embody egalitarian culture, many of them reflect patriarchal authority and control (Ainsworth & Cox, 2003, p. 1471) and are inflexible in investing in innovation in comparison to nonfamily counterparts (Classen et al., 2014).

These findings have important implications for understanding NPOs' use of ICTs. Despite "the technical rationality" argument prevalent in the nonprofit sector (Zorn et al., 2011: 5), not every NPO has to use or needs

cutting-edge ICTs. However, most leaders were conscious of the importance of using ICTs and staff training. In order to decrease the discrepancy between the perception and the actual use of ICTs, this research suggests focusing on innovation, flexibility, and concrete ways of supporting ICT uses (e.g., having information-transparent practices and staff training) rather than on an abstract sense of collaboration or financial resources.

### Limitations and Future Research

This study examined NPOs' use of varied types of ICTs for external and internal communication. It has several limitations. First, the sample was based on a specific cultural context in Korea. Although this context provides additional insights into understanding the influence of organizational culture, conducting multicultural studies may extend findings from this study. Studies on the interaction between national and organizational cultures (Leidner & Kayworth, 2006) or other constructs of organizational culture (e.g., normative relationships among volunteers and full-time employees) may also enrich the current findings. Further, the sample was selected from the list of NPOs which have been officially registered to the Ministry of the Interior and Safety at least since the year 2012. As a result, the sampled NPOs may be in relatively stable status. Newborn NPOs or NPOs in unstable status which cannot afford to register may have been excluded. However, focusing on stable NPOs is more appropriate for conducting a systematic overview on NPOs' strategic behaviors (Ihm & Shumate, 2019) and was necessary to examine NPOs that have cultural values and practices of using ICTs in this study. Future research such as conducting in-depth interviews on newborn NPOs may reveal different mechanisms in terms of the influence of organizational cultures on using ICTs. Second, because this study is cross-sectional, causality cannot be determined. While the interactionist perspective assumes the organizational culture is fixed, the emergent perspective argues using ICTs interacts with organizational culture (Gallivan & Srite, 2005). The emergent perspective argues that using ICTs for communication may influence the organizational culture, because members may change their cultural values and enact the changed values in the organizations based on their communication experiences (Rice & Leonardi, 2014). Other factors such as the type of organizational activities or the age of employees may mediate the influence of organizational culture on the organizations' use of ICTs (Leonardi, 2009). Further longitudinal studies may provide broader perspectives on the influence of the organizational culture on ICT uses. Third, this study is based on data from 2014, but the use of ICTs has changed since then. For instance, more NPOs have adopted and become accustomed to

digital and sharing ICTs. Mobile media has become prevalent around the world so that internal and external communications often take place via mobile instant messenger (Huang & Zhang, 2019). Many NPOs are also transitioning to using cutting-edge ICTs such as programming tools to pursue digital privacy and equality (Ioan, 2020), virtual technologies to warn about climate change (Bales & Goldstein, 2018), or geospatial big data for wilderness search and rescue (Pfau & Blanford, 2018). Future research may examine how organizational cultures influence the use of the now-more-prevalent ICTs or newer ICTs differently and devise other ways of examining organizational cultures in line with the newer ICTs (e.g., to evaluate big data-oriented cultural values). Finally, executive directors or leaders completed the survey. Although leaders are generally conscious of their organizational culture and practice of using ICTs, as in other national surveys on NPOs, the responses "reflect their perspectives" (Ostrower, 2007), not every member's perspectives. There is a possibility that leaders may see the culture in the way they want to see it, instead of the true culture that other organizational members perceive.

### Conclusion

This study examined how organizational cultures influence NPOs' use of old and new ICTs for external and internal communication. This study makes three contributions to nonprofit research. First, it provides unique perspectives on the phenomenon of the influence of NPOs' culture on their ICT uses. This is the first study on Korean NPOs to show relationships between the NPOs' culture and their ICT uses. The only other large-scale surveys on Korean NPOs are surveys of quantitative issues such as organizational budget and the number of employees conducted by the Korean government (Statistics Korea, 2020). Further, many studies on the relationship between organizational culture and the organizations' ICT uses have focused on specific organizations (Leidner & Kayworth, 2006; Orlikowski, 1993, 2000; Rice & Leonardi, 2014). This study, on the other hand, is based on data from 500 NPOs to correlate Korean NPOs' general cultural and historical backgrounds to their ICT uses. In this way, this study provides a comprehensive overview of NPOs with unique perspectives.

Second, this study focused on the different use of ICTs for internal and external communication. Many studies on NPOs' ICT use have focused on the use of ICTs for external communication (e.g., funders, beneficiaries, suppliers, or interorganizational collaboration partners: Chewning et al., 2012; Fu et al., 2019; Le Dantec & Edwards, 2008). However, ICTs play important roles in internal communication by making efficient the internal

collaboration process and improving the organizational performance. NPOs' use of ICTs for two types of communication has different impact and implications for society and focal NPOs as well. The differentiation of external and internal communication also offers a more nuanced insight into how the same NPOs may diversify ICT uses for different purposes and generate different social impacts from each type of communication, instead of mixing two distinctive communication processes and lumping up them as "use of ICTs".

Third, this study captures the NPOs' use of traditional media and new ICTs in relation to organizational cultures and provides theoretical directions to understand NPOs' transitional use of old-to-new ICTs. This study uncovers how NPOs integrate an array of ICTs to complement or compensate for each other, instead of focusing only on the emerging ICTs at the moment (e.g., social media; Fu et al., 2019). In this way, this study advances theoretical understanding of how and why NPOs use old-to-new ICTs and provides future directions to investigate how NPOs might understand and transplant newer ICTs such as big data-based or programming-based ICTs, or virtual technologies, which may require transformation of communication practices and systems of thinking to different cultures (e.g., a data-oriented culture) beyond the NPO's resources or institutional forces.

Finally, this study provides practical implications for NPOs' use of ICTs. The effect of organizational culture on using ICTs is not simple. Some types of culture encourage certain types of ICT uses for specific communication types. Considering the exact goal of communication and the

available ICTs may be more important than adopting popular ICTs (e.g., social media) to follow trends. Further, financial resources or leaders' perception of the importance of using ICTs is not enough to guarantee an organization will use ICTs actively. Leaders must realize the importance of providing practical support such as staff training to facilitate using ICTs.

This study reveals that organizational cultures may affect NPOs' use of old and new ICTs for different communication goals. NPOs contribute to society by providing services and mobilizing the public for social values that market forces cannot accomplish. This study suggests the potential of how ICTs may intervene in the process and maximize the social impact of the minimum resources available. The results also imply that some NPOs (have to) use cutting-edge ICTs, but NPOs have their own ways of using ICTs corresponding with their cultures and communication goals. Depending on their cultural values and practices, NPOs seem to maintain complex ways of mixing and choosing diverse ICTs to improve internal communication efficiency and external communication impact and generate social values.

#### **Declarations**

**Conflict of interest** The authors declare that they have no conflict of interest.

#### **Appendix**

See in Tables 5, 6, 7, 8, 9 and 10

**Table 5** Question of asking ICT uses for external and internal communication

	ICT	Not at all					Very much
Sharing media	Cloud service	1	2	3	4	5	
	Sharing document service	1	2	3	4	5	
	Sharing image service	1	2	3	4	5	
	Schedule management software	1	2	3	4	5	
Traditional Media	Phone call	1	2	3	4	5	
	Face-to-face meeting	1	2	3	4	5	
	Cellphone text message	1	2	3	4	5	
	fax	1	2	3	4	5	
Digital media	Social networking service	1	2	3	4	5	
	Web site or blogs	1	2	3	4	5	
	Mobile community service	1	2	3	4	5	
	Mobile messenger	1	2	3	4	5	
	E-mail	1	2	3	4	5	

How much does your NPO use the below ICTs for 1) campaign or program promotion? (We used the same format of questions for ICT uses for external communication for 2) resource acquisition [fundraising and volunteer recruitment], and 3) relationship maintenance). Please circle as appropriate (1: not at all, 5: very much):

For internal communication, we used the same format of questions for ICT uses for 1) knowledge management, 2) enhancement of task efficiency, 3) collaboration among internal members, and 4) daily talks for relationship maintenance for internal communication

**Table 6** Factor analysis of ICTs

ICTS	Items	Factor loading		
		1	2	3
Sharing media	Cloud service	<b>.92</b>	.11	.21
	Sharing document service	<b>.92</b>	.10	.21
	Sharing image service	<b>.86</b>	.14	.28
	Schedule management software	<b>.82</b>	.23	.26
Traditional media	Phone call	.05	<b>.90</b>	.05
	Face-to-face meeting	.16	<b>.76</b>	.04
	Cellphone text message	– .02	<b>.74</b>	.45
	fax	.38	<b>.70</b>	– .05
Digital media	Social networking service	.33	– .04	<b>.82</b>
	Web site or blogs	.08	.32	<b>.76</b>
	Mobile community service	.47	– .02	<b>.71</b>
	Mobile messenger	.41	.21	<b>.65</b>
	E-mail	.09	.45	<b>.64</b>
	Explained variance (%)	29.11	23.74	21.92
	Eigenvalues	3.78	3.09	2.85

Values in bold have loadings of at least 0.50

**Table 7** Factor analysis of cultural values

Culture type	Items	Factor loading		
		1	2	3
Type 1 (hierarchical, authoritarian, obeying rules, competitive, results-oriented)	1. The leadership in the organization is generally considered to exemplify commanding and controlling	<b>.77</b>	.25	.06
	2. The glue that holds the organization together is loyalty, tradition, and dedication	<b>.75</b>	.09	-.17
	3. The glue that holds the organization together is the emphasis on achievement and goal accomplishment	<b>.75</b>	-.09	.20
	4. The glue that holds the organization together is formal rules and policies	<b>.72</b>	.06	-.02
	5. The organization emphasizes competitive actions and achievement	<b>.71</b>	.08	.01
	6. The organization is a very structured place. Formal procedures generally govern what people do	<b>.67</b>	.22	.02
	7. The organization is very results-oriented. A major concern is with getting the job done	<b>.59</b>	.40	.10
Type 2 (Entrepreneurial, innovative, creative)	8. The organization is a dynamic and entrepreneurial place. People are willing to stick their necks out and take risks	.12	<b>.81</b>	.15
	9. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing	-.11	<b>.73</b>	.26
	10. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking	.35	<b>.67</b>	.14
	11. The leadership in the organization is generally considered to exemplify a creator or technician	.30	<b>.64</b>	.01
	12. The glue that holds the organization together is commitment to innovation and development	.19	<b>.60</b>	.45
	13. The organization emphasizes acquiring new resources and creating new challenges	-.01	<b>.54</b>	.49
Type 3 (family-like, bonding)	14. The organization is a very personal place. It is like an extended family	-.13	.20	<b>.79</b>
	15. The organization emphasizes human development, cooperation, and participation	-.04	.32	<b>.77</b>
	16. The organization emphasizes permanence and stability	.44	.04	<b>.63</b>
Explained Variance (%)		24.97	19.51	14.06
Eigenvalues		5.30	2.91	1.16

Values in bold have loadings of at least 0.50

**Table 8** Factor analysis of communication practice

Communication Practice	Items	Factor Loading		
		1	2	3
Democracy in Communication	Employees of our organization speak without hesitation, regardless of position	<b>.83</b>	.11	.13
	Our organization tends to listen to employee comments and suggestions	<b>.82</b>	.19	.17
	Employees of our organization have good relationships among themselves	<b>.81</b>	.11	.35
	Employees of our organization talk a lot about things other than work	<b>.81</b>	.06	.28
	Employees of our organization communicate what they want to say to other employees	<b>.78</b>	.22	.02
	Employees of our organization communicate with seniors by text messaging or mobile messengers when necessary	<b>.76</b>	.22	.03
Information Transparency	Employees of our organization work well with other employees	<b>.75</b>	.21	.31
	Employees of our organization are properly sharing information for work	.20	<b>.87</b>	.16
	Employees of our organization are informed of the status of the organization appropriately	.20	<b>.85</b>	.22
Collaboration	Employees of our organization share with each other appropriately the work progress in other departments	.16	<b>.82</b>	.33
	Employees of our organization freely get help from other colleagues	.24	.35	<b>.82</b>
Explained variance (%)	Employees of our organization share materials that will help others in their work	.25	.33	<b>.81</b>
		52.62	21.51	15.32
Eigen values		6.31	1.94	1.84

Values in bold have loadings of at least 0.50

**Table 9** Leaders' perceived importance

Measure	Items
Using ICTs ( $\alpha = .73$ )	Using ICTs helps the accomplishment of organizational goals
	The ability to use ICTs is an important consideration when hiring new employees
	Active use of ICTs will help you work more efficiently
	Every member of the organization needs to be actively involved in the use of ICTs
	Active use of digital media will outweigh the profits by leaking the company's know-how or internal information
	The performance will not be significant compared to the resources and efforts invested in utilizing digital media
Staff training ( $\alpha = .88$ )	If possible, all employees will be encouraged to participate in training
	If training is costly, they will actively work to secure the necessary resources
	In order to conduct training, one may consider adjusting or postponing routine work schedules
	The institution's regular training curriculum should include information on how to use media

**Table 10** Nonprofit organization type

Type	Percentage (%)
Philanthropic	37.6
Art and education	17.6
Environmental	10.8
Human service	9.8
Politics	3.6
Health	2.2
Human right	4.4
Women	6.0
Other	8.0
Total	100

We only controlled for the three types of organizations (i.e., environmental, human services, art and education) as dummy variables for two reasons. First, these types were the three most prevalent ones among Korean NPOs apart from the general category of philanthropic. No more than 5% were of other types, except that 6% were women's rights organizations. Second, these three types were often used as control variables in previous communication studies because of their specific communication cultures and practices (Ihm, 2019; Nah & Saxton, 2013). Controlling for these variables seemed necessary and effective to reveal the relationship between the organizational culture and their ICT uses

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