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INFORMATION AND COMMUNICATION TECHNOLOGY, UNCERTAINTY REDUCTION, AND DUAL IDENTIFICATION IN CHINESE ORGANIZATIONS

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By employing Chinese sample, this study examined the relationship between organizational members' use of information and communication technologies (ICTs) and their identification with the immediate workgroup and the overall organization. Employee uncertainty level may mediate this relationship. Participants (N=336) completed an online survey. Results indicated that workgroup identification (WID) was positively predicted by employee use of organizational social media to seek work-related information, and organizational identification (OID) was positively predicted by organizational social media and intranet use. These relationships were either partially or fully mediated by employee's uncertainty level. Results contributed to our understanding of ICT's role in modern collocated work settings and shed lights on ICT and identification in a non-Euro-American context.

Keywords: ICT, organizational uncertainty, organizational identification, workgroup identification, dual identification, China

INTRODUCTION

Scholars have devoted more than two decades of research to examining organizational identification (OID), which refers to the bond between individuals and the organizations they belong to (Mael & Ashforth, 1992). As a vital concept in communication and management studies, OID has been correlated with multiple desirable organizational outcomes, such as positive attitudes towards the organization (Ashforth & Mael, 1989), stronger employee goal commitment (Riketta, 2005), higher job performance (Walumbwa, Avolio, & Zhu, 2008), lower desire to leave (DeConinck, 2011; Mael & Ashforth, 1995), and the pursuit of creative solutions, or "intrapreneurship" (Moriano, Molero, Topa, & Mangin, 2014). The study of organizational identification not only helps us understand individuals' social identities through their organizational memberships but improves our grasp of management goals and processes.

Although the outcome of OID has been extensively studied, another question regarding this topic needs further exploration: how OID is developed within an organization? There is emerging evidence that various communication behaviors are strongly linked to OID (Cheney, Christensen, & Dailey, 2014; He & Brown, 2013), due to the communicative nature of organizational practices and the widespread expression of identities (Scott, 2007). Specifically, some have investigated how information and communication technologies (ICT), such as email (Wiesenfeld, Raghuram, & Garud, 1999), instant messaging (Hoang & Radicati, 2011; Postmes, Spears & Lea, 2000,) and social media (Sias, 2017; Sias & Duncan, 2018) help achieve this goal. The widespread use of ICT could bring flexibility and efficiency into organizations (Allen & Shoard, 2005; Brough & O'Driscoll, 2010; Gajendran & Harrison, 2007) and thus contribute to easier access to information (Rennecker & Godwin, 2005) and reduced uncertainty for employees. The increased understanding of ICTs may influence the employee-organization

relationship and affect the formation of OID. One's organizational identity can come from sources beyond face-to-face communication; by using ICT, a mediated group of organizational members can also develop "a meaningful and strong sense of identity through [this] interaction" (Postmes, Spears, & Lea, 2000, p. 344).

However, the process of how ICT influences employees' identification is not fully understood. Based on the literature, at least three gaps in knowledge still exist: first, studies regarding computer-mediated or ICT use and OID have primarily focused on virtual workers or teams (Scott, 1999; Scott & Fontenot, 1999; Scott & Timmerman, 1999). However, this perspective is incomplete because modern organizations also use communication technology intensively to supplement face-to-face communication, even when members work in the same location. Therefore, an examination of ICT use in a collocated context is critical. Second, to date, the majority of research on OID has held a unilateral view, treating the organization as the only identification target (Scott, 2007; Scott, Corman, & Cheney, 1998), although several studies have captured the multiple identifications of any individual with various targets within an organization (Ju & Shoham, 2017; Kuhn & Nelson, 2002; Russo, 1998; Scott & Fontenot, 1999). Employees within one organization usually hold dual identification (Scott, 2007; Scott et al., 1998); that is, they identify with at least two targets: the overall organization and their immediate workgroup (Scott, 2007). Finally, previous literature (Chesley, 2014; Fonner & Roloff, 2012; Ter Hoeven, van Zoonen, & Fonner, 2016) has primarily emphasized ICT use, efficiency and productivity but ignored the possible psychological effect of the technologies. It is reasonable to consider OID, the psychological connection between employees and their workplace, as another positive outcome. Therefore, this study aims to fill these gaps by examining employee ICT use relative to identifications with the organization and workgroup. Using participants from China, it also aims to extend an understanding of identification and ICT to another cultural context.

DUAL IDENTIFICATION AND INFORMATION SEEKING

Organizational identification refers to "the perception of oneness with or belongingness to an organization, where the individual defines him or herself [vocationally or avocationally]" (Mael & Ashforth, 1992, p.104). Research has demonstrated that an employee can identify with various targets within one organization, such as one's occupation, workgroup/unit, and industry (Scott et al., 1998). The dual identification, which means identification with one's immediate workgroup and with the whole organization, has been the focus of scholarly attention when multiple targets are considered (Bartels, Pruyn, De Jong, & Joustra, 2007; Ju & Shoham, 2017; Kuhn & Nelson, 2002; Reade, 2001; Reiche, 2009; Scott & Timmerman, 1999).

This dual identification can be observed in daily organizational settings. For example, Ju and Shoham (2017) found that U.S and Chinese employees experienced a workgroup identification (WID) and an overall OID. Their study also discovered that WID was negatively related to OID in the U.S. sample but was positively related to OID in the Chinese sample. In a case study, Reiche (2009) reported that employees in multinational companies identified with the overall organization and the subsidiary, respectively. Similarly, Reade (2001) found managers from global conglomerates also distinguish international identification from local, but their identification with local companies was stronger than the international.

Dual identification is exhibited in specific contexts in organizational-change and long-distance working environments. When an organization implements a new policy, members rely on both OID and various local identification targets (e.g., groups and divisions) to help them process the changes (Kuhn & Nelson, 2002). The different foci of identification were found among virtual teleworkers, whose degrees of identification across these two areas were largely influenced by their degree of virtuality (Scott & Timmerman, 1999). Empirical evidence, therefore, suggests that scholarship should look into both WID and OID.

Daily communication in the workplace is critical to forming identification (Cheney, 1983; Tompkins & Cheney, 1985), which especially depends on information from and other exchanges with the organizations (Miller, Allen, Casey, & Johnson, 2000). Organizational members constantly seek work-related information to better understand their work environment, as inadequate information is the major cause of more than half of all problems in human performance (Raina, 2010). Chawla and Srivastava (2016) argued that the increased knowledge about the organization would improve employees' perceived attachment to it. This information helps individuals learn different aspects of their organization and develop, negotiate, or change their feelings about the organization. More specifically, employees would look for information related to various aspects of their organizational life such as how to finish tasks, how to interact with others, and how they will be evaluated in their organizations (Kramer, 1994; Kramer, 2004; Teboul, 1994). As a result, they gain knowledge regarding their workplace and thus develop a strong bond (or oneness) with the organization.

Collectively, the previous literature has demonstrated information seeking contributes to one's organizational identification. It is worth noting that sources of information may influence employees' knowledge on different levels of their workplace identification (workgroup and organization, or WID and OID, respectively) and hence, impacts identification at these two levels. In modern organizations, information seeking behavior is closely connected to the use of information and communication technologies (ICT), which will be discussed in the following section.

ICT USE AND IDENTIFICATION

The pervasive use of ICT has changed organizational communication practices tremendously (Barnes & Mattson, 2008; D'Urso & Pierce, 2009). Research regarding ICTs has demonstrated that they can facilitate rapid information exchange at low cost (Baym, et al., 2012; Beniger, 1996; Rainie & Wellman, 2012), reduce temporal and physical limits on traditional communication (Baym et al., 2012; Rainie & Wellman, 2012), increase the accessibility of information (Rennecker & Godwin, 2005), and reduce the social cost (Huston & Burgess, 1979) associated with information seeking.

A survey of communication technologies in modern organizations indicates that email, Internet, intranet and instant-messaging tools are the most frequently used computer technologies (D'Urso & Pierce, 2009). These tools allow employees to engage with their organizations in various ways (Weber, Fulk, & Monge, 2016). For example, emails or instant messaging enables employees to develop and strengthen their relationships with colleagues; intranets allow organizational members to receive general information regarding the whole workplace and

specific information regarding their jobs and positions. Through various websites and search engines, employees gain a better understanding of their own organization from various perspectives. The mediated communication through these tools provides a virtual connection between employee and organization, so communication through such channels should influence the employee-organization relationship (Cheney et al., 2014). This process also applies to the immediate workgroup; usually, the more employees use communication technologies, the greater exposure they have to their workgroups, the greater the improvement in their WID. Some technologies mainly target the overall organizational level, whereas some target communication among workgroup members. As a result, identification with each form of ICT is different. The following sections examine each technology specifically and propose hypotheses accordingly.

HYPOTHESES

Email exposes individuals to the larger organization by sending them organization-wide information such as announcements, newsletters and notifications. Such information provides individuals with knowledge of different facets of the organization and creates shared meanings among employees, helping them bond more deeply with the organization (Mael & Ashforth, 1992). It has been found that email has a positive influence on teleworkers' OID because it helps them create a virtual social presence in the organization (Wiesenfeld, Raghuram, & Garud, 1999).

In collocated settings, even though individuals are physically present, it is hard for them to establish a presence in the overall organization due to limited time and resources. However, through email, employees can overcome temporal and physical constraints (Rainie & Wellman, 2012) and thereby, become a virtual social presence in the larger organization. Thus, the use of email should be positively related to OID in a collocated setting. On the other hand, email can be used within a workgroup as well. It is normal for members to exchange ideas, information, and documents through this technology, even when they work in the same physical location. The more communication they have through email with immediate group members, the more they affiliate with this group. Since means of communication impacts the salience of an identification target (Scott, 2007), through email, individual WID is strengthened as well. Therefore, this study proposes:

H1: The use of email is positively related to both WID and OID.

An intranet supports information sharing within an organization (Hollingshead, Fulk, & Monge, 2002) and can be the exclusive domain of specific organizational members (Damsgaard & Scheepers, 2001). As an opportunity to learn about the work environment without much social cost (Huston & Burgess, 1979), an intranet empowers employees with some knowledge about the workplace to learn more about it and feel more attached to it (Chawla & Srivastava, 2016). Communication through this channel encompasses the overall organization, not a specific workgroup, so it should contribute to the OID but not WID. Therefore, the current study proposes:

H2: The use of an intranet is positively related to OID but not to WID.

Similar to an intranet, the Internet is an information-sharing platform that integrates text, graphics, audio and video. Although the use of the Internet is a vague concept with infinite possibilities, in this study, we follow a concept from a previous study by D'Urso & Pierce (2009) that specifically conceptualized the internet use as employees using it to search for organizational or work-related information. Public relations and advertising messages can be frequently found on the Internet that help organizations enhance their public image. Such information boosts the prestige of the organization and so increases the level of employee identification (Bartels, et al., 2007). However, organizations have little control over the Internet, despite their best efforts. Employee complaints (Gossett & Kilker, 2006), customer complaints, negative news coverage, crises and scandals about organizations create negative images that may lead to members disassociating from the organization (Pratt, 2000). This conflicting information complicates their understanding of the organization and will not enhance one's sense of bonding with the organization. So, the current study proposes:

H3: The use of the Internet is not related to OID or WID.

Instant messaging (IM) is defined as a type of online chat technology that offers real-time text/audio transmission such as WhatsApp, Facebook Messenger, WeChat and Viber. This type of technology is mostly used for group communication (Taylor & MacDonald, 2002; Hoang & Radicati, 2011). Communication through this channel is usually short and prompt, which creates a coherent environment for the members in the workgroup (Darics, 2014). Instant messaging creates a virtual connection and enhanced interaction among group members, producing a bonding with the immediate workgroup; but the connection with the overall organization has not been established. Based on the discussion, the current study posits:

H4: The use of IM is positively related to WID but not to OID.

Although not observed in D'Urso and Pierce's study (2009), social media platforms have been particularly popular during the last decade in both personal (Rainie & Wellman, 2012) and organizational domains (Weber et al., 2016). In the workplace, social media provides employees with various ways to connect with their organizations. It is observed that organizational social media, especially a corporate Facebook page, is not the only endeavor to engage an external audience but supports an internal one as well (Sias, 2017; Sias & Duncan, 2018). Through official social media, organizations promote their values, culture, vision, history, and brand, which could potentially boost an organization's reputation (Ji, Li, North, & Liu, 2017) and subsequently lead to a higher level of OID. Consistent with this assumption, the following hypothesis is proposed:

H5: The use of organizational social media is positively related to OID but not to WID.

UNCERTAINTY REDUCTION AS A MEDIATOR

In everyday life people face unknowns. Uncertainty reduction theory (URT) suggests that uncertainty causes a persistent unpleasant feeling and generate cognitive stress. To cope with this feeling, individuals actively look for information with which to acquire knowledge regarding the environment and reduce their discomfort (Berger, 1979; Berger & Calabrese, 1975). According

to URT, high levels of uncertainty cause an increase in information-seeking behavior and when levels of uncertainty decrease, these behaviors decrease as well (Berger & Calabrese, 1975).

In organizations, individuals experience uncertainty about organizational history, how to finish tasks, how to interact with others, and how individuals will be evaluated in their organizations (Kramer, 1994; Kramer, 2004; Teboul, 1994). Information and communication technologies (ICTs) enable employees to obtain work-related information and to reduce the feeling of uncertainty. Organizational scholars have advocated that reducing uncertainty is the primary goal of communication in organizations (Farace, Taylor, Stewart, & Ruben, 1978). It has been argued that uncertainty reduction is the direct outcome of information-seeking behaviors (Berger, 2005). On the other hand, URT (Berger & Calabrese, 1975) suggests that a decrease in uncertainty leads to an increase in liking. The positive attitude of liking may increase the individuals' willingness to identify themselves with the organizations or workgroups. This study aims to examine the possible effect of information seeking through ICTs on uncertainty reduction, as well as on employees' OID or WID. Therefore, the current study seeks the answer to the following question:

RQ: Do employee uncertainty levels mediate the relationship between information-seeking frequency with ICTs (email, intranet, Internet, IM and organizational social media) and their identifications (OID and WID)?

METHOD

Participants

Participants consisted of a diverse pool of full-time employees across various organizational roles and levels in mainland China. An invitational email was sent to participants through the authors' personal connections to explain the purpose of the study with a link to an online survey. Participants were also encouraged to forward this email to anyone they knew that might have been interested in this study. Two follow-up emails reminded participants to complete the survey.

Eventually, the study received 336 responses. Among people who provided demographic information, 41.2% reported being males and 54.6% reported being females, with 4.1% choosing not to disclose their sex. Ages ranged from 18 to 66, with an average of 31.46 years ($SD=10.34$). The average tenure at these organizations was 6.43 years ($SD=7.62$), ranging from less than one to 37 years. Most participants (68%) held a degree at the college level or above. The size of the organization covered a large spectrum: under 10 employees (3.4%), 11-50 employees (11.6%), 51-200 employees (14.7%), 201-500 employees (15.8%), and over 500 employees (54.5%).

Survey Instruments

Demographics

Demographic information pertaining to the participants and their organizations was gathered. Participants were asked to report their age, sex, type of work (e.g. officials and

managers, professionals, sales workers, operatives, etc.), educational background, length of employment, organization's size, and sector of business (e.g. IT, commerce, service, retail).

ICT Use Frequency

ICT information seeking was operationalized as the individual's use frequency of each medium to seek work-related information. Based on D'Urso and Pierce's (2009) findings concerning the most commonly used ICTs in organizations and other studies (Sias, 2017; Sias & Duncan, 2018), the following five forms were examined: email, Internet, intranet, organizational social media, and IM. Because individuals could use various forms of ICT for various reasons, the survey specifically asked about frequency of use of each medium for work-related information seeking to maintain a focus. Each question provided examples or explanations of that specific medium to make sure participants understand the term and were able to provide precise answers. For example, when we asked about email use, we explained that it includes individual emails, listeservs, and group emails. For the intranet, we explained it is a private network set up within an enterprise so members can share information and talk to each other. It may include an internal website, local area networks or collaborative software and programs. Regarding organizational social media use, we clarified that it included the company/organization's official WeChat account, Weibo page and LinkedIn account, among others. Concerning Internet use, we explained it should be used to seek organizational/work-related information through search engines, wikis, and various information websites. Finally, for IM, we defined it as the use of online chatting tools such as WeChat, Skype, or other instant-messaging systems. Participants were asked to identify the frequency of use of five ICT tools by selecting hourly, everyday, weekly, or monthly or N/A (Waldeck, Seibold, & Flanagin, 2004).

Uncertainty Level

Based on Teboul's (1994) typology of uncertainty (referent, appraisal, and relational) in an organizational setting, a 5-Point Likert-Type scale was used to measure employees' uncertainty level. Although Teboul's typology (1994) is based on newcomers' experiences, it has been used to test veterans' uncertainty (Gallagher & Sias, 2009), showing a potential to apply this measurement to employees at any stage of organizational tenure. Some sample items include: "I was unsure what jobs I was supposed to do" (referent uncertainty); "I was not sure about my level of competence" (appraisal uncertainty); and "I was uncertain about if others get along with me" (relational uncertainty). The alpha reliability in the present study was .83.

Identification

A shortened but reliable 12-item version of Cheney's (1983) identification scale (Cronbach α from .88 to .95) was used (Miller, Allen, Casey, & Johnson, 2000). This identification scale was adapted and used twice for measuring OID and WID, respectively: The 12 items that measured OID documented their orientation to their organization at large; then the 12 items that measured WID documented their connection to their workgroup. For example, one item in the OID stated, "I am proud to be an employee of my organization," while its WID counterpart stated, "I am proud to be an employee of my workgroup/unit." The adapted identification scale yielded high reliability ($\alpha = .94$ for OID and $\alpha = .95$ for WID).

RESULTS

Means, standard deviations and Pearson correlations for all variables are provided in Table 1. To test hypotheses 1 through 5, two multiple regression analyses were performed. All five ICT variables were entered as predicting variables, and OID and WID were entered as dependent variables, respectively. The overall OID regression was statistically significant ($R^2_{adj}=.03$, $F[5,281]=2.91$, $p<.05$). The five ICT information-seeking variables can account for 3% of the variance in the regression model. To assess the contribution of individual predictors, the t-ratios for individual regression slopes were examined. Two of the five ICT measures were significantly predictive of organizational identification, including intranet ($t=2.14$, $\beta=.13$, $p<.05$) and organizational social media ($t=2.38$, $\beta=.15$, $p<.05$). The remaining three variables (email, Internet and IM) were not significantly predictive of OID. The overall WID regression was statistically significant as well ($R^2_{adj}=.03$, $F [5,240]=2.36$, $p<.05$). Only organizational social media ($t=2.42$, $\beta=.10$, $p<.05$) was significantly predictive of workgroup identification. Other ICT variables did not predict WID. Collectively, H1, which posits that the use of email is positively related to both WID and OID, was not supported. H2, which suggests the use of an intranet is positively related to OID but not to WID; and H3, which proposes the use of the Internet is not related to OID or WID, were both supported. H4, which posits the use of IM is positively related to WID but not to OID, was not supported. And last, H5, suggesting the use of organizational social media, is positively related to OID but not to WID, was partially supported.

Table 1.
Mean, Standard Deviation, and Pearson Correlations of All Variables

Variables	M	SD	1	2	3	4	5	6	7
1. Email	3.38	1.10	--						
2. Intranet	3.29	1.28	.30**	--					
3. Internet	3.80	1.07	.31**	.17**	--				
4. Org Social Media	2.49	1.32	.23**	.24**	.31**	--			
5. IM	4.20	1.01	.25**	.17**	.47**	.24**	--		
6. Uncertainty	2.61	0.67	-.07	-.13*	.09	-.18**	-.08	--	
7. WID	3.43	0.71	.02	.12	.08	.18**	..02	-.32**	--
8. OID	3.32	0.72	.05	.16**	.09	.18**	.05	-.34**	.84**

Note. * $p<.05$, ** $p<.01$.

The research question asked whether the relationship between information-seeking frequency with ICTs and identifications was mediated by individual uncertainty level. This study used Warner’s (2008) criteria for establishing mediation. Based on Baron and Kenny (1986), Warner (2008) argued that three conditions needed to be met: (a) significant correlations between independent (ICT use) and dependent variables (OID and WID); (b) significant correlations between the independent variable (ICT) and mediator (uncertainty level); (c) the predictive relationship (by regression) between mediator and dependent variable when the independent variable is statistically controlled. When the mediating model was built, there was a fourth condition to determine whether the model is full or partial mediation; that is, to see if the independent variable still significantly predicts the dependent variable after the mediator is controlled.

Pearson correlation analyses were run among the variables of specific ICT use, OID, WID, and uncertainty level, to test whether the first two conditions of a mediating model can be met. Consistent with the previous regression, that organizational social media ($r=.18, p<.01$) and intranet ($r=.16, p<.01$) were significantly related to OID, and only social media was associated with WID ($r=.18, p<.01$). In addition, both social media ($r= -.18, p<.01$) and intranet ($r= -.13, p<.05$) were negatively related to uncertainty. Intranet and organizational social media were kept as independent variables for future testing.

In order to test the third and fourth conditions, two hierarchical regressions were conducted with WID and OID as dependent variables, separately. In the first model, employee WID was regressed on a linear combination of organizational social media (step 1) and employee uncertainty (step 2). The results showed that when organizational social media was statistically controlled, uncertainty was negatively predictive of WID ($\beta = -.30, \Delta R^2=.09, \Delta F [1, 243] =23.80, p<.01$). In addition, after statistically controlling for uncertainty, social media use still positively predicts WID ($\Delta R^2=.02, \Delta F [1, 243] =4.47, p<.05$). Beta coefficients dropped from .18 to .13, but were still significant at $p < .05$. This indicated that the effect of organizational social media use on employee WID was partially mediated by the employee uncertainty. Complete results for the regression are shown in Table 2.

Table 2.
Hierarchical Regression on Workgroup Identification (WID)

Variable	First Block			Second Block		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	<i>B</i>
Org Social Media	.10**	.03	.18**	.07*	.03	.13*
Uncertainty				-.31**	.06	-.30**
<i>R</i> ²		.03**			.12**	
<i>adjusted R</i> ²		.03**			.11**	
ΔR^2		.03**			.09**	
<i>F</i>		8.49**			16.54**	

Note. An * indicates a unique significant predictor variable at $p < .05$, ** $p < .01$

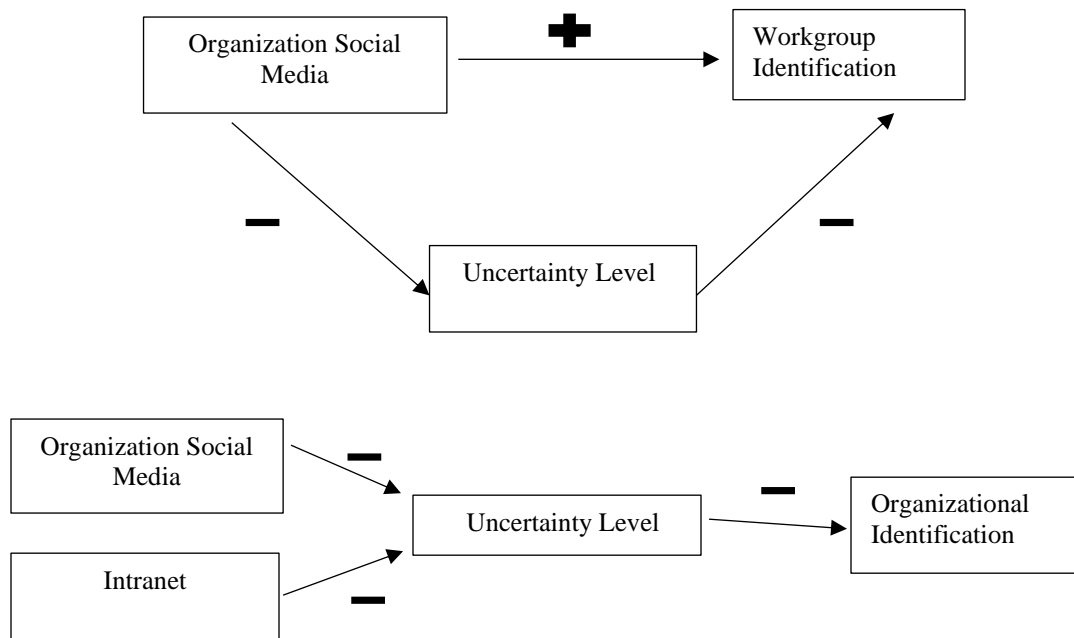
The same procedure was applied to the second model. Employee’s OID was regressed on a linear combination of organizational social media and intranet (step 1) and employee uncertainty (step 2). When social media ($\Delta R^2=.10$, $\Delta F[1, 284]=32.98$, $p<.01$) and intranet ($\Delta R^2=.11$, $\Delta F[1, 284]=34.88$, $p<.01$) were controlled, increased uncertainty was found to reduce OID ($\beta = -.32$, $p<.01$). Similarly, after statistically controlling for uncertainty, both social media ($\Delta R^2=.01$, $\Delta F[1, 284]=4.67$, $p<.05$) and intranet ($\Delta R^2=.01$, $\Delta F[1, 284]=4.51$, $p<.05$) were positive predictors of OID. Beta coefficients of social media dropped from .15 to .10, and intranet dropped from .13 to .10, both of which were no longer significant at $p > .05$. This indicated that the effect of organizational social-media and intranet use on employee OID were fully mediated by uncertainty. Complete results for the regression are shown in Table 3.

Table 3.
Hierarchical Regression on Organizational Identification (OID)

Variable	First Block			Second Block		
	B	SE B	β	B	SE B	B
Org Social Media	.08*	.03	.15*	.06	.03	.10
Intranet	.07*	.03	.13*	.06	.03	.10
Uncertainty				-.34**	.06	-.32**
R^2		.05**			.14**	
adjusted R^2		.04**			.13**	
ΔR^2		.05**			.09**	
F		7.11**			15.61**	

Note. An * indicates a unique significant predictor variable at $p < .05$, ** $p < .01$

Figure 1. Mediating Models of ICT Usage, Uncertainty Level, and Identifications



DISCUSSION

As communication technologies are widespread and critical to organizational communication (D'Urso & Pierce, 2009), this study examined the relationships among various forms of ICT use, employee uncertainty, and the two levels of identification in a Chinese context. The model (see Figure 1) demonstrated (a) an effect of information-seeking frequency with ICTs on employee WID and OID; and (b) uncertainty partially mediated the relationship of social media and WID and fully mediated the path from social media and intranet to OID. Generally, the more deeply organizationally identified members use certain forms of ICTs to seek work-related information, the less uncertainty they experience about their work and the overall environment; and in turn, the more they identify with the overall organization and their work units.

This study found that OID can be predicted from organizational social media. The result is consistent with prior studies in the U.S (Sias, 2017; Sias & Duncan, 2018) that document that Facebook enhances the employee-organization relationship. In addition, through official social-media accounts, organizations promote their values, culture, vision, history, and brand, which is valuable in helping employees understand the organization (Ji, Li, North, & Liu, 2017) and subsequently leads to a higher level of OID. This can be applied to the Chinese context as well. However, the regression results indicate a weak positive effect, suggesting that organizational social media use only had a mild impact on OID. A possible explanation for this weak relationship is a lack of interaction. As Larson and Pepper (2011) advised, interactivity of communication technology is a key to the identification process. Although social media is praised for its interactive nature, employees would rarely use organizational social media to expand their personal networks or to interact with one another (Sias & Duncan, 2018). Therefore, in the identification process, the official social media usually convey a message in one direction from the organization to individuals and contributes to their OID mildly.

In addition, it is not surprising to see the presence of an intranet had a significant relationship to OID in Chinese organizations. The literature indicates that an intranet serves to share information within an organization (Hollingshead et al., 2002) and can exclude specific organizational members (Damsgaard & Scheepers, 2001). As an opportunity to learn about the work environment without much social cost (Huston & Burgess, 1979), an intranet empowers employees with some knowledge about the workplace to know more about it and feel more attached to the organization (Chawla & Srivastava, 2016). An intranet facilitates sharing of information, and therefore, influences the OID level.

Concerning workgroup identification (WID), the results indicated that the only effective ICT was employee use of organization social media, which was somewhat surprising. This result bears further exploration in the following directions: First, there is a need to re-examine the internal role of organizational social media. Usually, organizational social media are thought to be the external media for stakeholders, customers and the public (Eyrich, Padman, & Sweetser, 2008). The purpose of this technology is to make connections between members of the organizations and the external sources. The results suggest that social media also has great potential to connect members of organizations internally. Second, it is intriguing that social media also connects individuals within the same workgroup, as information of the workgroup

level is not frequently shared through this technology. Therefore, it is necessary to further probe the nature and type of information from this platform and how it contributes to employees' WID.

Two hypotheses were not supported in this study. First, email had no significant relationship with OID or WID. This result adds to the already conflicting research: Some studies reported that email and identification are correlated because email communication exposes individuals to organizational norms, rules and colleagues that help create and sustain their identification (Wiesenfeld et al., 1999). On the other hand, Fonner and Roloff (2012) found no significant relationship between the two, especially as email communication creates stress from interruption and lacks a personal touch (Larson & Pepper, 2011). Future study should explore the sources, directions, and tone of email messages in more depth to better understand the relationship. Second, Instant Messagings (IM) was not predictive of WID in Chinese organizations. This is somewhat surprising because use of some online chatting tools like QQ, though not widely used in western countries, is extensive in China in personal (Liu & Yao, 2010) and work settings (Chu & Choi, 2010). This study also showed that IM was the most frequently used tool among all ICTs ($M= 4.20$, $SD =1.01$). As Scott and Stephen (2009) suggested, the target of communication (whom one targets to receive messages) can influence the salience of individuals' identification targets. IM as a popular tool for workgroup communication (Taylor & MacDonald, 2002; Hoang & Radicati, 2011) and individuals' identity as a group member should be maintained and reinforced to enhance workgroup identification. However, our current study did not support this hypothesis. Future studies should further examine the reasons and other types of IM tools used in Chinese organizations that may influence WID.

This study also clarified the nature of the relationship between ICT information-seeking behaviors and employee identifications by adding uncertainty reduction into this process. According to URT (Berger & Calabrese, 1975), uncertainty usually comes from ambiguous or even conflicting information that may cause discomfort, as individuals are not able to predict the future accurately. In the two regression models, ICT tools were partially mediated, or accounted for, by uncertainty on the path to the employee WID and fully mediated by uncertainty on the path to their OID. The results further confirmed that reducing vagueness and doubt will contribute to increased comfort in the workplace and a psychological attachment to it. Additionally, since inefficient or conflicting information will lead to confusion and uncertainty, organizational members should be aware of both the quantity and the quality of the messages found. People in fact use ICTs to seek information at work, but the high frequency of usage may only reflect the time spent in cyberspace without valuable information being comprehended. Consistent with the previous literature (Fiol & O'Connor, 2005), this study emphasized the value of information clarity and quality in the identification process. If employees have difficulties interpreting the information they receive from various sources, it will not strengthen their identification level. The reduced uncertainty is not only the result of the quantity of information found, but also the quality of messages processed and understood. Therefore, as many efficiency-minded organizations nowadays are increasingly reliant on technology, this study suggests the companies value information quality, which can improve employee commitment and attachment.

In conclusion, the findings of this study advance the current knowledge on ICT use for organizational-communication purposes by delineating the relationship between ICT use and the levels of two identifications. The results demonstrate the psychological connections

(identifications) that formed through ICT use and add evidence to the positive impact ICTs have had on modern organizations. The findings also reveal the role of uncertainty as a mediator, which contributes to our understanding of how ICTs have impacted workers' identifications. Finally, this study adds empirical evidence to support the literature on the multidimensionality of identification, at the same time that it expands this literature by establishing associations between various ICT uses and various levels of identifications.

LIMITATIONS AND FUTURE STUDY

This study has several limitations. Participants came from a variety of business sectors with organizations ranging in sizes from under 10 to over 500 employees. Although this sampling ensured a wide range of organizational experiences, it created confounding variables. Additionally, measurements in this study needs further development. We did not measure employee perception of the information quality from each type of technology or the types of information they obtain from different ICTs. Finally, this study focused on a Chinese perspective and recruited participants with a Chinese cultural identity. Therefore, the results may not be generalized to other cultural contexts. Based on these limitations, there are several directions for future studies. First, researchers could devote more effort to exploring the quality and content of information individuals obtain from ICTs. More detailed information of employee ICT use could be highly valuable in explaining some insignificant relationships detected in this study. In addition, future studies also might focus on one or more organizations to exclude confounding factors, such as organizational policy, size, or culture and thereby obtain a more precise result. At last, studies could explore more culture-related variables in a certain context to complement the current understanding of the dynamics underlying ICT use, uncertainty, and identifications.

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