Using the Layered Model to Understand Employee Selection of Information and Communication Channels for Information and Knowledge Sharing in Project Teams

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Abstract

Project teams share information and knowledge. In this paper, we used the layered model that was developed from previous studies to understand the factors impacting employees' choice of information and communication channels (ICC) to share information and knowledge in project teams. Using an experimental methodology, participants were randomly assigned to one of four scenarios and were asked to respond to their preference given the scenario. Then, different factors in the layered model were considered one by one. Respondents responded to each factor by examining their initial choice and whether they would change their ICC choice given the change in the factor. Our results showed that despite the availability of a wide range of ICC, employees relied a lot more on one-on-one, group meetings and emails to share information. Further, emails and group meetings continued to be favored when different factors are considered in the decision choice of a ICC channel for information sharing.

Keywords: knowledge sharing, communication channels, project teams, choice

1. INTRODUCTION

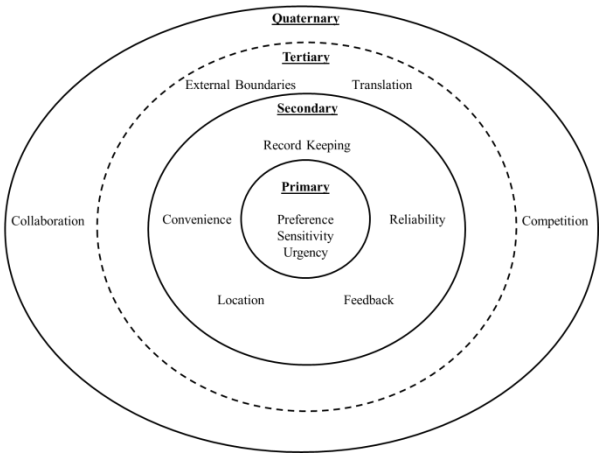
Organizations increasingly use teams to fulfill myriad functions and to improve employee work experience (Thompson, 2004). In a competitive business environment, the use of teams can have strategic advantages through the dissemination of information and knowledge, collaboration, and flexibility (Griffith, Sawyer, & Neale, 2003). These advantages, in turn, can result in higher performance for the organization (Offerman & Spiros, 2001). As a result, organizations have undertaken systematic processes, known as knowledge management for "acquiring, organizing, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work" (Alavi & Leidner, 1999, p. 6). Information and communication channels (ICC) are used to facilitate knowledge management strategies.

Of particular interest to the present study is the use of ICCs to facilitate the knowledge management process known as personalization. The personalization strategy uses ICCs to help

build and maintain interpersonal networks within which knowledge workers can share tacit knowledge and information (Ribiére & Tuggle, 2007; Swift, Balkin, & Matusik, 2010). In addition to the use of ICCs to build and maintain interpersonal networks, organizations use project teams. Organizations hope that placing the appropriate mix of employees on project teams with the appropriate mix of ICCs for sharing information and knowledge will result in open sharing among team members. Employees' ICC choices range from no technology (i.e., face-to-face [one-on-one] communication) to traditional technologies, such as telephone and e-mail, to more contemporary technologies, such as wikis and blogs (Hearn, Foth, & Gray, 2009). Each new ICC technology comes with promises of increased knowledge sharing and enhanced efficiency. For example, the benefits of Web 2.0 technologies in knowledge management are being touted by a variety of sources (Bughin & Chui, 2011; Paroutis & Saleh, 2009; Tay, 2009; Thielst, 2007; Welsh, 2007). Moreover, many organizations rely on the use of ICCs to facilitate virtual teams (Berry, 2011).
If organizations want to maximize the resources they expend on knowledge management through the use of the personalization strategy in project teams, they must know the answers to some important questions. For example, organizations should know what ICCs employees in project teams actually use when sharing information and knowledge with one another. They should also know what factors drive team members to choose one ICC over another when sharing information and knowledge while working on a project.

The present study is the latest in a series of studies (Snyder & Lee-Partridge; 2009, 2011) that have attempted to find answers to these important questions. To this point, these studies have resulted in the development and refinement of the layered model of ICC choice for team knowledge sharing (see Figure 1). The first study (Snyder & Lee-Partridge, 2009) used a survey methodology to determine what ICCs employees use when sharing information and knowledge within project teams and why the employees made those choices. Those data were used to create the layered model. The second study (Snyder & Lee-Partridge, 2011) used an in-depth interview methodology to explore more deeply employees' rationale for making ICC choices for sharing information and knowledge in project teams. Those data were used to refine the model that is shown in Figure 1. The present study uses an experimental methodology to determine what factors, if any, in the layers of the model are drivers of ICC selection for sharing information and knowledge in project teams.

Figure 1: Layered Model of ICC Choice for Team Knowledge Sharing



What ICCs do employees use?
Employees have a variety of ICCs to choose from when they share information and knowledge in project teams. In fact, Snyder & Lee-Partridge (2009) found that at least 50% of their respondents from a variety of industries had access to video/web conferencing, instant messaging, intranets, phone, face-to-face, and email. No fewer than 12% of employees reported having access to the following text-based Web technologies: blogs, wikis, discussion forums, VoIP, and shared virtual workspaces. Their results were in line with data from other studies, including D'Urso and Pierce's (2009) study of technologies available in modern organizations.

It is important to note, however, that access to ICCs does not determine their use. For instance, although employees may have access to blogs, they may choose not to use them. In fact, research has confirmed the notion that the use of communication technologies emerges from "situated practices" (Levina & Vaast, 2005; Orlikowski, 1992) because knowledge is often "localized, embedded, and invested in practice" (Carlile, 2002, p. 442). In their 2009 study, Snyder & Lee-Partridge found that despite fairly wide access to many ICCs, employees reported relying more on email, face-to-face

communication, and phones than any other ICCs when sharing knowledge in project teams. In fact, when the information or knowledge was of a sensitive – rather than general – nature, employees reported extremely heavy use of face-to-face communication. In an effort to verify these results, we forward the following research question:

RQ 1: What ICCs do employees report using when sharing information and knowledge in project teams?

2. WHAT DRIVES ICC CHOICES IN PROJECT TEAMS: THE LAYERED MODEL

The layered model represents an attempt to build a model that provides a robust explanation of ICC choice for sharing information and knowledge in project teams. The model builds upon research that resulted in prescriptive models of channel choice, including Daft and Lengel's (1984) media richness model and Fulk, Steinfeld, Schmitz, and Power's (1987) social influence model. These models were designed to prescribe ideal media choices when communicating in the workplace. The models have been critiqued for their limitations, not the least of which is a lack of empirical support (see Rice & Gattiker, 2001 for a thorough review).

The layered model comprises four concentric circles. Within each circle are factors that influence ICC choice for sharing information and knowledge in project teams. At the inner-most layer are factors that are unique to the employee sharing the information and the nature of the information. Each layer of the model beyond the inner-most layer adds factors that are increasingly external to the employee and beyond his or her control. When taken together, the layers represent the most important driving and restraining forces that impact ICC choice for team information and knowledge sharing.

Primary layer: Knowledge sharer characteristics

The primary layer of the model includes three factors: preference, information type, and urgency. Research has demonstrated that individual differences, efficacy with ICCs, and personal preferences for ICCs are determinants of ICC selection (Carlson & Zmud, 1999; King & Xia, 1999). Timmerman's (2002) research indicated that many people select ICCs mindlessly with little thought about anything beyond personal preference and routine.

In addition, the type of information is a major driver of ICC choice when sharing information and knowledge in project teams (Snyder & Lee-Partridge, 2009). Snyder & Lee-Partridge (2011) found that 46 percent of their respondents said that the information's level of sensitivity was a major influence of ICC choice for team knowledge sharing. Similarly, 46 percent indicated that the information urgency, or degree to which it needed to be shared quickly, influenced ICC choice. In that study, they highlighted a 20-30 year-old male information technology worker in the insurance industry who reported that "speed plays a role in a number of ICC choices; his team uses instant messaging when information needs to be shared quickly" (p. 10). In the present study, we wanted to test the conclusion that information sensitivity and urgency influence ICC selection in team knowledge sharing. Therefore, we ask the following:

RQ2: Does information sensitivity and urgency influence ICC selection in team knowledge sharing?

Secondary layer: Immediate audience and ICC availability

At the second layer of the model sit factors related to the information/knowledge's immediate audience. Research suggests that these factors should have some influence in the ICC choice decision-making process for employees when they share information and knowledge in project teams. In particular, the model focuses on a) the need to keep a record of the interaction, b) the perceived reliability of the ICC to convey the information/knowledge, c) the degree to which an ICC is convenient to use, d) the geographic location of the recipients of the information/knowledge, and e) the need to get immediate feedback from the audience. These factors were derived, in part, from the media selection research (Daft & Lengel, 1984; Fulk, 1993) as well as recent empirical studies (Snyder & Lee-Partridge; 2011).

Snyder & Lee-Partridge (2009) found that the ICC's record-keeping capacity was an important consideration when making an ICC choice for team knowledge sharing. In addition, Snyder & Lee-Partridge (2011) found that 85 percent of their participants reported that record keeping was an important decision-making factor. They

wrote that "a 20-30 year-old business analyst in the insurance industry summarized his use of email for maintaining a record of knowledge sharing transactions, 'The nature of the team required everyone to know everything all of the time…it led to a lot of emails…Everyone needed to know to do their role properly (p. 11)."

A channel's reliability is also important in making ICC selections for team knowledge sharing. Fifty-four percent of Snyder & Lee-Partridge's (2011) respondents said that the ICC's reliability impacted their selection. One participant in their 2009 study concluded that he or she preferred group meetings for sharing information and knowledge in teams because "you are able to have a round table and make sure that all ideas are recorded accurately" (p. 6).

The ICCs convenient availability and use was also identified by participants as important in ICC selection for team knowledge sharing. Snyder & Lee-Partridge (2011) found that 92 percent of their respondents indicated that convenience was important in ICC selection. A 30-40 year-old Director of Online Services in the broadcasting industry discussed the role of convenience in selecting face-to-face interactions in a team that is working on the launch of a new Web site, "It's easiest for us" (p. 11).

The layered model also suggests that the geographic location of the team members is likely to impact ICC selection for information and knowledge sharing in project teams. When people are separated by distance and time, ICC choice is constrained. A respondent in Author's (2011) study put it succinctly when he asked "Does it really make sense to spend the time to meet somewhere when we can do it my email or over the phone?" (p. 11).

Finally, one's need to receive immediate feedback from message recipients will likely influence one's selection of ICC. Media selection research makes this claim (Daft & Lengel, 1984), and recent empirical evidence supports that claim. For instance, Snyder & Lee-Partridge (2009) concluded that feedback was identified by employees as important in ICC selection, and Snyder & Lee-Partridge (2011) found that media richness was an important factor. Feedback is a sub-factor of media richness.

To explore the impact of factors at the secondary layer, we ask the following research questions:

RQ3: Do factors at the secondary layer impact ICC selection in team knowledge sharing?

RQ3a: Does one's original ICC selection affect the likelihood of selecting a new ICC when factors in the secondary layer are introduced?

RQ3b: What is the nature of change, if any, in ICC selection in team knowledge sharing based on factors in the secondary layer?

Tertiary and quaternary layers: Team diversity and organizational culture

We discuss layers three and four together because they both add complexity to ICC selection for team knowledge sharing resulting from the teams' social environment. The tertiary and quaternary layers are based, in part, on the literature on practice-based research and cross-boundary knowledge sharing. Research in these areas provides important insights into how employees interact to complete coordinated work when they must work across, "structural, cultural, and political boundaries" (Kellogg, Orlikowski, & Yates, 2006). In many cases, these boundaries create challenges to effective communication (Carlile, 2004).

The tertiary layer suggests that key boundaries influence ICC selection when sharing information and knowledge in project teams. Key boundaries represent "discontinuities in practice" (Faraj & Xiao, 2006; Levina & Vaast, 2005; Swart & Harvey, 2011). Of particular interest to the layered model are the boundaries between project teams and people outside of the team, such as vendors, customers, and clients. Snyder & Lee-Partridge (2011) found that 85 percent of their respondents reported that team members think carefully about ICC selection when they know the information/knowledge will be communicated to people outside the project team.

In addition to external boundaries, teams have internal boundaries. For instance, team members may represent different functional units within a project team. People from different functional units bring different information, histories, and perspective to bear on the team's task. In many instances, team members may speak different languages – use different technical language and jargon – as a result of their differences. These internal differences create internal boundaries that team

members must overcome (Espinosa, Cummings, Wilson, & Pearce, 2003).

According to Carlile (2004) there are three progressively complex boundaries – syntactic, semantic, and pragmatic – that present difficulties in coordination and knowledge sharing. The layered model concerns itself with semantic boundaries, which exist where knowledge is embedded in employees' practices, situated, and not easily codified. Semantic boundaries arise when team members do not share the same technical language (Kellogg et al., 2006). In order to overcome semantic boundaries, team members must translate their technical language so team members will be able to understand the information. ICCs can be used in ways that help this translation process (Carlile, 2002). Therefore, the need for translation may drive ICC selection. Snyder & Lee-Partridge (2011) found that 62 percent of their respondents reported that the need to translate information for other team members was an important determinant of ICC.

Finally, the layered model argues that organizational culture may play a role in ICC selection. Organizational cultures comprising norms for collaboration and cooperation lead to more knowledge sharing (Bock, Zmud, & Kim, 2005; Kankanhalli, Tan, & Wei, 2005). In cultures that reward cooperation, team members may be more willing to share information and knowledge through ICCs that they would not choose if cooperation were not rewarded.

Organizations may also foster competitive cultures. In these environments, employees may be more selective in their ICC selection. In fact, some evidence exists that suggests that knowledge management initiatives can fail because competitive cultures lead people to share information through interpersonal means with members of one's trusted network (Bansler & Havn, 2003). In competitive cultures, localized knowledge is valuable and information sharing is risky (Levina & Vaast, 2005). A respondent in Snyder & Lee-Partridge (2011) study summed it best when he said members of his project team often share information face-to face because they 'fear they will lose power' (p. 12).

In order to test the tertiary and quaternary layers of the layered model, we forward the following research questions.

RQ4: Do factors at the tertiary layer impact ICC selection in team knowledge sharing?

RQ4a: Does one's original ICC selection affect the likelihood of selecting a new ICC when factors in the tertiary layer are introduced?

RQ4b: What is the nature of change, if any, in ICC selection in team knowledge sharing based on factors in the tertiary layer?

RQ5: Do factors at the quaternary layer impact ICC selection in team knowledge sharing?

RQ5a: Does one's original ICC selection affect the likelihood of selecting a new ICC when factors in the quaternary layer are introduced?

RQ5b: What is the nature of change, if any, in ICC selection in team knowledge sharing based on factors in the quaternary layer?

3. METHOD

Procedure and Measurement

We gathered data from employees concerning their use of ICCs for knowledge sharing in project teams. The participants for the experiment were recruited by students for course extra credit. Participants had to be at least 18 years-old, employed, but not self-employed. Students directed participants to a Web site that placed them into one of four experimental conditions.

Once the participants reached the site and consented to participate, they were asked to read one of four scenarios, depending on their experimental condition. The four scenarios asked participants to imagine that they were part of a team with five or six members. They were told to imagine that they had to share some knowledge/information with the team. The scenarios attempted to manipulate the urgency of the information (high and low) and the sensitivity of the information (high and low). Therefore, participants in condition one read a scenario with urgent/sensitive information, participants in condition two read a scenario with urgent/non-sensitive information, participants in condition three read a scenario with non-urgent/sensitive information, and participants in condition four read a scenario with non-urgent/non-sensitive information (see Table 1 (in Appendix) for the four scenarios).

After reading the scenario, participants were asked to identify from a list the ICCs that would be their first choice for sharing information/knowledge with the team (see Table 2 for choices offered). After making this choice, participants were asked to consider changes to the original scenario. For each change – one for each of the factors in the other three layers of the layered model – participants were asked to indicate if they would change their original ICC choice based on the new information. If the participants responded "yes," they were asked to identify the ICC they would choose instead, choosing from the original list of 19 options.

Table 2: *ICC Choices Offered to Participants*

1. Face-to-Face (One-on-One)
2. Group Meetings
3. Email
4. Phone (Land Line or Cellular)
5. Intranet
6. Audio Conference
7. Listserv
8. Instant Message
9. Text Message
10. Web-based Conference
11. Groupware or Group Collaboration Software
12. Pagers
13. Video Conference
14. VoIP Phone
15. Twitter
16. Podcast
17. Wiki
18. Blog
19. Others

Participants

In total, 211 employees took part in the experiment. Four responses had incomplete data and were removed from further analysis. The distribution of the participants for each condition is shown in Table 3 (see Appendix). The demographics of the participants are shown in Table 4 (see Appendix). For the demographics, not all participants provided all the information and the numbers may not add up to the total of 207.

4. RESULTS AND DISCUSSION

ICC choice for sharing information and knowledge in project teams

Research question 1 asked what ICCs employees report using when sharing information and knowledge in project teams. The answer to that question is that employees rely on either no technology or traditional technologies. Despite the wide array of ICC choices available, employees reported using mainly no technology or traditional technologies to share information in project teams. Table 5 (see Appendix) shows the number of participants' first choice among the ICC choices.

These results are consistent with previous studies showing that employees relied heavily on the more traditional ICCs to share information and knowledge in project teams (D'Urso & Pierce, 2009; Snyder & Lee-Partridge, 2009).

Impact of scenarios on ICC selection

Research question 2 asked if information sensitivity and urgency influence ICC selection in team knowledge sharing. As mentioned in the method section, we randomly assigned respondents to one of four conditions based on both the urgency and sensitive nature of the information. The most popular choices across the 4 conditions are face-to-face, group meetings and emails. We tested to see if the scenarios resulted in different ICC selections, and the results demonstrated no significant differences. Hence, the answer to research question 2 is no. As a result, we chose to aggregate the data and conduct the remaining analyses on the total sample, rather than disaggregating the data into four groups.

Impact of factors at secondary layer on ICC selection

In the secondary layer of the layered model are factors such as the need for record keeping, the perceived reliability of the medium, the convenient availability of the ICC, and the need for immediate feedback from the audience. Research question 3 asked if these factors impact ICC selection in team knowledge sharing. Given that our respondents' first choice leaned heavily towards face-to-face, group meetings and emails, and that the number who choose the other media is small, we decided to check if the respondents' choice would change when each of the secondary layer factors is included. As described in the method, we introduced the factors one at a time to the participants and asked if the change would lead them to change ICC away from their initial selection of ICC.

Research question 3 was answered in the affirmative. Sixty-three of the 181 (34.8%) participants who had originally selected face-to-face, group meetings, and email changed their selection once told that keeping a record of the interaction was important. Forty-eight participants (26.5%) reported that they would change their original ICC selection if reliability was important. Fifty-seven participants (31.5%) said that they would change their original ICC selection if convenient availability of the ICC was important. When told that team members were not geographically co-located, nearly half of the participants reported a change in ICC selection (N = 81, 44.8%). When the participants were told that getting immediate feedback from team members was crucial, 75 participants (41.4%) reported that they would change their ICC selection.

Research question 3a asked if one's original ICC selection affected their likelihood of selecting a new ICC when factors in the secondary layer were introduced. For the reliability and feedback factors, one's original ICC selection did not predict one's desire to select a different ICC. However, for the record-keeping, geographic location, and convenience factors, one's initial ICC selection did influence one's desire to select a new ICC.

Research question 3b asked about the nature of the ICC changes that participants reported. To explore one possible answer to that question, we looked at the changes participants made when the record-keeping, geographic location, and convenience factors were important. The results in Figures 2-4 suggest a clear pattern. (In reviewing the charts, take note that the X-axis shows the ICC choice that the user would change to; the Y-axis is the number who change. We provided only the data for those whose original choice was one-on-one, email or group meetings. As an example, in Figure 2, if record keeping was a factor in the knowledge sharing, 14 of those who originally chose group meetings would change their choice to email; 15 of those who chose one-on-one would also change to email as the media of choice.) Those participants who initially selected email were less likely to change that selection than participants who originally chose face-to-face or group meetings. Moreover, those participants who originally chose face-to-face and group meetings were likely to change to email.

When record keeping was important, participants who originally selected face-to-face and group meetings for information and knowledge sharing, were likely to select email. Of the 25 respondents that chose face-to-face and 29 respondents that chose group meetings, 15 and 14 respectively changed their choice to emails if the need for record keeping exists. Those who originally selected email were not as likely to change.

The same pattern held when the convenient availability of an ICC was important. Of the 22 face-to-face and 26 group meetings first choice respondents, 13 and 12 respectively changed their choice to email as it was deemed more available than their initial choice.

When participants were told that team members were not geographically co-located, those who originally chose email were not likely to change their ICC selection. Thirteen of the 32 respondents who chose face-to-face and 16 of the 41 respondents who chose group meetings changed their choice to emails when location was considered.

Impact of factors at the tertiary and quaternary layers on ICC selection

Research question 4 was answered in the affirmative. Eighty-four of the 181 (46.4%) participants who had originally selected face-to-face, group meetings, and email changed their selection once told that they would be sharing information and knowledge with people outside of the team (boundary factor). Fifty-six participants (30.9%) reported that they would change their original ICC selection if they had to translate technical information for team members who did not share the participants' expertise.

Research question 4a asked if one's original ICC selection affected their likelihood of selecting a new ICC when factors in the tertiary layer were introduced. The data answer research question 4a in the affirmative. For the boundary and the translation factors, one's original ICC selection predicted one's desire to change.

In response to research question 4b, we looked at the nature of the changes for individuals who originally selected face-to-face, group meetings, and email. The results in Figures 5 and 6 are enlightening. When participants were told that the information would be shared with people outside of the team, 28 of the 48 who originally

selected face-to-face said they would change to email. Similarly, of the 63 participants who originally selected group meetings, 43 said they would change, and 27 of those 43 would change to email. Those who originally selected email were not very likely to change their selection.

Research question 5 was answered in the affirmative. Forty of the 181 (22.1%) participants who had originally selected face-to-face, group meetings, and email changed their selection once told that their organization valued collaboration. Twenty-seven participants (14.9%) reported that they would change their original ICC selection if their organization's culture was characterized by competitiveness.

Research question 5a asked if one's original ICC selection affected their likelihood of selecting a new ICC when factors in the quaternary layer were introduced. We conducted a series of one-way ANOVAs in which original ICC selection was entered as the independent variable and desire to change ICC (0 = No, 1 = Yes) was entered as the dependent variable. Table 4 displays the results. These results suggest are approaching significance for the collaborative culture factor ($p = .08$). In addition, one's original ICC selection predicted one's desire to change when they were told that the organization's culture valued competitiveness.

We looked at the nature of the changes for individuals who originally selected face-to-face, group meetings, and email in an effort to answer research question 5b. The results in Figures 7 and 8 demonstrate the nature of the changes to ICC selection. When the organizational culture was collaborative, participants reported a desire to use group meetings. Twelve of the 20 email users and 9 of the 12 who originally selected face-to-face, said they would change to group meetings. Interestingly, the same pattern emerged when participants were told that the culture was characterized by competitiveness. Thirteen of 19 email users who reported a desire to change, and 5 of 11 who originally selected face-to-face, said they would change to group meetings.

5. CONCLUSIONS

The present study was the latest in a series of studies attempting to develop and refine the layered model ICC choice for team knowledge sharing. The results have practical and theoretical implications. These implications, however, should be considered in light of a number of a few limitations. The implications also highlight avenues for future research.

First, the study confirms conclusions drawn in previous research. Employees have a variety of ICCs at their disposal for sharing information and knowledge, but they tend to gravitate to those requiring no technology and traditional channels. In the present study, a vast majority of participants said they would use face-to-face (one-on-one) communication, group meetings, and email for information sharing, regardless of the information's sensitivity or urgency. Management should take these preferences into consideration when allocating resources to ICCs. Second, the factors in the layered model did cause the participants to say that they would change their selection. It is interesting to note that the factors in the secondary layer led people who originally selected face-to-face communication and group meetings to overwhelmingly change to email for sharing information. Those who originally selected email were not likely to change their selection. For those people who prefer email for sharing information and knowledge in project teams, the factors in the first two layers have little effect on their desire to change that selection. However, factors in the tertiary and quaternary layer did influence ICC selection for those who originally selected email. The translation, collaborative culture, and competitive culture factors have influenced email users. Not only did these factors influence email users to change, but the majority of email users who said they would change, said that they would select group meetings. Taken together, these results indicate that regardless of factors, participants prefer face-to-face communication, group meetings, and email. Other ICCs are seldom selected. The secondary layer is able to predict changes for people who originally selected face-to-face communication and group meetings. The tertiary and quaternary layers are better predictors of change for email users.

The present study had limitations that we will discuss here. First, the experimental manipulation did not result in any changes in initial ICC selection. Does that mean the factors are not good predictors of initial selection, or that the manipulation was not strong enough? We cannot tell from the present findings. In the future, researchers should work toward determining the answer to this question. Second, we did not test interactions among the

factors. For example, what ICC selections might people make if they had to translate information in a competitive culture? Future studies should examine these interactions. Third, the findings are limited to information and knowledge sharing in project teams. Although one might conclude that management should limit allocation to information and communication technologies for knowledge and information sharing this does not mean that these ICCs should not be widely available for individuals not working in project teams.

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Appendix

Figure 2: *Top 3 ICC selections and desire to change (record-keeping factor)*

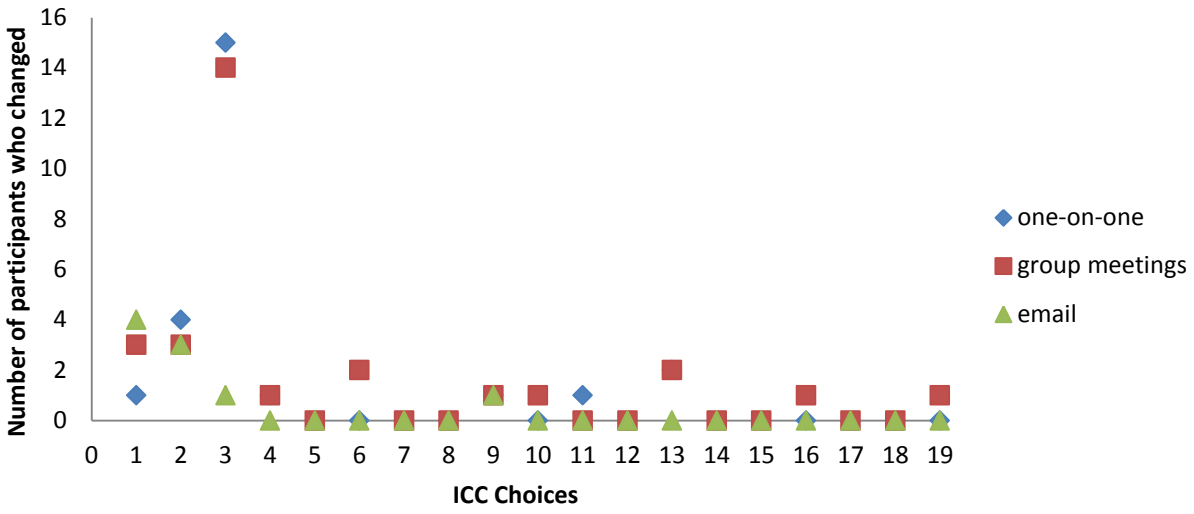

Figure 3: *Top 3 ICC selections and desire to change (convenient availability factor)*

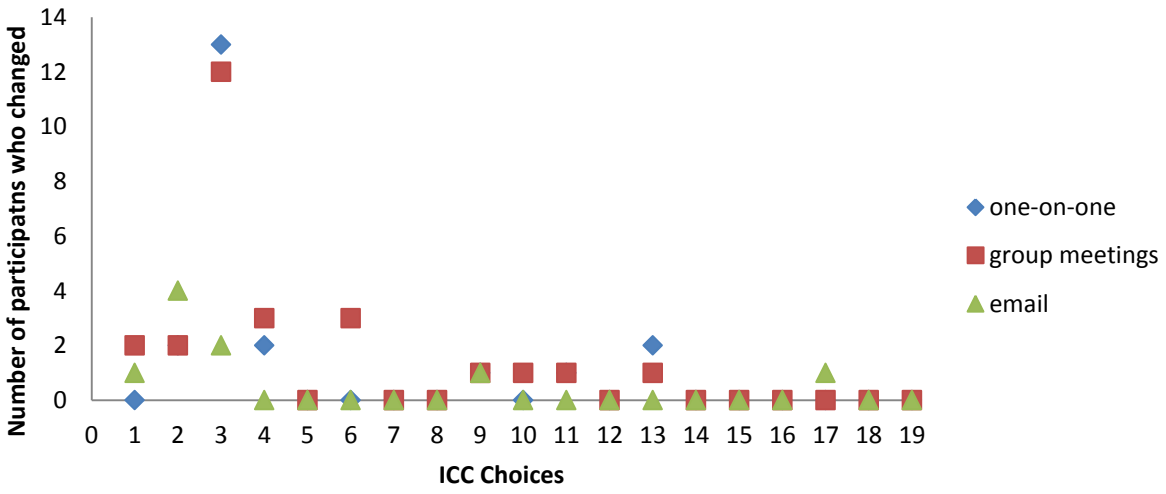

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Figure 4: *Top 3 ICC selections and desire to change (geographic location factor)*

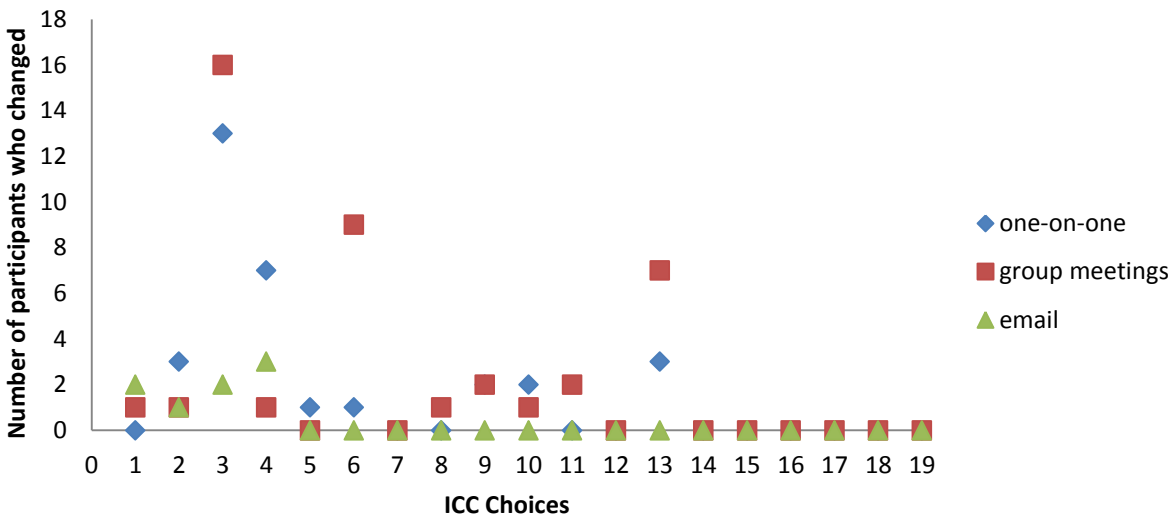

Figure 5: *Top 3 ICC selections and desire to change (boundary factor)*

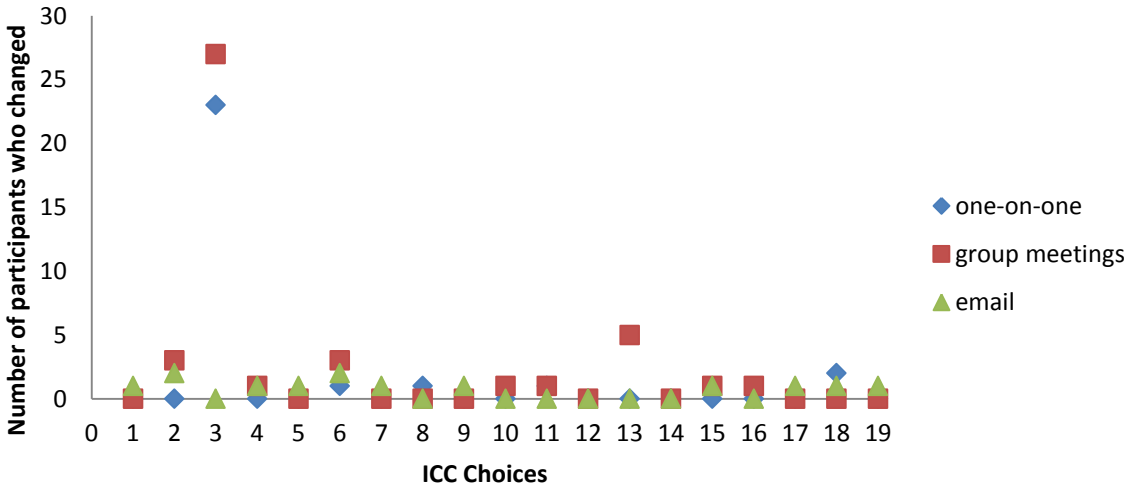

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Figure 6: *Top 3 ICC selections and desire to change (translation factor)*

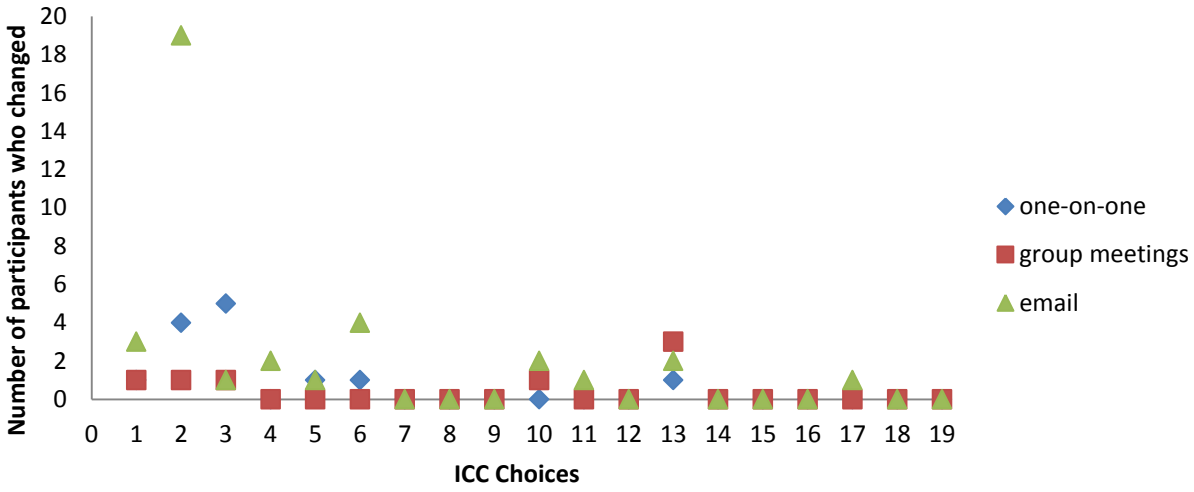

Figure 7: *Top 3 ICC selections and desire to change (collaboration factor)*

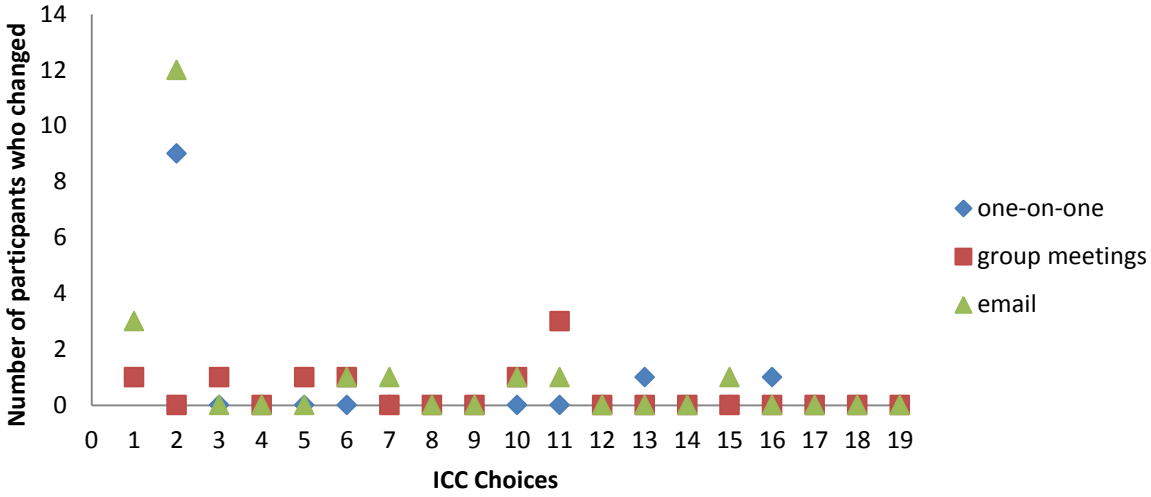

Figure 8: *Top 3 ICC selections and desire to change (competition factor)*

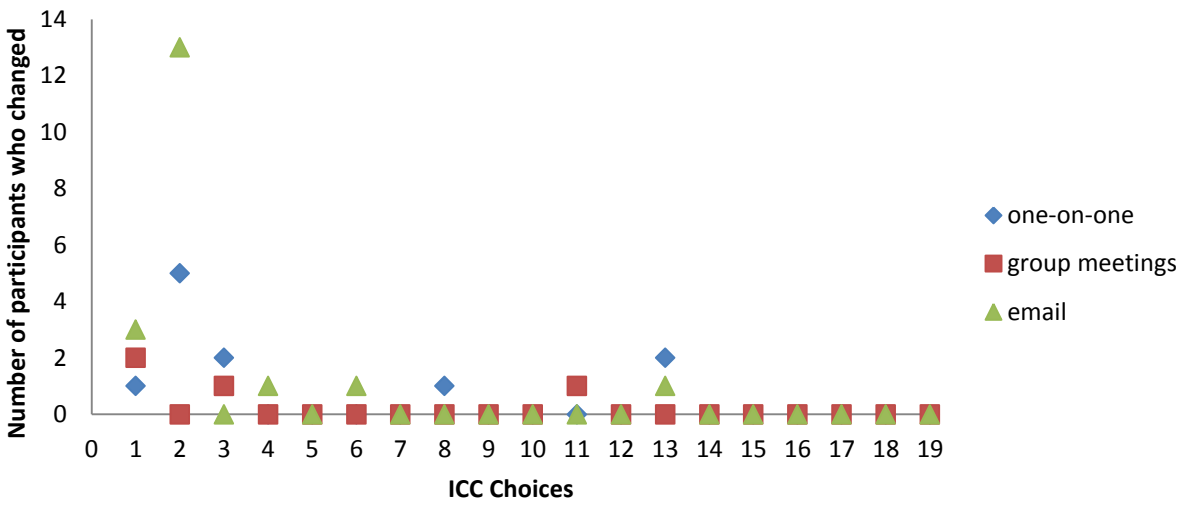

Table 1: Scenarios used in the 4 conditions

Experimental Condition	Scenario
1. Urgent /Sensitive	Imagine that you are part of a team with five or six members. The team is working on a project that is time sensitive. You need to share some information/knowledge with the team. It is important that the team gets the information/knowledge right away. In addition, you need to make sure that the information/knowledge is kept within the team.
2. Urgent /Non-sensitive	Imagine that you are part of a team with five or six members. The team is working on a project that is time sensitive. You need to share some information/knowledge with the team. It is important that the team gets the information/knowledge right away. Although your team members do not know this information /knowledge, people outside of your team are already aware of this information/knowledge.
3. Non-urgent /Sensitive	Imagine that you are part of a team with five or six members. The team is working on a project. You need to share some information/knowledge with the team. It is important that you make sure the information/knowledge is kept within the team. However, it is not critical that the team gets the information/knowledge right away.
4. Non-urgent /Non-sensitive	Imagine that you are part of a team with five or six members. The team is working on a project. You need to share some information/knowledge with the team. It is not critical that the team gets the information/knowledge right away. Although your team members do not know this information/knowledge, people outside of your team are already aware of this information/knowledge.

Table 3: *Distribution for each condition*

	Number of Participants
Condition 1	52
Condition 2	42
Condition 3	59
Condition 4	54

Table 4: *Demographics of participants*

	Number of participants
Gender – Male	85
Female	115
Ethnic Background	
Caucasian	159
African-American	19
Asian-American	7
Hispanic/Latino/Latina	6
Age Group	
18-29	87
30-39	39
40-49	38
50-59	27
>=60	12
Number of employees in organization	
<100	
101-500	85
501-1000	52
>20000	39
	17
Industries represented	
Manufacturing	37
Education	37
Technology	25
Service	21
Retail	20

Table 5: *Participants' first ICC choice*

ICC Choice	Number of Participants
Face-to-face (one-on-one)	48
Group meetings	63
Emails	70
Phone	9
Text messaging	5
Intranet	2
Instant messaging	2
Audio conference	1
Web-based conference	1
Listserv	1
Groupware	1
Video conference	1
Twitter	1
Podcast	1
Others	1