

Identity Communication in Virtual Teams: Insights from Interviews with Working Professionals

Full Paper

David W. Wilson

University of Oklahoma
davidwilsonphd@gmail.com

Susan A. Brown

University of Arizona
suebrown@email.arizona.edu

Sherry M. B. Thatcher

University of South Carolina
sherry.thatcher@moore.sc.edu

Sarah D. Harris

University of Arizona
sarahharris@email.arizona.edu

Abstract

Organizations are increasingly using virtual teams to gain competitive advantages in the marketplace, but managers face a tradeoff between the benefits that such virtual teams provide and their inherent weaknesses. This paper examines identity communication in virtual environments, arguing that identity communication can counteract some of the negative aspects of virtual teamwork. Using coded transcriptions from 35 semi-structured interviews with working professionals who participate in virtual teams, we explore the process of identity communication in virtual teams and the role of technology in influencing and enabling these processes. Using established identity and media theories as a guide, we formulate, and then refine, a framework to summarize consistent themes in the interview data. Our findings lay the groundwork for future theoretical development in this relevant area of research, and we argue that further advances in this domain will allow organizations to more effectively leverage a virtual workforce with effective collaboration technologies.

Keywords

Identity, virtual teams, mediated communication, semi-structured interviews.

Introduction

Virtual teams play an important role in many modern organizations. Advances in communication and collaboration technology have enabled organizations to create teams that span temporal, spatial, and organizational boundaries, and such virtual teams provide significant competitive advantages (Lipnack and Stamps 2000; Townsend et al. 1998). In addition to these benefits, however, virtual teams are susceptible to communication difficulties, sometimes resulting in team conflict (Kankanhalli et al. 2007). Understanding how organizations can leverage virtual teams for their benefits, while managing these potential communication difficulties, has thus been a major focus of prior virtual teams research (Carte and Chidambaram 2004; Chidambaram and Tung 2005; Kankanhalli et al. 2007).

Identity communication is one key organizational communication process that is not well understood in the context of virtual teams (Ramarajan 2014). Identity communication comprises the various methods a person uses to convey self-identities (Thatcher et al. 2003). Identity communication influences important organizational outcomes, including job satisfaction, organizational citizenship, and positive social relationships (Dutton et al. 2010; Ibarra et al. 2005; Polzer et al. 2002; Thatcher and Greer 2008). However, when teams interact primarily through communication technologies, these technologies affect how employees can communicate their identities (Bartel et al. 2012; Ollier-Malaterre et al. 2013; Thatcher and Zhu 2006). Accordingly, recent literature (Ramarajan 2014) has called for additional theory and

understanding regarding virtual identity communication (VIC) to guide future research and provide direction for managers as they grapple with these issues.

This research seeks to develop understanding around VIC, and we focus on three research objectives: (1) we explore how identity communication is carried out in virtual environments, (2) we examine how communication technology features enable or otherwise affect VIC processes, and (3) we seek to understand how VIC facilitates positive communication outcomes within virtual teams. We follow prior IS research (Kolfschoten et al. 2012; Venkatesh and Brown 2001), taking a two-step approach to generating findings. The first step entails an examination of extant literature on the phenomena of interest to provide a starting point, which is followed by exploratory interviews with working professionals to produce deeper, more relevant findings in our chosen context.

This work provides important contributions to our understanding of VIC in virtual teams. First, we provide a rich analysis of the process of VIC. To our knowledge, this study is the first to examine these processes within virtual teams. As a part of this analysis, we explore VIC processes, as well as positive outcomes of VIC at both the individual and team levels. Second, we develop unique insights regarding how technology can both help and hinder VIC, from which we can provide recommendations for system design and managerial decisions that will help organizations more fully leverage the benefits of virtual teams while reducing the costs incurred by a virtual workforce strategy.

Background Literature

We used established identity and media theories to guide our interview protocol and analysis strategy. This section briefly summarizes the literature on identity and mediated communication to provide grounding for the sections that follow.

Identity Communication

Theories regarding identity are numerous and well established. Identity is defined as “the individual’s self-appraisal of a variety of attributes along the dimensions of physical and cognitive abilities, personal traits and motives, and the multiplicity of social roles including worker, family member, and community citizen” (Whitbourne and Connolly 1999, p. 28). People have a natural desire to communicate their identities and have them understood by others (Swann 1983) as this communication facilitates a sense of continuity and coherence (Swann et al. 2000). Identity communication is also a strong predictor of individual and group outcomes, and can ultimately determine the overall success of a team (Polzer et al. 2002; Swann et al. 2003).

Prior research indicates identity communication can produce numerous individual and group benefits, many of which are relevant in organizational team settings. For example, identity communication has been shown to build social resources for individuals and facilitate career development and growth (e.g., Ibarra et al. 2005). Positive identity communication can increase individuals’ capacity to deal with adversity and stress (Hobfoll 1989), predict judgments (Reed and Aquino 2002), improve creativity (Beyer and Hannah 2002; Cheng et al. 2008), and promote social integration (Polzer et al. 2002). Individuals who experience positive identity communication have more satisfaction, meaning, and self-worth at work (Thatcher and Greer 2008; Wrzesniewski et al. 2003), and thus are more motivated to promote positive outcomes for teams (Polzer et al. 2002) and their organizations (Dutton et al. 2010). Identity communication has been shown to lead to more information sharing and trust (Dutton et al. 2010; Ma and Agarwal 2007). Members of groups who understand one another’s personal identities perform better (Polzer et al. 2002; Swann et al. 2003; Swann et al. 2000), cooperate more (Milton and Westphal 2005), feel more connected and immersed (Thatcher et al. 2003), behave authentically, and focus energies on improving group outcomes. Successful identity communication has been suggested as one of the key mechanisms determining whether diversity helps or hinders a group (Polzer et al. 2002).

Although identity communication has been studied in a myriad of face-to-face contexts (Swann et al. 2003), relatively little research has studied it in virtual environments, in which technology provides the only conduit for identity communication. The few exceptions are found in the online communities and online social network literatures. Other researchers have investigated identity communication in online dating (Ellison et al. 2006), and online social networks (Krämer and Winter 2008; Wilson et al. 2014),

though none of this work has investigated identity communication in virtual teams. In one study on online communities (Ma and Agarwal 2007), researchers studied how certain characteristics of online communities—virtual co-presence, persistent labeling, self-presentation, and deep profiling—facilitate perceived identity verification, or the perception that other community members understand a focal person's identities. This identity verification, in turn, positively influences member satisfaction and knowledge contribution. However, this prior research may have limited generalizability for the broader realm of virtual environments, due largely to the differences between online communities and virtual teams. First, members of virtual teams are often *assigned* to a team, rather than given the ability to choose a team with similar interests. Second, members of virtual teams in organizations are often labelled by their actual name and title, rather than an anonymous id. Third, virtual teams are goal- and task-driven, rather than driven by voluntary knowledge contribution. Fourth, interactions among virtual team members can be supported by a much wider variety of technologies (e.g., video conferencing, voice conferencing, email, group support systems) than large online communities. As a result of these differences, we seek to build on the related research in online communities to understand characteristics of technology that enable identity communication in virtual teams.

Given the strong empirical evidence for the benefits of identity communication in offline settings, and the dearth of research examining identity communication in virtual teams, there is a compelling opportunity to develop theoretical and practical insights regarding VIC in virtual teams. This topic is especially important to address as virtual environments are becoming more pervasive in organizations, with virtual teams increasingly being formed to bring diverse individuals together at a low cost. We anticipate that VIC in virtual teams could yield many of the same benefits that are realized in face-to-face groups and our interview protocol and subsequent analyses investigate this possibility.

Mediated Communication

In virtual environments, where communication happens primarily or exclusively through a technology, characteristics of the communication medium should play an important role in determining the extent to which team members can communicate their identities. Several theories related to media characteristics have been generated in the literature, including media richness and media synchronicity (Daft and Lengel 1986; Dennis et al. 2008). Media richness (Daft and Lengel 1986) refers to the degree to which a communication technology facilitates changes in understanding during the communication. Richness differences across media are associated with immediacy of feedback, number of cues and channels utilized, personalization of the message, and language variety employed (Daft and Lengel 1986). On a one-dimensional continuum of media richness, a face-to-face medium would be considered very rich, whereas text-based communication would be considerably lower. According to media richness theory, communication is most effective when the degree of media richness matches the requirements for a communication task.

As an extension to media richness theory, Dennis et al. (2008) proposed Media Synchronicity Theory (MST), which predicts shared patterns of behavior (media synchronicity), fit, and shared understanding (i.e., successful communication of desired information). MST is relevant in our context because certain media characteristics will likely enhance or prevent identity communication processes (Wilson et al. 2015a; Wilson et al. 2015b). MST introduces key media characteristics such as transmission velocity, symbol variety, parallelism, rehearsability, and reprocessability. Transmission velocity refers to the speed with which messages are exchanged. Symbol variety refers to the number of cues that can be transmitted via the medium (e.g., Daft and Lengel 1986), including audio, visual, and text-based representations. Parallelism addresses the number of messages that can be transmitted simultaneously (e.g., Carte and Chidambaram 2004). Rehearsability is the extent to which the sender can practice or alter the message before it is communicated and reprocessability is the ability of a communicator to review prior interactions. These characteristics may play important, and potentially differing, roles in the context of VIC, and we explore these issues in our interview protocol. Furthermore, we include these characteristics as a part of our initial coding framework to ground our findings in established media theory. As we shall see, MST provides an excellent starting point for examining VIC in virtual teams, but is inadequate to fully describe the media characteristics highlighted by the interviewees. Thus, we augment the theory during the interview coding procedures to more accurately summarize the role of media characteristics in the VIC process.

Methodology

Our methodology included a two-step procedure, following the approach used in prior IS research (Kolfshoten et al. 2012; Venkatesh and Brown 2001). The first step included an examination of extant literature to derive an initial understanding of VIC in virtual teams. The results of this initial step have been summarized in the prior section, and provided guidance for the development of an interview protocol and transcript coding procedure, both of which are discussed next.

Interview Procedures and Sample Description

We used semi-structured interviews, which are appropriate for gaining rich, contextual understanding of phenomena (Myers and Newman 2007). These types of interviews are the most common qualitative data collection method (Myers and Newman 2007; Schultze and Avital 2011) and allow the researcher to loosely follow a set of interview questions, while exploring individual topics of interest as deeply as is empirically useful. The ultimate outcome of the semi-structured interview technique is the co-creation of knowledge and understanding, with the interviewer and interviewee working in tandem to uncover insights and make connections (Fontana and Frey 2000; Myers and Newman 2007). Thus, we used a set of questions—informed by our survey of the related literature—to guide the interviews, but allowed each interview to progress organically. (The guiding interview questions are provided in the Appendix.)

To obtain a rich, contextualized understanding of VIC in virtual teams, we chose to interview working professionals who regularly participate in virtual teams. Participants were recruited from the research team members' professional networks, as well as from students in a professional MBA program in a large university in the eastern United States. One member of the research team conducted all interviews using audio-conferencing software, which ensured relative consistency in interview technique. Each interview was recorded and later transcribed by four trained transcribers. The textual transcripts served as input to the coding exercise described below.

We conducted a total of 35 interviews with participants from a variety of industry sectors, including medical, technology, real estate, and manufacturing, among others. In order to qualify for inclusion in the study, participants had to interact regularly with their co-workers and/or clients via technology. Participants ranged in age from 24 to 55 years old, and worked at companies ranging from small businesses with just a few employees to international companies with tens of thousands of employees. With one exception, all participants were college educated, and a majority had obtained a post-graduate degree of some kind. Interviews varied in length from just under 20 minutes to around 50 minutes, with most interviews concluding in less than 30 minutes. Clearly, our sample is relatively diverse on a number of dimensions. This was done intentionally to provide a broader picture of VIC in virtual teams in a variety of different settings.

Content Coding Procedure

Our coding procedure followed methods employed in prior IS research (Venkatesh and Brown 2001), in which an initial coding framework—based on a plausible set of topics from extant literature—is adapted organically to provide a more complete representation of the topics found in the data. This adaptive approach balances the advantages of more formulaic coding—possible in contexts where strong theory suggests topics and relationships a priori (e.g., Trauth and Jessup 2000)—with the advantages of more inductive forms of analysis in which meaning emerges primarily from the data (e.g., Sarker et al. 2000). Following this balanced approach, our trained coders began with a “start list” (Miles and Huberman 1994, p. 58) that included definitions of categories derived from prior research. Coders were instructed not to “force” a given topic into a category, temporarily categorizing ill-fitting topics into ad-hoc categories to be examined later. After a subset of the interviews was coded, the initial list of categories was re-examined in order to refine category definitions and add categories for commonly occurring ad-hoc categories. This revised set of categories was then used to code several additional interviews, after which the re-examination procedures were repeated with additional, minor refinements. At this point, the research team was satisfied that the main, recurring themes emerging from the interview data were captured in the coding framework, and the remaining interviews were coded using the final framework (see Table 1). Inter-rater reliability was .74, and common discrepancies were then negotiated to consensus by the research team.

Category	Subcategory	Description	Count
Media Characteristics	Richness*	VIC is successful when the medium provides many rich cues for communication.	191
	Rehearsability	VIC is successful when the technology allows the user to carefully think about and edit a message before sending.	105
	Reprocessability	VIC is successful when the technology allows users to review prior messages and process it several times.	56
	Profiling*	VIC is successful when the technology stores and summarizes a history of users' prior interactions for other users to review (e.g., by storing a profile of past activity in a Q&A forum).	39
	Reach*	VIC is affected by the perceived size of the audience, with VIC being more successful (though riskier) when the audience is large.	38
Communicated Identities	Personality-based	The VIC is related to the person's personality (e.g., funny, kind, approachable).	198
	Competence-based	The VIC is related to the person's (professional) competency (e.g., hard worker, smart, etc.).	220
	Personal life*	The VIC is related to the person's personal life (e.g., father, sports fan, Christian).	166
Team Outcomes: Social	Trust	VIC helps the team members feel more trust with the other members.	77
	Social relationships*	VIC within the team allows members to develop social relationships.	70
	Group identification*	VIC creates a strong personal feeling of attachment, belongingness, or membership in the team.	9
Team Outcomes: Task-related	Transactive memory*	VIC generates understanding of what knowledge or skills are possessed by which others on the team.	23
	Effectiveness	VIC enables the team to work faster or more effectively.	49
Individual outcomes	Personal commitment*	When VIC occurs, the individual feels more committed to the team or the organization.	13
	Fulfillment*	VIC is, by itself, fulfilling. It simply feels good to be "known" better on the team.	15
	Impression management*	The person talks about how they can "hide behind" technology or present an "ideal" identity to others.	84
	Prestige*	VIC has positive impacts on reputation or prestige.	84
Note: Subcategories marked with an asterisk were added during the coding process.			

Table 1. Final Coding Framework

Findings

The final coding framework, summarized in Table 1, and its implications constitute a key contribution of this research. To this end, the initial categories, their refinement, and several important themes are

discussed in the sections that follow. We first describe in more detail the initial coding framework and the refinements made during the coding process, which constitute our main set of findings. (Representative quotations for each item in the framework are included in Table A1 in the Appendix.)

Refinements to the Coding Framework

The initial coding framework, derived from prior literature included four main categories, three of which included at least two subcategories: (1) a set of five media characteristics derived from MST (Dennis et al. 2008)—rehearsability, reprocessability, symbol variety, transmission velocity, and parallelism; (2) a pair of subcategories summarizing the types of identities typically communicated by virtual team members—competence-based identities and personality-based identities; (3) a pair of group-level outcomes of identity communication suggested by the identity literature—team effectiveness and trust; (4) a general category for individual-level outcomes. These four categories of constructs served as an efficient starting point for the coding procedure, but the interview data necessitated several refinements and additions.

First, the media characteristics derived from MST (Dennis et al. 2008) proved inadequate to fully describe the relevant media characteristics that play a role in VIC processes. This is not a criticism of MST, which is intended as a broad theory that is applicable in many situations, but rather highlights the need for context-specific theoretical guidance (Hong et al. 2013). Three refinements related to media characteristics were made. First, the concepts of symbol variety, transmission velocity, and parallelism were merged into a single category, named, collectively, *media richness* and defined following prior media richness literature (Daft and Lengel 1986). Though each of the three concepts is clearly distinguished in MST, it proved difficult to differentiate between the concepts operationally. Interviewees were far more likely to discuss media more generally in terms of richness, comparing, for example, email with video-conferencing software.

A second adjustment to the characteristics derived from MST (Dennis et al. 2008) relates to the reprocessability concept. Reprocessability refers to the ability of a communicator to review prior interactions. This concept surfaced, but there was enough variety in the interview data to differentiate between two types of reprocessability. The first loosely follows MST, retaining the name *reprocessability* and referring to (identity) information that is communicated and *explicitly* stored for examination by other virtual peers. A salient example of this type of reprocessable identity communication is a profile page (e.g., on Facebook or LinkedIn) where users can purposefully present information about themselves in the form of pictures, background information, achievements, certifications, and so on. An additional distinct form of reprocessability emerged, related to the buildup of a history of past user interactions over time, which itself becomes a kind of profile. For example, someone unfamiliar with a particular virtual team member could examine that team member's prior activity in the company's knowledge base, deriving an impression of that team member even without the team member explicitly communicating identity information. Thus, we defined a distinct media characteristic, labeled *profiling*, defined as a technology's ability to store and summarize a history of users' prior interactions for other users to review.

A final addition to the list of media characteristics—which we labeled as a technology's *reach*—was not found in MST (Dennis et al. 2008) but emerged very frequently in the data. Reach refers to the perceived size of the audience to whom identity information is being communicated. For example, a virtual team member is far more careful in communicating identities when he feels that the communication will be seen by many other people in the organization (e.g., a knowledge base entry) as compared to a message that is being sent to a single person or smaller group (e.g., an instant message conversation). This relationship is quite logical, and aligns well with concepts found in the impression management literature (Ellison et al. 2006; Krämer and Winter 2008; Leary and Kowalski 1990). Thus, we include this media characteristic as one particularly relevant to VIC in virtual teams.

Several other themes emerged in the data that required changes to the initial coding framework. The category for communicated identities, which was initially comprised of two types (competency-based and personality-based identities) was augmented with a third subcategory that described identities related to non-work roles (e.g., mother, sports fan), which surfaced frequently as a type of identity that virtual team members tend to communicate to others.

The category containing team-level outcomes of identity communication was changed rather significantly through the coding process. There was sufficient diversity in team-level outcomes to justify splitting the

main category into two—the first summarizing “social” outcomes (trust, social relationships, and group identification) and the second summarizing “task-related” outcomes, including general team effectiveness and a more specific reference to *transactive memory*, or the notion that identity communication leads to awareness of who within the virtual team has what skills or expertise (Choi et al. 2010). This significant expansion of the team-level outcomes category was expected as an outcome of the rich, exploratory analysis of the interviews, and provides several insights as to how virtual teams can benefit from identity communication. The implications of these findings will be discussed in a later section.

Lastly, the individual-level outcomes category, which began initially as a single, general category, produced several consistent themes, which warranted a division into four separate subcategories: (1) VIC produced increases in team members’ individual commitment to the organization or team; (2) as suggested in prior identity literature, a key outcome of VIC is the fulfillment an individual derives from feeling “known” or “understood” by others on his or her team; (3) interviewees frequently mentioned using technology features to communicate strategic identities, which outcome aligns well with the impression management literature; (4) relatedly, many interviewees indicated that VIC positively impacted the employee’s prestige or reputation within the team and/or organization. These outcomes align well with prior findings in offline settings, indicating that VIC has the potential to generate the same positive outcomes in virtual settings.

Comparison of Coding Results Across Individual Characteristics

In addition to the interview questions, we also measured several characteristics of the interviewees, including demographic data and a measure of technology self-efficacy (i.e., the individual’s general proficiency with technology). This allows us to compare subgroups of our sample across these individual characteristics, though we report only one such comparison given space constraints. We compared the coding frequencies of transcripts from individuals high in technology self-efficacy with those from individuals low in technology self-efficacy. Summarized results of this comparison are shown in Table 2.

Code	Count Low TSE	Count High TSE	f-test	p-value
Transactive Memory	3	20	9.104	0.006
(Team) Effectiveness	17	31	3.266	0.082
Personal commitment	4	9	3.381	0.077
Fulfillment	1	13	6.878	0.014
Impression management	27	55	15.131	<0.001
Prestige	20	61	12.760	<0.001
Note: TSE = Technology self-efficacy; Comparison statistics were calculated for all codes in our framework, but for brevity, only those significant at $p < .10$ are shown.				

Table 2. Statistically Significant Cross-Comparisons for High vs. Low TSE Interviewees

Discussion

Most modern organizations leverage virtual teams to achieve greater productivity, lower costs, and generally compete effectively in the global economy, but such virtual teams have inherent weaknesses, many of which are the result of constraints present in mediated communication. In order for organizations to make effective use of virtual teams, it is crucial for us to understand how such obstacles can be overcome or minimized. We argue that identity communication, frequently tagged as a key process in offline teams, can significantly benefit virtual teams as well. We further argue that technology characteristics will play a crucial role in supporting identity communication. To investigate these issues, we used a two-stage approach, first surveying the relevant literature for insights into how virtual identity communication occurs, its potential outcomes, and how technology supports and/or affects these

processes. This section summarizes the theoretical and practical contributions of our findings from 35 semi-structured interviews with working professionals.

Theoretical Contributions

Our research makes several important contributions to our understanding of VIC in virtual teams. First, several interesting media-related themes emerged as the coding framework was iteratively refined. MST (Dennis et al. 2008) provided a theoretical footing in our context, but our interview data suggested several refinements to the general theory. As discussed, we merged three MST-derived categories—symbol variety, transmission velocity, and parallelism—under a single category representing media richness. While MST provides conceptual distinctions between the three categories, we found the categories to be indistinguishable in the transcribed interviews, indicating that our interviewees tend to think of media as either “rich” or “not rich.” This may be important for future operationalizations of MST; study subjects may not perceive distinctions among these concepts. Second, emergent themes in the data suggested that we divide the concept of reprocessability into two subcategories, one referring to explicit profile information (as is the case in an internal company directory) and the other referring to the historical “build-up” of a user’s prior transactions or contributions (as in the case of a company knowledge base or code repository). The two subcategories of reprocessability in our final framework provide contextualized special cases of the more general reprocessability concept from MST, and future research can investigate more fully how these constructs enable and/or affect identity communication. Third, the reach construct is a unique concept that surfaced frequently in our interview transcripts. A technology’s reach is clearly relevant in the context of identity communication, and is an excellent candidate for targeted research that investigates this construct and its effects.

Our findings regarding technology self-efficacy comprise another contribution to the study of VIC. Individuals high in technology self-efficacy identified and discussed positive outcomes of VIC—at both team and individual levels—significantly more than interviewees low in technology self-efficacy. This indicates that these technologies do not perform the same for everyone, and that one must be comfortable with a given medium in order to fully leverage its identity communication capabilities. We consider these to be preliminary findings on this topic, and future research can certainly investigate this nuance more fully.

Our findings also have implications for the study of identity communication. We found three categories of identities that working professionals actively communicate in professional settings—competence-based, personality-based, and personal-life identities. These findings provide valuable insight regarding the types of identities that are relevant for professionals, and future work could more specifically investigate the relative importance of each category of identity, as well as the potentially distinct outcomes that can be derived from their communication. Importantly, these identity categories could potentially generalize beyond the virtual teams context to other organizational settings, and other identity researchers could examine their various effects in other (offline) contexts.

Finally, this research contributes to our understanding of the outcomes of VIC in virtual teams. This is new territory for virtual teams research, and we provide initial evidence that many of the benefits of identity communication found in offline settings are similarly salient in the virtual teams context. Future work in virtual teams research can build on these findings to further investigate ways in which virtual teams can derive maximal benefit from identity communication processes. Our findings represent high-level guidance regarding social and task-related outcomes of VIC at the individual and team level, and there remains an opportunity to generate much deeper understanding of these issues and their relevance for virtual team outcomes.

Practical Contributions

Our research also makes important contributions to practice. First, we provide much-needed guidance for managers who are attempting to achieve the benefits of a distributed, virtual workforce while avoiding the numerous potential drawbacks associated with mediated communications. Managers increasingly acknowledge the benefits of identity communication relative to key organizational outcomes, but these benefits may be reduced or lost altogether as organizations implement new collaboration technologies (Thatcher and Zhu 2006). By exploring how VIC is carried out and outlining several positive outcomes

within virtual teams, we show that managers need not necessarily sacrifice identity-related outcomes for the benefits of a virtual workforce. Instead, by incorporating technologies that effectively support identity communication, managers can pursue new strategies to increase performance of, and overcome the difficulties associated with, a distributed workforce.

Our research also has implications for systems designers who help to create the collaboration technologies being used by organizations. Our framework outlines several system features that facilitate identity communication in virtual environments, including richness, rehearsability, reprocessability, profiling, and reach. Systems designers hoping to facilitate identity communication should develop systems that provide a variety of communication cues, provide users sufficient control over their communications, and provide for the ability of others to access explicit identity information and prior communications. Designers of collaborative systems can apply these characteristics, which provide a clear path to facilitating identity communication processes with their technology solutions.

Conclusion

Organizations are increasingly using virtual teams to gain competitive advantages in the marketplace, but managers face a tradeoff between the benefits that such virtual teams provide and their inherent weaknesses. We have examined identity communication in virtual environments, arguing that identity communication can counteract some of the negative aspects of virtual teamwork. Using coded transcriptions from 35 semi-structured interviews with working professionals who participate in virtual teams, we provide valuable exploratory findings regarding the process of identity communication in virtual teams and the role of technology in influencing and enabling these processes. Our findings lay the groundwork for future theoretical development in this relevant area of research, and we argue that further advances in this domain will allow organizations to more effectively leverage a virtual workforce with effective collaboration technologies.

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Appendix

Interview Protocol

Hello, my name is Our research team is trying to understand how people communicate their identities online to individuals with whom they work. In addition, we are interested in how technology helps or hinders individuals as they try to have their identities communicated. To achieve this, I would like to ask you a few questions. Your answers to these questions will be strictly confidential.

First, I'd like to explain what I mean by identities.

Every individual has a variety of identities. For example, a given individual may be Muslim, a mother, a hard worker, an accountant, African-American, a man, a nice person, Spanish, etc. Given the number of identities that they can choose from, people tend to differentiate between those that are most important to them (those that most closely represent who they are as a person) and those that are relatively unimportant identities.

What we are really interested in is technology-mediated interactions (any communication that takes place via technology) and ways in which identity is communicated through those types of channels.

Is this clear, do you have any questions?

Interview Questions

1. What would you consider your most important identities? At work? Outside work?
2. Does it matter to you if the people you work with (coworkers, leaders, subordinates, peers at other companies) know the identities that are important to you? Explain...
 - a. What about those with whom you communicate via technology?
3. Do you actively communicate those identities to people at work through technology?
 - a. If so, what technologies do you use to communicate these identities?
 - b. What features of these technologies enable identity communication?
 - c. What method/technologies do you prefer to use to communicate your identities?
 - d. How do you use these methods to communicate your identities?
 - e. Are there some identities you wish to communicate but are difficult to do so in an online environment? Explain...
4. Are there some identities that you do NOT wish to communicate to people that you work with?
 - a. If yes, what are they?
 - b. Why do you not want to communicate these identities?
 - c. In what ways do you use technology to shield these identities from others?
5. Do you communicate the same identities to everyone or do you communicate some identities to some individuals and different identities to other people?
 - a. If you communicate different identities to different people, why do you do so?
6. When you interact online with people for work, do you try to understand what identities are important to them?
 - a. Why or why not?
 - b. If yes, what provides you with insight into their important identities?

Category	Code	Description	Representative Quote
Media Characteristics	Richness*	VIC is successful when the medium provides many rich cues for communication.	“...with phone calls...you can read that other person's voice, and adjust how you are communicating. I could stay in a joking manner or light-hearted, but they actually don't think I was joking, I can obviously come back and say I was joking with that. In email, you cannot do that.”
	Rehearsability	VIC is successful when the technology allows the user to carefully think about and edit a message before sending.	“[With email] I can think about it, write it, re-write it, kind of go through a process before it's sent out...and because I can do all of that I can really shape the identity that I want to portray a lot easier than if I'm having a face to face conversation where things are a little more impromptu.”
	Reprocessability	VIC is successful when the technology allows users to review prior messages and process it several times.	“I think if somebody, you know, read through a list of my tweets they would see a bunch of stuff about programming...about video games and about my family so you know again its pretty clear to see like the topics I talk about and maybe the content itself in part helps identify me.”
	Profiling*	VIC is successful when the technology stores and summarizes a history of users' prior interactions for other users to review (e.g., by storing a profile of past activity in a Q&A forum).	“...whenever I'm using our internal bug tracking tool and I file stuff that I know will be read...I feel this need to make sure that I don't save anything that would make me look really really dumb. And I think the only form of identification that I have in that system is my name and if any body looks me up by name they can see anything that I have done and you know see the great things or the really stupid things that I have said.”

	Reach*	VIC is affected by the perceived size of the audience, with IC being more successful (though riskier) when the audience is large.	“when I know that that's something that needs to go to a manager that will likely get forwarded to another manager and another manager, I know that I really need to take my time, make sure that it is well worded, etc., providing that legitimacy, making sure that I don't sound like an idiot.”
Communicated Identities	Personality-based	The VIC is related to the person's personality (e.g., funny, kind, approachable).	“...there's a social aspect or element where I want them to feel like I'm someone they can share a joke with or someone they can feel free to chat [with] if their school just beat our school or something.”
	Competence-based	The VIC is related to the person's (professional) competency (e.g., hard worker, smart, effective time-management).	“...you want to look professional” ... “a good project manager who can get things done.”
	Personal life*	The VIC is related to the person's personal life (e.g., father, sports fan, Christian).	“I probably have fifty pictures of my kids in there.”
Team Outcomes: Social	Trust	VIC helps the team members feel more trust with the other members.	“I have to communicate those traits because it helps employees, they come to me if there's a problem, they know there's an open door, and they can come and talk to me. I've kind of set those characteristic out there already.”
	Social relationships*	VIC within the team allows members to develop social relationships.	“...it helps you get through some of the hard stuff but it also helps you want to work with this people if you recognize that they are person first...you feel like you have a connection with this person that y u are working with.”
	Group identification*	VIC creates a strong personal feeling of attachment, belongingness, or membership in the team.	“We have good team comradery as a result of those identities, I feel.”

Team Outcomes: Task-related	Transactive memory*	VIC generates understanding of what knowledge or skills are possessed by which others on the team.	“if I ever need to get something done I’ll just say like ‘oh I actually know somebody over on that team’ and so everybody from my team kinda sees me as somebody who says like oh you know let me talk to [him] because he can probably get access to x, y, and z. or he knows x, y, and z.”
	Effectiveness	VIC enables the team to work faster or more effectively.	“In order for you to effectively do that, you have to understand some of the identities of your coworkers.”
Individual outcomes	Personal commitment*	When VIC occurs, the individual feels more committed to the team or the organization.	“I felt the responsibility to the project team that I was managing to take all of their work and portray it in a certain way that matched my identity.”
	Fulfillment*	VIC is, by itself, fulfilling. It simply feels good to be “known” better on the team.	“I like them to perceive me the way that I want to be perceived because it makes me feel better and more confident.”
	Impression management*	The person talks about how they can “hide behind” technology or present an “ideal” identity to others.	“I think the closer you are to being impromptu I think it becomes more difficult...as an example, on Facebook, you can definitely choose what you show on there, what you don't show. If something is shown that you choose not to show anymore, or you feel like it may kind of steer people towards the wrong identity, then you can easily take it down.”
	Prestige*	VIC has positive impacts on reputation or prestige.	“...the benefit there is I become the go-to guy and I gain a bit of respect perhaps and that sort of thing from managers to colleagues.”
Note: Subcategories marked with an asterisk were added during the coding process.			

Table A1. Expanded Coding Framework with Representative Quotes

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