



# Meanings of communication technology in virtual team meetings: Framing technology-related interaction



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## ABSTRACT

Communication technology is an essential part of virtual teams in working life. This article presents a qualitative study on the meanings of communication technology in virtual team meetings. The study was conducted by examining frames of technology-related virtual team interaction. Observational data was gathered from six expert team meetings. Technology-related communication episodes (N = 88) were identified from team interaction and then analyzed by means of frame analysis. Four frame categories were found: the *practical frame*, *work frame*, *user frame*, and *relational frame*. Team members talked about technological properties and functions as well as giving and receiving technological guidance. They also discussed technology in relation to work tasks, contemplated technology users' attributes, and built and maintained relationships with technology. The results indicate that virtual team members give meanings to communication technology while interacting. Communication technology has several meanings—it is seen as a tool for work, a reason for uncertainty, a useful benefit, a challenge, an object of competence, an entity of technical properties, a subject of guidance, a way to express closeness, and a shared space. The results presented in this article deepen our understanding of the role communication technology plays in the day-to-day interaction of virtual teams. The results recommend developing both technological systems and team members' ways of using them, as well as providing opportunities to negotiate the meanings of technology and thus avoid frame disputes. In addition, ensuring that virtual teams use technological systems that support their unique communicational needs is suggested.

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## 1. Introduction

Virtual teams are common in many modern organizations. They have a unique ability to work across geographic and temporal boundaries throughout organizational structures (Berry, 2011; D'Souza and Colarelli, 2010; Potter and Balthazard, 2002). An increasing number of employees are members of virtual teams, as more than 60% of multinational organizations use virtual teams and the number will most likely continue to grow in the future (Gilson et al., 2015). According to the definition established by Lipnack and Stamps (2000), virtual teams are relatively small, task-oriented groups of individuals who are, at least to some extent, distributed and mostly work in technology-mediated ways toward a common goal. Virtual team communication is always, to some extent, technology-mediated, and appropriate communication technologies as well as ways to use technology are essential for successful team interaction (Hovde, 2014). However, the effect of communication technology on virtual teams' work and efficacy has been debated for many years, and still some contradictions are apparent in the results (Gilson et al., 2015; Purvanova, 2014).

Previous research seems to agree that communication technology in virtual teams is affected by users' attitudes and perceptions (Purvanova, 2014). Therefore, as communication technology undoubtedly plays a relevant role in virtual team meetings, it is crucial to understand the meanings attached to it. These meanings portray how technology is perceived, valued, and experienced, and thus affect the successful deployment of technology (Davidson, 2006; Fuller et al., 2016). Seeing the sensemaking process of communication technology in work life teams as only rational and pre-given has long since been replaced with more social and interpretive viewpoints. Meanings of technology are affected by the interaction of users as these meanings are expressed and negotiated in their communication (Crider and Ganesh, 2004).

Meanings can be explored with the concepts of *frames* and *framing* (Davidson, 2006; Dewulf et al., 2009; Goffman, 1974). Framing research examines how individuals define social reality through frames. Frames can be defined as both structures and schemas in the mind (cognitive frames), and are interpreted and represented in interaction (interactional frames) (Dewulf et al., 2009). Research on *technology frames* concentrates on the interpretations and definitions of information technology in an organizational context (Bjørn and Ngwenyama, 2010).

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Orlikowski and Gash (1994, p. 178) have described technological frames as: “the subset of members’ organizational frames that concern the assumptions, expectations, and knowledge they use to understand technology in organizations. This description includes not only the nature and role of the technology itself, but the specific conditions, applications and consequences of that technology in particular contexts.” Technology frames are the knowledge and expectations that guide individuals’ interpretations of technology, as well as their actions and interaction with it (Davidson, 2006). In other words, technology has different meanings attached to it by the users, which influences the way they use the technology.

This article contributes theoretically and empirically to these traditions in three ways. First, we apply frame analysis to interaction in team meetings, concentrating on technology frames and framing in team interaction. This kind of application has not been done previously; studies on technology frames have exclusively focused on the organizational level in aiming to understand how users perceive technologies as part of an organization, rather than as part of a virtual team (Bjørn and Ngwenyama, 2010). Second, we use frames and frame category analysis to better understand what meanings are given to communication technology in authentic virtual team communication. Authentic, naturally occurring data allow us to study the realities of virtual teams in real working life and thus better understand how technology should be taken into consideration when studying virtual teams and planning virtual team work. Third, although versatile conferencing platforms are increasingly common in virtual teaming, previous research has not yet focused on them but, rather, mainly on more traditional technologies like email and discussion boards (Gilson et al., 2015). In this article, we focus purely on modern conferencing platforms that are currently used in the everyday working life of virtual teams. First, we will introduce the relevant literature and previous studies on virtual teams and their technology-mediated communication as well as on meanings in team interaction and framing. Then we will move on to describing the methods and data used in this study. Finally, we will introduce the findings and, in the end, discuss these findings, their implications to theory and practice, as well as some future research avenues.

## 2. Background

### 2.1. Communication technology in teams

Research has focused on communication technology in organizations from multiple perspectives. For example, studies have examined the adaptation of technology, attitudes toward technology, and technology’s role in enabling diverse communication functions (Gilson et al., 2015). Moreover, a significant number of studies have compared face-to-face communication and computer-mediated communication (Rhoads, 2010). Empirical studies on technology’s role in virtual teams have concentrated on technology’s effect on team performance (Schweitzer and Duxbury, 2010; Van der Kleij et al., 2009), technology-related attitudes and anxiety (Fuller et al., 2016; Luse et al., 2013), technology’s role in international teams (Hovde, 2014), technology’s effect on ingroup dynamics (Plotnick et al., 2016), and perceptions of technology (Crider and Ganesh, 2004). Nevertheless, research has not yet shed light on the meanings of communication technology that become apparent in actual virtual team meetings.

There are multiple technological systems aimed at fulfilling the communicative needs of teams in working life. Group conferencing platforms, shared workspaces, or online meeting tools are common technology in virtual team use because they provide auditory and/or visual connections between team members (Bouwman et al., 2008; Hovde, 2014). Modern conferencing platforms not only enable multiple, often geographically dispersed, participants to communicate simultaneously, but also facilitate multiple communication functions, such as information sharing, negotiating, problem solving and team decision making.

The platforms also usually enable team members to share content, such as text documents, photographs, or web displays.

Group conferencing systems support versatile forms of work and team communication. The effect of technology is, however, not only enabling but sometimes restricting just because of the perceptions of its users. For example, studies have shown that team members with high levels of communication technology anxiety can sometimes participate less, send fewer task-oriented messages, introduce fewer novel topics, and are even rated more poorly by other team members (Fuller et al., 2016). In addition, expectations and previous user experience influence how useful the technology is perceived to be (Troom et al., 2015) and how attitudes toward technology are negotiated during its use (Crider and Ganesh, 2004). Therefore, it is crucial to understand not only the meanings virtual team members assign to communication technology, but also the ways how the meanings are manifested in the team communication.

### 2.2. Technology-related meanings and frames

The constructing and sharing of meanings attached to communication technology have been studied for many years. Twenty five years ago, Fulk (1993) conceptualized how social influence matters in regard to the way individuals perceive communication technology within work life teams. The *social influence model* was a counter to previous theories that emphasized rational thinking in choosing or using technology (Fulk et al., 1990). *Adaptive structuration theory* (De Sanctis and Poole, 1994) presented the assumption that social structures fundamentally affect mediated communication. Also coming from the structuration perspective, Weick (1990) described how sensemaking processes are a natural part of using technology, and how these processes are strongly related to the way users utilize and feel toward technology. Weick (1990) defined technology as an *equivocal*: it can have several possible interpretations. Attitudes toward technology are also frequently regarded as dynamic: team members’ attitudes after working by means of communication technology may differ significantly from the attitudes they held before working with the technology (Crider and Ganesh, 2004; Lewis et al., 2005). Technology-related attitudes in the virtual team context have not been a focus of many recent studies. Communication technology anxiety has, however, been found to strongly affect participation in mediated team interaction (Fuller et al., 2016). Research has not yet shed light on the meanings of communication technology in virtual teams. By filling this gap in the research, we aim to be better able to understand how teams deploy technology and ultimately improve their performance. By understanding the meanings, it is possible not only to reveal the prevailing attitudes and perceptions the users have towards technology, but also to enable the active coordination of the meanings inside a virtual team. Coordinated meanings of technology allow for teams to achieve more successful technology-mediated communication, and therefore, they can lead to better collaboration.

Here, meanings attached to communication technology and manifested in team communication are explored through the concept of *frames*. Framing research is a versatile field of study. Goffman (1974) was one of the first researchers to actively strive toward a clear scientific paradigm of frame (Borah, 2011). However, the concept had already been introduced by Bateson (1972). Goffman (1974) theorized how frames are present in daily interaction, but did not give either clear definitions or methodological tools for observation or analysis (Denzin and Keller, 1981). This aspect of Goffman’s work gives researchers a lot of freedom to develop their subjective interpretations and applications of the framing method.

Consequently, the concept of frames has been defined in many ways (Borah, 2011; de Vreese, 2012; Entman, 1993). However, the basic principles are the same: frames refer to the unseen structures that define social reality in the minds and interactions of individuals. Frames work as the premises of social situations and to clarify the expectations of

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