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Comparing Approaches to Virtual Team Onboarding: the Influence of Synchrony and Cues on Impressions of Leaders During Encounter Phase Organizational Socialization

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COMPARING APPROACHES TO VIRTUAL TEAM ONBOARDING: THE INFLUENCE OF

SYNCHRONY AND CUES ON IMPRESSIONS OF LEADERS DURING ENCOUNTER

PHASE ORGANIZATIONAL SOCIALIZATION

by

Carrie Melissa Jones

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ABSTRACT

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The University of Wisconsin-Milwaukee, 2023
Under the Supervision of Professor Erin Ruppel

Whether fully virtual or a hybrid of virtual and face-to-face teams, more organizations use computer-mediated communication than ever before. Under the right circumstances, virtual team environments have been shown to increase employee satisfaction, retention, and productivity (Gallup, 2020). However, there is also consensus that virtual teams take longer to get work done and miscommunicate more frequently than face-to-face teams (Morrison-Smith & Ruiz, 2020). While there is no silver bullet to resolve these shortcomings, one potential area for intervention is during new employee onboarding. This study tests the hyperpersonal model and social presence theory's application to virtual team onboarding by examining how message characteristics (synchronicity and degree of nonverbal cues) affect new employees' sense of safety and impressions of their managers during their first moments on the job. The study finds no relationship between synchronicity and degree of nonverbal cues on employees' sense of safety or impression of their managers. However, the study finds a marginally significant negative interaction effect between synchronicity and low nonverbal cues on impressions of virtual team leaders' relational communication. Theoretical and practical implications for virtual team onboarding are discussed.

DEDICATION

I dedicate this work to my family—by origin and choice.

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INTRODUCTION

Virtual work, also known as remote work or telework, has rapidly increased over several decades due to technological advancements, business needs during the COVID-19 pandemic, and reduced costs (US Census Bureau, 2022). During this time, some organizations have invited workers to engage in remote work on a case-by-case basis, while others have created entirely remote organizations with members spread around the world and no central headquarters (Vieira, 2017). The COVID-19 pandemic dramatically accelerated this ongoing transformation, by an average of seven years across global organizations (McKinsey, 2020). According to the US Census Bureau, between 2019 and 2021, "the number of people primarily working from home tripled from 5.7% (roughly 9 million people) to 17.9% (27.6 million people)" (US Census Bureau, 2022). Many organizations plan to continue remote work indefinitely, increasing the number of virtual or semi-virtual teams in the foreseeable future (Bartik et al., 2020; Bloom, 2020).

Virtual work is no panacea, however, even for knowledge workers who can complete tasks remotely. Virtual teams (VTs) struggle with a variety of communication issues, which hinder team outcomes. For instance, past research indicates that VT communication, on the whole, results in less information sharing (Mesmer-Magnus et al., 2011), fewer informal interactions (Morrison-Smith & Ruiz, 2020), more incoherent messages (Andres, 2012), and less trust and awareness of coworkers (Morrison-Smith & Ruiz, 2020). These issues result in less productive teams and require research-informed solutions. Further, it generally takes longer to get work done on VTs (Graetz et al., 1998; Hollingshead, 1996; Malhotra et al., 2001), which can be explained by several factors, including asynchronicity (communication that occurs at

differing times versus concurrently) and longer times to build interpersonal relationships online due to missing nonverbal cues, even with video (Varhelahti & Turnquist, 2021; Walther, 1996).

To address VTs' communication shortcomings, there is a need to design and test interventions to increase efficiency, trust, and improved relationships between team members. Interventions can be implemented in myriad ways, but VT leaders, or team managers, are often the primary people responsible for introducing a new employee into the new job. As such, they are linchpins for future outcomes and therefore may be prime agents for positive change in VTs. VT leaders have a primary role to play in setting the cultural tone and acclimating new members to the virtual environment (Newman et al., 2020; Vătămănescu et al., 2022); leadership generally has been found to be crucial across organizational contexts, as it impacts team performance, worker motivation, and innovation (Antonakis & House, 2014). By extension, leaders' communication is a critical component of team outcomes. As Newman and colleagues assert, "communication is one of the most important tools a leader has to improve team performance" (2020, p. 454)—both for in-person teams and VTs. Thus, focusing inquiry on VT leader communication can have outsized impacts on future team outcomes. Therefore, this study aims to identify how specific characteristics of initial communication by VT leaders can improve new virtual employees' sense of psychological safety, social and task attraction, and perceptions of relational communication of their VT leaders.

To further understanding of VT functioning and improve outcomes for both employees and team leaders on VTs, this study focuses on one specific area of VT leader communication—new hire onboarding—to understand how specific characteristics of onboarding messages by VT leaders may improve or impair new VT employee experience. Onboarding has a significant impact on employee outcomes (Sani et al., 2022; Snell, 2006) and is often overwhelming and

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stressful for new employees (Caldwell & Peters, 2018), as they work to integrate a bevy of information and assimilate into a new work culture. According to Cesário & Chambel's (2019) approach, the typical onboarding phase contains three components—a corporate welcome, coworker welcome, and manager (or team leader) welcome—that contribute to organizational engagement and organizational commitment. This study concentrates specifically on the manager (VT leader) welcome so that interventions can be designed and immediately implemented by VT leaders when welcoming new VT members. This study therefore extends an already-important area of study, illuminating insights for improving knowledge-sharing, cohesion, and trust within the increasing number of VTs worldwide.

LITERATURE REVIEW

This literature review begins by examining the definition and evolution of the concept of VTs. Then it describes the challenges of communication on VTs, including power dynamics and trust-building. Next, it reviews new employee onboarding broadly before situating onboarding within the study of VTs. Then it reviews the theory of social presence and its bearing on VTs (specifically on the factors of team psychological safety, interpersonal attraction, and relational communication), followed by a description of the hyperpersonal model and its context within the present study. Finally, the literature review concludes with hypotheses and research questions that anchor the study and establish its relevance to current theory and practical applications on VTs.

Virtual Teams

At their simplest level, teams are defined as groups of interdependent individuals who work toward shared outcomes (Hollenbeck et al., 2012; Ilgen, 1999). Within this broad

definition, teams have been classified in many ways. One of the earliest taxonomies for teams (Sundstrom et al., 1990) proposed a four-type team taxonomy including the organizational context, boundaries, team development, and team effectiveness. Though Sundstrom and colleagues' (1990) study is widely cited, it falls short when attempting to classify teams that overlap different categories or that have unclear dimensions (Hollenbeck et al., 2012). Other categorization systems have been created and often failed to be standardized as well (Cohen & Bailey, 1997; De Dreu & Weingart, 2003). Hollenbeck and colleagues discovered over 40 different types of teams (2012, pp. 85–87). Because team characteristics vary widely, the current study defines the teams under consideration as groups made up of paid organizational team members who are expected to work together to complete projects that contribute to an organization's larger goals. Within this context comes a natural power dynamic, given that team members are likely to rely on the organization for income and potential employment benefits, something not true for groups outside this VT context. The present study focuses on a new member joining a VT and will not give context to types of team management structures, size, and will focus on teams of knowledge workers, rather than teams performing physical or manual labor. This study therefore focuses broadly on VTs embedded within the boundaries of an existing organization (Kozlowski & Ilgen, 2006), given constant—not varied—contextual factors.

Virtual teams are teams that interact via computer-mediated communication (CMC). CMC is any human communication that occurs through information and communication technologies (ICTs), such as computers, wireless networks, or cell phones (McQuail, 2005). Over the last 15 years, VT research has proliferated (Gilson et al., 2015; Hertel et al., 2005; Martins et al., 2004). The definition of the term "virtual team" varies across the literature, but

mostly in regard to specific details rather than core components (Gilson et al., 2015). Early research often sought to declare teams as either face-to-face (FtF) or virtual with no in-between (Guzzo & Dickson, 1996). Other scholars have argued that in today's networked world, virtuality is a common feature of *all* teams, only differing by the degree and frequency of CMC usage between team members (Griffith et al., 2003; Kirkman et al., 2013). Still others consider that VTs need only communicate virtually the majority of the time to be considered a VT (Chudoba & Maznevski, 2000; Jarvenpaa & Leidner, 1998) and others have created virtuality continuums to measure the degree of virtuality on teams (Schweitzer & Duxbury, 2010). Despite these variances in operationalizing VTs, two consistent dimensions of the core definition of VTs include geographic dispersion and technology usage (Gilson et al., 2015).

Acknowledging that the degree of virtuality will differ based on factors such as team dynamics, task type, and location, this study aligns its definition with Martins and colleagues (2004), who contend that VTs are teams "whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish interdependent tasks" (p. 808). Past studies of VTs reveal conflicting findings about the impact of virtuality on affective outcomes such as member satisfaction and social attraction. While some have found that virtuality increases team member satisfaction (Chi et al., 2012; Henderson, 2008), others have found that high levels of virtuality reduce team satisfaction (Benbasat & Lim, 1993; Fjermestad, 2004). Moderating variables between virtuality and team member satisfaction have been identified, such as time, team size, and social context (Martins et al., 2004). That is, teams with more time, larger size, and more diversity and liking between members tend to report more positive outcomes (Martins et al., 2004). To reduce intervening factors, this study will not

specify the degree of virtuality of the team but will make clear that the entire team works remotely.

Dominance and Trust in the Virtual Workplace

One of the foremost VT communication drawbacks concerns status and dominance in VTs, or perceptions of team member symmetry. Dominance perceptions are important to team research because, at the interpersonal level, "dominance relates to attempts to lead, argue, persuade, and… perceptions of influence in the group decision-making process" (Peña et al., 2007, p. 314). Therefore, understanding how team members perceive VT leaders' dominance can help us understand the quality of VT outcomes. VT asymmetry contributes to lack of creativity, group cohesion and attraction (Dryer & Horowitz, 1997; Ocker, 2007; Peña et al., 2007), which may threaten team outcomes. While early researchers hoped that VTs would "level the playing field" by reducing nonverbal status cues like gestures, gender, and age (Kiesler et al., 1984; Rains, 2005), more recent research has discovered that perceptions of dominance increase on VTs with members of equal status compared to face-to-face (FtF) or hybrid teams (Agnes et al., 2022; Ocker, 2007; Peña et al., 2007). The present study seeks to understand how perceptions of dominance, as measured through relational communication perceptions, may be shaped in initial contact between VT leaders and their employees.

Team leaders can deliberately adapt their communication to reduce perceptions of VT power asymmetry. This is especially necessary for those in formal leadership positions, who have explicit power over new employees and their experience at work. This study assesses impressions of VT leaders' relational communication using the Burgoon & Hale (1987) scale, which includes measures of dominance, to understand if perceptions of VT leader dominance are impacted by communication channel features.

Another VT communication drawback concerns trust within VTs. Trust requires the belief that each group member will keep their commitments, maintain positive collective intentions, and contribute equally (Zaccaro & Bader, 2003). Team trust and cohesion are critical factors to team performance (Mach et al., 2010). Team trust is created through high-quality communication (Chang et al., 2014). Some studies indicate that trust is hard to establish on VTs (Breuer et al., 2016; Choi & Cho, 2019). However, other studies suggest that VT communication may enhance trust and reduce conflict, especially within multiculturally diverse teams. This is because virtual communication reduces perceived conflict by reducing emphasis on differences between team members (Kankanhalli et al., 2006; Shachaf, 2008; Wakefield et al., 2008; Walther, 2009). This effect mirrors the effects described in the hyperpersonal model (Walther, 1996), in which participants spend more time crafting their self-presentation and communication receivers assume greater homogeneity, creating a self-reinforcing positive feedback loop between dyadic conversational partners. It therefore remains unclear whether VT communication reduces conflict and increases trust. This study examines two of the primary building blocks of trust: impressions of VT leaders and feelings of safety when onboarding onto a new VT (Breuer et al., 2016; Choi & Cho, 2019).

As impressions of dominance and feelings of trust are areas of drawbacks within VTs, this study seeks to extend the present research into potentially deep-rooted issues within VTs beyond the commonly studied outcomes of impressions of team effectiveness or information sharing: psychological safety, perceptions of the team leader's relational communication attributes, and interpersonal attraction toward the team leader. Psychological safety is "a shared belief amongst individuals as to whether it is safe to engage in interpersonal risk-taking" (Newman et al., 2017). Psychological safety is a critical component of team communication and

learning behavior in FtF teams (Edmondson, 1999). Research has engaged with psychological safety on FtF teams and communities (Edmondson, 1999; Edmondson et al., 2001; Kirkman et al., 2013) and indicates that psychological safety relates to team effectiveness. Therefore, the intersection of psychological safety and VTs is a promising area for further inquiry as it can impact the overall effectiveness of a team. Perceptions of relational communication of the team leader are important because these perceptions affect impressions of the new team leader's likeability, trustworthiness, power, and sincerity, among other attributes (Burgoon & Le Poire, 1999), and can help reduce perceived power asymmetries and assess the future quality of relationships between VT leaders and team members (Dryer & Horowitz, 1997; Ocker, 2007; Peña et al., 2007). Finally, interpersonal attraction on VTs is made up of two aspects: task and social attraction (McCroskey & McCain, 1974). Like relational communication, the strength of a new employee's attraction toward their VT leader can help assess future relational quality and outcomes on VTs.

Onboarding on Virtual Teams

Understanding the link between VT outcomes and communication inputs requires understanding VT formation as a communication process and where onboarding fits into this process. Most VTs are formed and are composed of members with existing relationships as well as newcomers. It is important to understand the newcomer experience specifically so that organizations can set up newcomers for the best possible outcomes both short- and long-term. Therefore, in this study, I focus specifically on one aspect of the communicative process of VT formation: the initial contact during onboarding of a new employee to an existing VT, one part of the extended organizational socialization process (Jablin, 1987).

Organizational socialization refers to the process by which newcomers familiarize themselves with, adjust to, and become part of an organization (Ashforth et al., 2007; Bauer et al., 2007; Chudoba & Maznevski, 2000). The organizational socialization process is integral to job engagement and retention (Ashforth et al., 2007). Organizational socialization is a continuous constructive process through which the organization impacts the individual and the individual impacts the organization (Ashforth et al., 2007). Organizational socialization is understood to be composed of several stages. The process can be roughly broken down as: anticipatory socialization (vocational and organizational), encounter (during which onboarding occurs), metamorphosis, and sometimes exit (Ashforth et al., 2007; Jablin, 1987; Kramer & Miller, 1999).

The initial stages of organizational socialization, both the anticipatory socialization stage and encounter stage, have received much attention from researchers (Bauer et al., 2007). The increased attention to studying new role acclimation is likely a result from an increase in job mobility and job-hopping by millennial workers (Gurchiek, 2018), which sharply increased amid the global COVID-19 pandemic (Roose, 2021). The organizational anticipatory socialization stage occurs before an individual formally joins an organization and spans a broad array of experiences, such as when an applicant learns about an organization through recruiting messages or other publicly available information, during job interviews, or conversations with other organizational members (Barge & Schlueter, 2004; Jablin, 1987, 2001; Kramer & Miller, 1999; Porter et al., 1975). More broadly, vocational anticipatory socialization occurs through popular depictions of specific careers, through family, teachers, or others in their lives (Myers et al., 2011). For this study, participants will be asked to imagine that the job is a good fit for them and

that they are a good fit for the job, to reduce variances in perceived levels of maturity of their vocational and organizational anticipatory socialization.

The encounter stage, which includes the initial contact made during the onboarding period (what this study specifically focuses on) then begins at the initial entry point into the organization after this anticipatory period (Jablin, 2001). Onboarding is the process through which new employees are introduced to their new company and adapt to their environment (Snell, 2006). Onboarding includes welcoming communication from corporate—commonly human resources—leaders, managers, and coworkers (Cesário & Chambel, 2019). This study will look specifically at manager welcoming communication during initial contact of this onboarding phase.

The length of the total socialization process to reach metamorphosis has not been agreed upon, though it varies from a few weeks to 18 months to ongoing (Bauer et al., 1998; Bauer & Green, 1994; Harvey et al., 2010). The process is even murkier for VTs, where newcomers often have to create and implement their own informal socialization tactics (Woo et al., 2022). While socialization occurs whenever a boundary is crossed within an organization (e.g., a promotion, a change of location), much quantitative research up to this point has focused on team newcomer socialization, likely because it is such a critical point in the process and because the other boundaries can be murky and ill-suited to quantitative methods (Ashford & Nurmohamed, 2012). To ensure the boundaries are clear, this study will focus specifically on the initial VT leader-employee contact during employee onboarding during the earliest part of the encounter phase when new employees have just joined the organization and are meeting their VT leader for the first time (Carr et al., 2006).

Intentional organizational socialization interventions, sometimes called institutionalized socialization tactics, accelerate newcomer adjustment and increase job mastery and organizational commitment (Saks & Ashforth, 1997). Altogether, six bipolar tactics make up the constellation of potential activities during employee onboarding (Van Maanen & Schein, 1977): collective vs. individual, formal vs. informal, sequential vs. random, fixed vs. variable, serial vs. disjunctive, and investiture vs. divestiture (Ashforth et al., 1997; Jones, 1986; Van Maanen & Schein, 1977). Collective tactics involve grouping newcomers together whereas individual tactics involve individuals seeking information and working in isolation (Van Maanen & Schein, 1977). Formal tactics involve separating new workers from veteran workers so they may undergo training whereas informal tactics blend newcomers and veterans together without formal guidance (Van Maanen & Schein, 1977). Sequential tactics take a new team member through step-by-step experiences versus a random series of experiences (Van Maanen & Schein, 1977). Fixed tactics follow a pre-determined calendar that takes newcomers through each experience one by one whereas variable tactics do not follow a set schedule (Van Maanen & Schein, 1977). Serial tactics allow more experienced workers to train newcomers (Van Maanen & Schein, 1977). Investiture recognizes and rewards the newcomer's performance and belonging in the organization (Ashforth et al., 2007).

Collective, formal, sequential, fixed, serial, and investiture tactics have empirically been shown to increase social integration (Bravo et al., 2003; Gruman et al., 2006), well-being (Calderón-Mafud et al., 2018), and knowledge transfer (Jansen et al., 2005) on teams. This study will extend this past research further into the field of communication by looking specifically at how changes in formal VT leader communication tactics impact impressions of interpersonal attraction, relational communication, and psychological safety on VTs specifically.

These six onboarding tactics can be implemented through three categories of socialization techniques: content, context, and social techniques (Bauer et al., 2007; Jones, 1986). Content techniques offer clear training and onboarding education and include the *collective* and *formal* tactics. Context techniques offer learning about how to complete tasks via formal on-the-job training and include *sequential* and *fixed* tactics. Social techniques give feedback from organizational insiders to newcomers in order to guide them through interactions with the organization and include the serial and investiture tactics (Ashforth & Saks, 1996; Bauer et al., 2007).

As Cable and Parsons reason (2001), different tactics relate to different organizational outcomes. Though their longitudinal study looked only at the outcome of person-organization fit, it did empirically suggest that social and content tactics were related to person-organization fit but context tactics do not. Given that each of these tactics relate differently to person-organization fit, it is likely that they also relate differently to other outcomes as well, such as psychological safety and interpersonal attraction (social and task attraction) toward a new leader, important areas for this present study. Psychological safety is the extent to which people feel they are safe to take risks within their work environment, which is related to team creativity and learning behaviors (Kark & Carmeli, 2009).

This study will focus on formal *social communication within serial tactics* and its impact on psychological safety and social and task attraction to a VT leader. Given the goal of helping organizations better onboard virtual employees, this study aims to go beyond programmatic-level recommendations and instead offer a theoretical lens (discussed in the following two sections) through which organizational leaders can more deeply understand how to adjust, if needed, their communication tactics for onboarding new VT members.

Furthermore, this study focuses on initial interactions between VT leaders and new employees to reveal how messages from managers impact employee impressions of their immediate leader, not the entire organization. As posited by Katz (1980), brand new employees' goals center around understanding interpersonal and group norms (as well as task requirements), rather than understanding the overall organizational culture. Thus, this study responds to the call for more localized, team-specific socialization research (Ashforth et al., 2007; Woodrow & Guest, 2020). Localized socialization efforts studied within business literature include techniques such as appointing team leaders, peer coaches, leaders in individual departments, and mentors (Cai, 2014; Liu et al., 2021; Mitchell, 2010; van Kleef, 2018). This research specifically looks at VT leader communication behaviors and how they are received by new employees so that communication scholars may effectively guide organizations in how their leaders can welcome newcomers, which is crucial in the early days of employment. In this way, this research contributes to a practical area for VT leadership communication.

The purpose of this research is to incorporate further CMC theory into the study of VT socialization to determine the potential strengths of different channel characteristics and levels of synchronicity to be used by leaders to welcome newcomers in their first social interaction via organization-owned CMC. The study is a starting point, and one that is likely far-reaching. Newcomer socialization by leaders is nearly universal among new hire onboarding, and the results can suggest a host of factors that contribute to positive outcomes for VT socialization. This study therefore examines the relationships between characteristics of VT employee onboarding communication, psychological safety, and attraction toward the employee's VT leader.

Views of Social Presence's Outcomes on Virtual Organizational Socialization

Virtual team communication is any communication that occurs via CMC. Within the study of CMC and organizational socialization, there are two disparate, though somewhat overlapping, schools of thought: (a) social presence theory, which posits that more nonverbal and synchronous communication leads to more positive outcomes due to increased feelings of social presence in the interaction (Short et al., 1976), and (b) the hyperpersonal model, which posits that fewer nonverbal cues and more asynchronous communication allow for the development of highly positive impressions that result in more positive outcomes (such as attraction, safety, and increased attraction to communication partners) (Walther, 1995, 1996). Both theoretical perspectives are illuminated below.

Social Presence Theory

Social presence theory describes the mechanisms through which ICT users feel a sense of shared environment even while they are not co-located (Biocca & Harms, 2002). Baron-Cohen and Swettenham (1996) assert that humans have a neurocognitive mechanism called a Shared Attention Mechanism that allows people to model others' minds and allocate attention to their communication partner(s), which creates a felt sense of shared space and attention. Existing research traces social presence studied within communication back to the 1970s within a social psychology symbolic interactionist paradigm (Biocca et al., 2003; Short et al., 1976), which explained that communication partners are constructed through interaction, specifically conversing. In this way, the term was extended to define a social psychology of CMC.

CMC greatly complicates the concept of social presence. First, not all communication partners need be human, as past studies indicate that humans tend to apply similar heuristics to artificial intelligence in human-computer interaction simulations (Nass & Moon, 2000). Second, social presence is no longer binary, but rather exists along a continuum of copresence (Goffman,

1959). Several factors contribute to social presence within CMC environments, most notably visual cues, such as avatars, images, video, or shared digital space like forums that help users to feel an embodied sense of presence with their communication partner (Biocca et al., 2003).

Higher social presence within the organizational context has been shown to increase outcomes such as reduction in uncertainty, stress, and distrust (e.g., Altschuller & Benbunan-Fich, 2010; Sproull & Kiesler, 1986), which creates positive performance (Altschuller & Benbunan-Fich, 2010). Thus, increased social presence has been correlated with positive organizational socialization outcomes. These positive outcomes suggest that CMC interactions with higher social presence features, such as synchronicity and more nonverbal cues, can lead to other potential mediating outcomes to performance and retention, such as psychological safety and interpersonal attraction.

Within CMC research, social presence is rarely studied as an outcome. Rather, it is typically measured as a mediating factor of other outcomes (Biocca et al., 2003), discussed in the next section. The most widely used measure of social presence is Short and colleagues' (1976) measure, which measures the *medium*'s social presence and does not acknowledge social presence can be a transient state impacted by individual relationships, familiarity with the medium, and purpose of use. In this study, I manipulate the elements of synchronicity/time and nonverbal cues. All other elements of the presence of the communication interaction remain the same from participant to participant.

The Hyperpersonal Model

The hyperpersonal model offers an alternative viewpoint about how social presence and the communication aspects of increased synchronicity and nonverbal cues could impact organizational socialization outcomes. The hyperpersonal model was developed by Walther

(1995, 1996) to explain how text-based computer-mediated interpersonal communication (CMC) could elicit deeper intimacy, unity, and affinity compared to FtF communication, where social presence is a given. Walther articulated as early as 1992 that some people communicating via CMC (email with few nonverbal cues) formed strong impressions of each other and created deep intimacy and identification, two of the components of social presence described by Biocca and colleagues (2003). As a result, for these CMC participants, their felt sense of presence was deeper than FtF. In the case of VT organizational socialization, the hyperpersonal model might therefore help explain how and under what conditions new employees feel safer communicating with VT leaders in low-cue versus high-cue CMC environments.

Some potential conditions to explore when the hyperpersonal model is useful might include during times of high uncertainty that would require intense self-monitoring, such as during an initial meeting, during communication with superiors where status difference may be heightened, or in a large or dissimilar group of people (Krebs et al., 2006). The hyperpersonal model does not contradict social presence theory, but rather explains how social presence might uniquely function via CMC to amplify the leaner cues and fill in gaps in communication on behalf of communication partners.

The hyperpersonal model describes CMC as a four-component model composed of sender, receiver, channel, and feedback. Specifically, Walther (1996) posits, CMC tends to lead to higher quality interactions because senders can more effectively manage impressions and receivers tend to idealize partners, assuming similarity from minimal cues. Additionally, CMC channels facilitate "editing, discretion, and convenience" (p. 2539) and the ability to remove nonverbal cues that might otherwise distract the receiver. The hyperpersonal model suggests that, together, these factors create a powerful feedback loop that reinforces the positive aspects of

CMC interactions for both senders and receivers. This study aims to improve understanding of how hyperpersonal communication might function within a VT context, where culture, existing norms, power dynamics, and collaboration on shared projects all may impact how employees communicate with one another. For this study, all these elements are controlled for by creating one imaginary organizational scenario that all participants experience.

Empirical results indicate that the hyperpersonal model cannot be applied universally across all CMC channels, contexts, and types of interactions (Nowak et al., 2005; Ruppel et al., 2017). In some contexts, including text-only communication and time-unlimited communication within dyads (Walther, 2007), CMC does engender greater intimacy. In other contexts, CMC fails to achieve a deeper level of intimacy and self-disclosure than FtF, such as via time-limited interpersonal communication and in group and interpersonal communication in which there exist contradictory impressions or unwarranted claims (Nowak et al., 2005; Ruppel et al., 2017; Scott & Fullwood, 2020). The hyperpersonal model has been supported within many communication contexts and used to explain diverse CMC phenomena, such as interpersonal communication within online dating apps where intimacy increases quickly (Antheunis et al., 2020; Zhao & Yan, 2022), interpersonal social support messages (Rains et al., 2019), intrapersonal communication and self-presentation on Facebook profiles that increases users' self-esteem (Gonzales & Hancock, 2010), and one-to-one email exchanges where communication partners alter their requests to be more polite to those who are attractive or who occupy different status positions (Duthler, 2006; Walther, 2007). The hyperpersonal model has been applied in interpersonal communication as well as within group communication (Nowak et al., 2005; Peña et al., 2007). However, the model has only sparsely been studied within online communities such as Reddit, and it has rarely been extended into VT contexts (for an exception that studies a team on *Second*

Life, see Sherblom et al., 2018). This study will therefore extend the current research on the hyperpersonal model into organizational communication literature.

Hypotheses and Research Questions

Synchronicity Hypotheses

Based on social presence theory and the hyperpersonal model, the present study explores the ways that manager-subordinate relational synchronous versus asynchronous CMC impacts newcomer psychological safety, interpersonal attraction, and assessments of relational communication. Social presence theory posits that synchronous communication creates immediacy, which results in an increased sense of presence with the communication partner (Gunawardena & Zittle, 1997). This increased presence results in a reduction in uncertainty, stress, and distrust (Srivastava & Chandra, 2018). Therefore, synchronous communication would be preferable for onboarding an organizational newcomer.

The hyperpersonal model, on the other hand, would posit that asynchronous communication would be preferable for onboarding an organizational newcomer. Because the newcomer could spend time crafting their self-presentation and would assume more similarity between themselves and the VT leader than they would FtF (Walther, 1996), asynchronous communication via CMC would engender greater psychological safety, interpersonal attraction, and impressions of relational communication.

Given that this onboarding will be between a manager and subordinate, it is important to consider how status differences might impact the communication outcomes. Given that VT communication tends to increase the perception of status differences (Ocker, 2007; Peña et al., 2007), it is likely that participants will prefer more time to construct self-presentation when greeting their higher-status managers, in alignment with Walther's (2007) findings that mirror

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communication accommodation theory's prediction that communicators adjust their communication strategies to accommodate for high- and low-status receivers, often editing more (especially female senders to high-status female receivers) when the receiver has a higher status or is seen as more desirable than the sender. Thus, I hypothesize that asynchronous (untimed) communication would be preferable for newcomer onboarding.

H1: CMC users report a) more psychological safety, b) more interpersonal attraction, and c) higher relational communication impressions in asynchronous (untimed), compared to synchronous (timed), virtual employee onboarding experiences.

Nonverbal Cues Hypotheses

By manipulating the availability of nonverbal cues within the mediums used for the social tactics during employee onboarding, this study aims to understand whether high or low-cue CMC generates more belonging and safety among new employees when they are onboarded by the VT leader.

Social presence theory would posit that more nonverbal cues, such as video and images, would create a great sense of social presence. The perception of social presence, in turn, would lead to increased sense of safety, interpersonal attraction, and assessments of relational communication. Outcomes such as social involvement and attraction have been consistent with this theory in virtual group studies (Nowak et al., 2005). The hyperpersonal model would posit that fewer nonverbal cues, such as with text-only communication, would give communicators a stronger sense of psychological safety and increase positive impressions of communication partners, given that they could spend time self-presenting and assume similarity. Given that VT communication tends to increase the perception of status differences (Ocker, 2007; Peña et al., 2007), it is likely that participants will prefer more low-cue communication so they can more

closely control their self-presentation when greeting their higher-status managers. I therefore hypothesize that low-cue communication would be preferable for newcomer's meeting their VT leaders for the first time.

H2: CMC users report a) more psychological safety, b) more interpersonal attraction, and c) higher relational communication impressions in virtual employee onboarding experiences with fewer nonverbal cues (text) versus increased nonverbal cues (video) by the VT leader.

Research Questions

Between the two inputs—synchronicity and the level of nonverbal cues within CMC—it is possible that synchronicity will more strongly affect newcomer outcomes than will CMC cues. Asynchronous communication affords the communicator increased ability and control to craft their self-presentation, whether verbal or nonverbal. While lower-cue environments allow newcomers to assume more similarity between themselves and the team leader, the time limit may be more restricting and urgency-creating than the level of nonverbal cues in the communication medium.

RQ1: Do synchronicity and nonverbal cues differ in their impact on a) psychological safety, b) interpersonal attraction, and c) relational communication impressions?

Previous research of combined synchronicity and cues in VT communication (Nowak et al., 2009) has found interaction effects between synchronicity and nonverbal cues on group effectiveness. However, these interaction effects have not been studied using the current study's dependent variables. Therefore, this study aims to understand if interaction effects will occur that impact psychological safety, interpersonal attraction, and relational communication perception. The hyperpersonal model would posit that sender and receiver effects coupled with asynchronicity strengthen the positive feedback loop between sender and receiver. However, the

current study will not include a full feedback loop, and the hyperpersonal model typically predicts that this feedback loop occurs over an extended communication time. Given the limited existing evidence and new simulation studied here, the following research question will be assessed:

RQ2: Will CMC users experience the highest levels of psychological safety, interpersonal attraction, and impressions of relational communication of partners when they are onboarded with both asynchronous messages and fewer nonverbal communication cues?

METHODOLOGY

Participants

Data collection began after receiving IRB approval. All participants completed a screening survey, which consisted of three questions to determine if they were eligible to participate. Participation requirements included being at least 18 years of age or older, identifying as currently or previously having worked full-time, and being able to speak fluent or native-level English. Those who did not meet the participation requirements were directed to a page that informed them they did not meet study requirements. Those who did meet the requirements were directed to the main survey.

Participants (N = 141) were recruited via Amazon Mechanical Turk. All answers were reviewed in Mechanical Turk before acceptance. Participants who failed the attention check question, who selected the same score for all Likert rating items, or those that did not write a relevant response in the text input conditions were removed before acceptance and were therefore not included in the final analysis. Altogether, 16 participants' data were removed from the study.

Final accepted participants included 56 women and 83 men. Ages ranged from 21-67 (M = 34.4, SD = 9.13). Participants' years of work experience ranged from less than 1 year to over 6 years, with most participants (n = 66, or 47.8%) reporting 3-5 years of work experience, 39.1% (n = 54) reporting 6 or more years of work experience, 12.3% (n = 17) reporting 1-2 years of work experience, and .7% (n = 1) reporting less than 1 year of work experience. Most participants had worked virtually full-time before (n = 122). Of those who had worked virtually, 5.7% had worked virtually for less than 1 year (n = 7), 37.4% had worked virtually for 1-2 years (n = 46), 36.6% had worked virtually for 3-5 years (n = 45), and 20.3% had worked virtually for 6 or more years (n = 25). Respondents reported their highest level of education as having completed some high school (n = 1), high school graduate (n = 3), some college (n = 5), two-year degree (n = 3), four-year degree (n = 94), professional degree (n = 10), and graduate degree (n = 23).

Measures

Demographics

Participants shared demographic information including gender, age, years of work experience, years of virtual work experience, and education level.

Psychological Safety

Seven Likert-rated items on a 5-point metric measured the extent to which participants felt psychologically safe with their imagined new manager. It was measured using the team psychological safety scale from Edmondson (1999), adapted slightly to fit the present context (see appendix for details). Items included statements such as, "If I make a mistake on this team, it will be held against me" and "My manager is likely to value and utilize my unique skills and talents." The team psychological safety scale demonstrated acceptable reliability (α = .79).

Social Attraction

Social attraction was measured using an amended version of the McCroskey & McCain (1974) social attraction scale utilized by Nowak and colleagues (Nowak et al., 2005). Eight Likert-rated items on a 5-point metric measured the extent to which participants felt their imagined manager was socially attractive, easy to work with, and going to be a good boss. Items included statements such as, "I would like to have a friendly chat with this person" and "I would like to keep working with this person." See more specific items in the appendix. The social attraction scale did not demonstrate acceptable reliability ($\alpha = .55$). Two items (marked with * in the appendix) were removed because of low item-to-total correlations, which helped to increase reliability. The resulting 6-item social attraction scale demonstrated acceptable reliability ($\alpha = .77$).

Task Attraction

Task attraction was measured using the McCroskey & McCain (1974) task attraction scale. Four Likert-rated items on a 5-point metric measured the extent to which participants felt they would like to work with their imagined manager. Items included statements such as, "I have confidence in their ability to get the job done" and "If I wanted to get things done, I could probably depend on them." See more specific items in the appendix. The social attraction scale did not demonstrate acceptable reliability ($\alpha = .55$). Two items (marked with * in the appendix) were removed because of low item-to-total correlations, which helped to increase reliability. The resulting 2-item task attraction scale demonstrated acceptable reliability ($\alpha = .73$).

Total Interpersonal Attraction

Total interpersonal attraction toward the new manager was measured by combining the amended social and task attraction scales from McCroskey & McCain (1974). When combined, the total interpersonal attraction scale demonstrated acceptable reliability ($\alpha = .75$).

Relational Communication

Assessment of relational communication impression of VT leaders was measured by the Burgoon and McHale (1987) relational communication scale. Twenty-five Likert-rated items on a 5-point metric measured how the survey respondent assessed the VT leaders' relational communication attributes along seven specific categories: immediacy/affection, similarity/depth, receptivity/trust, composure, formality, dominance, and equality. Items included statements such as, "They were willing to listen to me" and "They considered us equals." More specific items are listed in the appendix. The relational communication scale demonstrated reliability ($\alpha = .86$).

Procedures

Participants completed the experiment via their own computers or smartphones by completing a Qualtrics survey. The study used a 2X2 design, with factors of nonverbal cue level (high/video or low/text) and synchronicity (timed or untimed response). Participants were asked to complete demographic questions such as age, gender, years of work experience, and prior experience working on VTs. Completed participation was rewarded with $7.00 to compensate for approximately 30 minutes of time.

All participants first reviewed the same communication scenario (see Appendix: Survey Experience) that asked them to imagine they were being welcomed in as a VT organizational newcomer by the VT leader. The simulation read as follows:

> *This simulation will ask you to imagine that it is your first day of work at a new*
> *company that you admire. This company is fully remote, meaning that all employees work*

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virtually and do not meet in person. This company is in the industry in which you work or

would like to work, and you have applied for this job, been offered the position, and

accepted employment already. Today is your first day of work, and, in the simulation, you

will meet your manager for the first time.

   Before you begin, please take a moment to recall the last time you started a new

job. How did you feel on your first day? Consider any concerns, excitement, or other

emotions you experienced. Give yourself a few minutes to consider the experience.

Participants were then primed to meet their manager with the following introductory

message:

   Hello and welcome to Acme, Inc.! We are excited to welcome you as a new

employee! Your new boss, Alex Jennings, will introduce themselves to you shortly.

Throughout your work at Acme, you will directly report to Alex.

   Your response to Alex's introduction will determine the team you are placed in

and the type of work you will do for the first month of this role.

Participants were next placed into one of four conditions and asked reply to the social

welcome message from their VT leader. All conditions had the same welcome message, which

read:

   Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know

you better. We've been looking forward to your first day for a long time! I've been with

Acme for 2 years, and I've led this department for 18 months. We have a great dynamic

between all the different members of our teams, and I am looking forward to introducing

you to everyone. To give you some background, within our department, we have three

different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you

get started, we will need to place you on one of those teams that fits your interests best.

So, let me know: Which of those four areas interests you most: gaming, fashion,

agriculture, or healthcare? Tell me a little bit about why this area interests you and any

background you have. That will help us make the best choice. I'm excited to hear back

from you!

Condition 1 included a welcome video from the VT leader using the above script and

gave participants 60 seconds to record a video reply. This time limit was chosen to create a sense

of urgency for someone to record a quick video of themselves. They could watch the timer count

down while they were recording their response video (no response video was recorded to ensure

participant anonymity, but the survey told people they were being recorded to simulate a real

recording experience). Condition 2 included the same welcome video from the VT leader and

gave participants unlimited time to record a reply. When they were taken to the page to record

their video reply, they were told they would no longer need to record, again to ensure participant

anonymity. Condition 3 included a screenshot of a welcome text in the team communication

software Slack with an avatar of the person from the video. The text was the same as the video

script. Participants were given five minutes to respond via text in condition three. This time limit,

more extended than the video time limit, was chosen to reflect the more extended time it takes to

reply by typing, depending on the respondents' typing speed. Text replies were recorded.

Condition 4 included the same welcome text, but participants were told they had unlimited time

to type a response to the VT leader. After finishing their reply, all participants were then asked a

series of multiple-choice questions to assess their experience.

Statistical Analysis

Analyses of psychological safety and total attraction were conducted using analysis of variance (ANOVA) and multivariate analyses of variance (MANOVA). Factors of the channel (video or text) and synchronicity (timed or untimed) were included in the model, along with their interaction. Follow-up univariate analyses were conducted on dependent variables for which MANOVA results indicated significant effects. Estimated marginal means for each condition are reported in Table 1.

RESULTS

Main Effects of Synchronicity

Hypothesis 1 concerned the main effects of synchronicity on team psychological safety and attraction. Hypothesis 1 predicted that psychological safety and interpersonal attraction would be higher in asynchronous scenarios than in synchronous scenarios. MANOVA of synchronicity showed no significant effect on psychological safety, Wilk's $\lambda = .99$, $F(1, 121) = .8$, $p = .37$. MANOVA of synchronicity showed no significant effect on total attraction, Wilk's $\lambda = .99$, $F(1, 121) = .3$, $p = .59$. MANOVA of synchronicity showed no significant effect on relational communication assessment, Wilk's $\lambda = .99$, $F(1, 121) = 1.2$, $p = .27$. The findings do not support the hypothesis (H1) that asynchronous onboarding scenarios creates higher team psychological safety and attraction and affects assessments of relational communication of VT leaders.

Main Effects of Cues

Hypothesis 2 concerned the main effects of the level of channel nonverbal cues (video versus text) on team psychological safety and attraction. Hypothesis 2 predicted deeper experiences of psychological safety and interpersonal attraction when respondents received

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onboarding with fewer nonverbal cues than more nonverbal cues. MANOVA of channel cues showed no significant effect on psychological safety, Wilk's $\lambda = .98$, $F(1, 121) = .2$, $p = .68$. MANOVA of channel cues also showed no significant effect on total attraction, Wilk's $\lambda = .98$, $F(1, 121) = .2$ $p = .69$. MANOVA of channel cues showed no significant effect on relational communication assessment, Wilk's $\lambda = .98$, $F(1, 121) = 1.0$, $p = .31$. The findings do not support the hypothesis (H2) that onboarding with fewer nonverbal cues results in more psychological safety and attraction.

Research Question 1 concerned the comparative effects of synchronicity and level of nonverbal cues on psychological safety and total attraction. Since there were no significant effects for either nonverbal cues or synchronicity on psychological safety, interpersonal attraction, or relational communication assessment no test was performed.

Interaction Effects of Synchronicity and Cues

Research Question 2 concerned the combined effects of synchronicity and cues on team psychological safety and attraction. The research question sought to understand whether respondents would experience interaction effects and would therefore experience the highest levels of psychological safety, interpersonal attraction, and impact on relational communication assessment when onboarded with asynchronous messages with more nonverbal communication cues. MANOVA for psychological safety was not significant for the interaction between nonverbal cues and synchronicity, Wilk's $\lambda = .97$, $F(1, 121) = 1.12$, $p = .29$. MANOVA for attraction was not significant for the interaction between nonverbal cues and synchronicity, Wilk's $\lambda = .97$, $F(1, 121) = 2.15$, $p = .15$. MANOVA for relational communication impression was marginally significant for the interaction between nonverbal cues and synchronicity, Wilk's $\lambda = .97$, $F(1, 121) = 2.9$, $p = .09$. Therefore, though interaction effects were not found for

psychological safety or interpersonal attraction, there was a trend toward an interaction for

assessments of relational communication. However, the trend was not found in the direction of

asynchronous, low nonverbal cue media (as the hyperpersonal model might predict). Instead, the

lowest perceptions of relational communication occurred in the synchronous (timed) text-based

condition, and the other three conditions were relatively similar.

Table 1. *Estimated marginal means for safety, attraction, and relational communication.*

	Safety		Attraction		Relational Comm	
	Video (SE)	Text (SE)	Video (SE)	Text (SE)	Video (SE)	Text (SE)
Synchronous	26.5 (.9)	27.07 (.92)	27.47 (.78)	28.28 (.79)	98.33 (2.68)	92.75 (2.59)
Asynchronous	26.65 (.85)	25.34 (.87)	28.18 (.73)	26.75 (.75)	99.88 (2.51)	100.14 (2.72)

DISCUSSION

This study aimed to test the hyperpersonal model and social presence theory's application

to VT onboarding by examining how encounter-phase socialization message characteristics

(synchronicity and degree of nonverbal cues) affect new employees' sense of safety and

impressions of their managers. The experimental hypotheses did not receive support from this

study. Synchronicity did not affect new employee attraction to VT leaders or their impressions of

relational communication attributes, nor did it impact the psychological safety of new team

members. Previous research has indicated that attraction and other positive impacts increase

during asynchronous interactions (Walther, 1996). However, timing had no impact on the new

VT employee experience in this study. The results of this study indicate that the synchronicity of

encounter-phase VT employee onboarding did not impact the outcomes of psychological safety,

interpersonal attraction, or assessments of VT leader relational communication and do not

support the specific application of the hyperpersonal model to encounter-phase VT leader communication.

Similarly, the level of nonverbal cues within the chosen medium for encounter-phase VT onboarding (video versus text) had no significant effect on new employee interpersonal attraction to VT leaders, their sense of psychological safety, or their assessments of VT leader's relational communication attributes. While some previous research utilizing the hyperpersonal model has indicated that reducing nonverbal cues in virtual communication can increase attraction (Walther, 1996), other research utilizing social presence theory suggests that increased nonverbal cues reduce uncertainty, stress, and distrust (e.g., Altschuller & Benbunan-Fich, 2010; Sproull & Kiesler, 1986). However, neither the hyperpersonal model nor social presence theory's predictions were supported by this study. This result suggests that the richness of nonverbal cues of the chosen medium for encounter-phase onboarding with VT leaders may not have an immediate impact on impressions of the VT leader or their communication. These impressions may take longer to form or may be impacted by factors beyond the level of nonverbal cues.

This study found no interaction effects between synchronicity and level of nonverbal cues on encounter-phase onboarding's impact on interpersonal attraction toward VT leaders or the psychological safety of new VT members. The hyperpersonal model (Walther, 1996) has posited that the combined factors of low nonverbal cues and asynchronicity can improve communication outcomes, but this specific scenario-based study does not support the hyperpersonal model's prediction of intensification effects. One potential explanation is that new VT members take other contextual factors into consideration when assessing impressions of their team and VT leaders, such as technology skill, message content, tone, and other considerations not studied

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here. The communication channel features may not impact the VT employee's assessment of psychological safety or interpersonal attraction.

However, the study did find a marginally significant interaction effect between synchronous (timed) communication and low nonverbal cues (text) and impressions of the relational communication of VT leaders. Specifically, the study found that synchronous (timed), low nonverbal cue (text) communication most negatively influenced impressions of relational communication of VT leaders. This finding partially supports the hyperpersonal model's prediction that the combination of asynchronicity and low nonverbal cues may result in more favorable impressions of communication partners. The present study findings suggest that the combination of low cue media *and* limited time to form an impression result in VT employees' lowered evaluations of VT leader relational communication. During initial onboarding contact with a VT leader, when not given ample time to form an impression or craft self-presentation in a low nonverbal cue environment, respondents recorded more negative impressions, potentially filling in the blanks of information with exaggerated negative information.

This study therefore found that no idealization effect occurred in low nonverbal cues, asynchronous VT onboarding but, in fact, an intensification is happening in the opposite direction in low nonverbal cue, synchronous VT onboarding. This negative intensification bias has been documented before in studies of email communication (Sillars & Zorn, 2021), but that particular study intentionally included sloppy, error-ridden emails while the present study included a positive introduction from a manager with no grammatical or spelling errors and lacking in ambiguity. In the present study, it seems that the receivers may have interpreted negative relational communication attributes into the positive toned text-based message when given a time limit to respond to the communication, regardless of its content or context but

instead for other factors outside the focus of this study (potentially power differentials, past experience on VTs, personal norms or preferences, and beyond).

Implications

The study results indicate potential theoretical implications for both the hyperpersonal model and social presence theory. The hyperpersonal model has been studied in diverse environments, from gaming (Sherblom et al., 2018) to inter-group relations (Spears & Postmes, 2015), but infrequently in the context of VTs. Recent applications of the model utilize and find support for it, most notably, within the context of online dating (Antheunis et al., 2020; Sharabi & Dykstra-DeVette, 2019; Zhao & Yan, 2022) and face-saving digital social support (Rains et al., 2019), suggesting that the model is supported well within contexts where there is extended communication, communication sender and receiver are on equal power standing, and the feedback loop can be established over several communication occurrences and where face-saving is an important consideration. Through this more extended period and vulnerable communication scenario, the model's positive impression-intensification effect may take hold. Contrary to the present study, these specific situations lack the power differential inherent in encounter-phase onboarding performed by VT leaders, suggesting that the power differences of participants in the virtual interaction could have an additional impact on whether hyperpersonal effects occur. In similar research of the hyperpersonal model on negative work-related emails from higher-powered managers (Sillars & Zorn, 2021), a negative hyperpersonal intensification effect occurs, suggesting that negative hyperpersonal intensification effects can occur in situations where power differentials exist and communication norms are unclear.

The present study resulted in moderate interaction effects between synchronicity and lack of nonverbal cues on negative perceptions of VT relational communication. In the timed, low

nonverbal cue scenario, respondents assumed lower relational communication of the VT leader, suggesting that negative hyperpersonal intensification effects may occur when participants do not have ample time to consider the VT leader's communication more carefully. Therefore, the present study opens questions about how manager-subordinate communication, where formal authority is present, may require different considerations than other contexts studied by both social presence theory and the hyperpersonal model. This would be a fruitful area to continue to expand and bridge with existing management and leadership research outside the communication discipline.

The study findings also have implications for social presence theory within VTs. Potentially, as users become more familiar with VT communication tools and remote work contexts, the importance of replicating in-person immediacy, warmth, and caring does not impact immediate VT onboarding outcomes. Because we are now living and working in a hyper-remote world where more people are familiar with the communication tools and norms associated with remote work, the impacts of the communication channel features may be dampened. Individuals who are especially familiar and comfortable with a variety of VT communication tools—text-based, video-based, voice-based, and even virtual reality-based—may perceive more richness and social presence in all media because of their familiarity with the nuances of the technology and its capabilities. This idea is supported by channel expansion theory (Carlson & Zmud, 1999; D'Urso & Rains, 2008), which posits that experience with communication channels and context increases perceptions of the depth of nonverbal cues in the channel. It would therefore be interesting to bridge channel expansion theory and the hyperpersonal model to understand if channel and context familiarity cancel out (or enhance) hyperpersonal effects. Given that most respondents in this study had some experience working virtually, this initial study suggests that

familiarity with channel and context does not create positive hyperpersonal effects, meaning that experience in remote work environments could cancel out initial hyperpersonal effects and instead mean extra work on behalf of the VT leader to understand personal familiarity, preference, and norms of virtual communication.

From a practical perspective, the study results indicate that the choice between synchronicity and asynchronicity and type of communication media for the initial interaction between employees and VT leaders is not likely to be a make-or-break decision. Instead, as suggested by Newman and colleagues (2020), VT members' perception of a leaders' ability to use and adapt to the given communication tools could be an important factor in forming team impressions and improving perceptions of team performance. Therefore, VT leaders might be best served by defaulting to the communication channels that they themselves are most familiar with and can adapt to most readily, or to personalizing their approach based on the preference of their new VT employees.

VT leaders attempting to create a "perfect" onboarding experience should find these results reassuring. The communication channel features within the immediate interaction between new employees and their leaders may not be one of the crucial decisions to impact team outcomes or immediate impressions. The present study suggests that the popular adage that "first impressions are everything" is not a given in VT environments, and leaders should take this to heart while they give new VT employees time to acclimate and form a fuller and more accurate impression of VT leaders and their own feelings of psychological safety on their new team. Onboarding should be planned in stages and phases (not as a one-off activity), varying media types and level of synchronicity based on the goals and culture of the organization, team, and individual (Ashforth et al., 1997; Jones, 1986; Van Maanen & Schein, 1977).

Limitations & Future Research

This study presents several limitations. Firstly, and likely most critically, the sample pool consisted entirely of respondents from Mechanical Turk (MTurk). Even with attention checks in place, past research has indicated that MTurk workers are "nonnaive participants" who may be more careless when filling out lengthy questionnaires, reducing effect sizes and necessitating larger respondent pools (Chandler et al., 2015). In this study, the sample size of each treatment was small, with between 30-36 respondents in each treatment condition, which may have been too small to see effect sizes. Further, the average time to take the survey was 26 minutes (SD = 95 minutes), but some survey takers took as few as 6-10 minutes, indicating that some respondents may have rushed through answering the questions or not paid close attention.

Another limitation is that this study did not include a pilot or manipulation check, which may have contributed to a lack of reliability in the responses and the simulation itself. Because no pilot study was conducted and the scales were not shown to be reliable as originally implemented (see analysis), there was not time to review and amend the scales to customize them for the purposes of studying VT psychological safety and VT leader social and task attraction. This may have affected the overall results. Further, the simulation text/video script itself may have read as positive, especially given that it offered participants an option to respond to control their VT experience. The positive tone of the message itself may have contributed to little variance in the responses. A more neutral or even negative text/video script may have garnered different results.

In addition, the simulation itself may have been insufficient to reproduce a realistic VT onboarding experience. The survey stakes were significantly lower than for the first day on the job and respondents may have treated the survey accordingly. Future research should explore

longer simulations with more interactivity so as to produce an extended communication feedback loop, similar to the kind of extended experiments run by Peña and colleagues (2007), Choi and colleagues (2019), and Coduto (2020). The hyperpersonal model posits that sender and receiver effects coupled with asynchronicity strengthen the positive feedback loop between sender and receiver. The hyperpersonal model typically predicts that this feedback loop occurs over an extended communication time, and this extended time period was not replicated in the given simulation.

In the future, these limitations should be addressed, and scholars should consider combining an experimental study of encounter-phase VT socialization with qualitative research methods. This way, scholars may reveal a holistic picture of what optimal VT encounter-phase onboarding experiences should consist of for those leaders interested in increasing psychological safety and improving how they are perceived by new employees. Further in-depth, qualitative research in this area will also reveal other potential variables for testing and potential outcomes to monitor, including team trust, satisfaction, and assessments of team performance.

Future research should also further examine the effects of synchronicity and richness of nonverbal cues specifically on impressions of relational communication, as this was one area where the present study found marginally significant effects that were not directly accounted for by either social presence theory or the hyperpersonal model. One line of research that could provide potential answers would be to look at how new VT team members' individual preferences and attributes impact their impressions of and interaction with their new VTs. Scholars can look at a range of individual factors, from individual familiarity and attitudes toward various VT communication tools (Rosen et al., 2013) to communication apprehension levels (Levine & McCroskey, 1990), impact how new VT members assess their new leaders and

teams. The findings of such research could have implications for the hyperpersonal model and social presence theory. From a practical perspective, this research could also help tailor customized onboarding solutions for VTs. Onboarding could then be personalized and customized based on individual needs, which may have a greater impact than a one-size-fits-all approach. Finally, further research is needed to understand the hyperpersonal model and intensification effects (both positive and negative) in the context of a communication scenario between conversation partners with a formal power difference between them. The presence of formal power or leadership in a communication scenario may enhance or degrade intensification effects, and future research can guide deeper understanding of these phenomena.

Altogether, this study reveals the importance of context when assessing impressions of VT leaders during onboarding. Simply altering the features of communication timing and level of nonverbal cues does not produce a significant change in feelings of psychological safety for a new VT employee, nor does it contribute to their attraction toward their VT leader or their impressions of their relational communication. Instead, other dynamics are likely at play: power differentials, the content and tone of the message itself, familiarity with the given communication medium, and personal preferences and communication apprehension levels. Given that VTs are increasing in number and more work is being done remotely than ever before (US Census Bureau, 2022), understanding this context has important practical implications for the future of work worldwide.

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APPENDIX A: SURVEY

Introduction

University of Wisconsin-Milwaukee
Informed Consent to Participate in Research

Study title: Improving Virtual Team Newcomer Outcomes through Encounter-Phase Organizational Socialization

Researcher[s]: Carrie Jones

We're inviting you to take a survey for research. This survey is completely voluntary. There are no negative consequences if you do not take it. If you start the survey, you can always change your mind and stop at any time.

Participation Criteria
Your participation is completely voluntary, and you can withdraw at any time.
To take this survey, you must be:
- At least 18 years old
- Have had at least one full-time job
- Speak fluent English

What is the purpose of this study?
We want to understand the influence of computer-mediated communication interventions on new virtual team employee onboarding.

What will I do?
This survey will ask you questions about your experience working remotely, basic demographic information such as age, gender, general social anxiety, and prior work experience. There will be a simulation that asks you to reply to a virtual team manager through text or video. There is a chance that recalling your sense of social anxiety may contribute to risk, but no more than minimally. This experiment and your responses should take about 30 minutes to complete.

Risks: Some participants may feel uncomfortable or rushed replying to their communication partner in the experiment.

- Online data being hacked or intercepted: This is a risk you experience any time you provide information online. We're using a secure system to collect this data, but we can't completely eliminate this risk.
- Breach of confidentiality: There is a chance your data could be seen by someone who shouldn't have access to it. We're minimizing this risk in the following ways:
  - All identifying information will be removed and replaced with a study ID.
  - After data collection is complete and compensation has been distributed, we will remove all identifiers before analyzing the data.

- o We'll store all de-identified electronic data on a password-protected, encrypted computer.
  - o We'll keep your identifying information separate from your research data, but we will be able to link it to you. We'll destroy this link as soon as we finish collecting the data (approximately two weeks).
- Amazon could link your worker ID (and associated personal information) with your survey responses. Make sure you have read Amazon's MTurk participant and privacy agreements to understand how your personal information may be used or disclosed.
- There is a chance that assessing your level of social anxiety may be emotionally upsetting. You are welcome to stop the survey at any time, though compensation will only be given for complete surveys. We encourage participants who encounter an upsetting experience to seek counseling, view further resources, or contact a helpline for those with social anxiety:
  - o https://www.mentalhelp.net/anxiety/hotline/

Possible benefits: Participating in this study will contribute to an already-existing body of organizational communication research related to improving virtual team communication and individual remote worker well-being. Participants may also gain a greater understanding of how they feel most comfortable onboarding to a new project in a virtual teams environment.

Estimated number of participants: We are recruiting 120 participants.

How long will it take? 30 minutes

Costs: None

Compensation:
- Participants who qualify (are 18 or older, have previously worked a full-time job, and who speak English fluently) will continue to the main survey, for which they will receive $7.00 for completing via Amazon Mechanical Turk. Participants may skip questions but must finish the survey to receive compensation. Participants must also successfully complete all attention checks to receive compensation.

Future research: De-identified data (all identifying information removed) may be shared with other researchers. You won't be told specific details about these future research studies.

Confidentiality and Data Security
- **Where will data be stored?** On the researchers' computers and on the servers for the online survey software (Qualtrics).
- **How long will it be kept?** Data will be kept for two years.
- **Who can see my data?**
  - o We (the researchers) will have access to your Mechanical Turk worker ID, which is de-identified (no names, birthdate, address, etc.). This is so we can analyze the data and conduct the study.

- The Institutional Review Board (IRB) at UWM, the Office for Human Research Protections (OHRP), or other federal agencies may review all the study data. This is to ensure we're following laws and ethical guidelines.
- We may share our findings in publications or presentations. If we do, the results will be aggregate (grouped) data, with no individual identifying information. If we quote you, we'll use pseudonyms (fake names).
- Because Amazon owns the MTurk internal software, and to issue payment, Amazon will have access to your MTurk worker ID. There is a possibility Amazon could link your worker ID (and associated personal information) with your survey responses.

Questions about the research, complaints, or problems: Contact Carrie Jones (jones897@uwm.edu)

Questions about your rights as a research participant, complaints, or problems: Contact the UWM IRB (Institutional Review Board) at 414-662-3544 / irbinfo@uwm.edu.

Please print or save this screen if you want to be able to access the information later.
IRB #: 22.166-UWM
IRB Approval Date: January 27, 2022

Participation Agreement
If you meet the criteria, agree to these terms and would like to take the survey, click the button below to start.

APPENDIX B: SURVEY EXPERIENCE

INTRODUCTION

In this survey, you will go through a live simulation. This simulation will ask you to imagine that it is your first day of work at a new company that you admire. This company is fully remote, meaning that all employees work virtually and do not meet in person. This company is in the industry in which you work or would like to work, and you have applied for this job, been offered the position, and accepted employment already. Today is your first day of work and you will be meeting your manager, whom you have not previously met during the interview process.

Before you begin, please take a moment to recall the last time that you started a new job. How did you feel on your first day? Consider any concerns, excitement, or other emotions you experienced. Give yourself a few minutes to consider the experience.

Click CONTINUE when you are ready to proceed with the simulation.

[TIMER FOR 5 MINUTES]

SIMULATION

Hello and welcome to Acme, Inc.! We are excited to welcome you as a new employee! Your new boss, Alex Jennings, will introduce themselves to you shortly. Throughout your work at Acme, you will directly report to Alex. Your response to their introduction will determine on which team you are placed and what type of work you will do for the first month of this role.

[BUTTON: CLICK TO MEET ALEX JENNINGS – participant placed into 1 of 4 random treatment conditions]

[VIDEO RECORDING SCRIPT: Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know you better. We've been looking forward to your first day for a long time! I've been with Acme for 2 years, and I've led this department for 18 months. We have a great dynamic between all the different members of our teams, and I am looking forward to introducing you to everyone. To give you some background, within our department, we have four different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you get started, we will need to place you on a team that fits your interests best. So, let me know: Which of those four areas interests you most: gaming, fashion, agriculture, or healthcare? Tell me a little bit about why this area interests you and any background you have! That will help us make the best choice. I'm excited to hear back from you!]

Treatment A: SIMULATED LIVE VIDEO, ONE MINUTE RESPONSE TIMER

[VIDEO RECORDING SCRIPT: Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know you better. We've been looking forward to your first day for a long time! I've been with Acme for 2 years, and I've led this department for 18 months. We have a great dynamic between all the different members of our teams, and I am looking forward to

introducing you to everyone. To give you some background, within our department, we have four different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you get started, we will need to place you on a team that fits your interests best. So, let me know: Which of those four areas interests you most: gaming, fashion, agriculture, or healthcare? Tell me a little bit about why this area interests you and any background you have! That will help us make the best choice. I'm excited to hear back from you!]

Treatment B: RECORDED VIDEO, UNTIMED RESPONSE

[VIDEO RECORDING SCRIPT: Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know you better. We've been looking forward to your first day for a long time! I've been with Acme for 2 years, and I've led this department for 18 months. We have a great dynamic between all the different members of our teams, and I am looking forward to introducing you to everyone. To give you some background, within our department, we have four different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you get started, we will need to place you on a team that fits your interests best. So, let me know: Which of those four areas interests you most: gaming, fashion, agriculture, or healthcare? Tell me a little bit about why this area interests you and any background you have! That will help us make the best choice. I'm excited to hear back from you!]

Treatment C: SIMULATED LIVE CHAT, FIVE MINUTE RESPONSE TIMER

[TEXT: Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know you better. We've been looking forward to your first day for a long time! I've been with Acme for 2 years, and I've led this department for 18 months. We have a great dynamic between all the different members of our teams, and I am looking forward to introducing you to everyone. To give you some background, within our department, we have four different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you get started, we will need to place you on one of those teams that fits your interests best. So, let me know: Which of those four areas interests you most: gaming, fashion, agriculture, or healthcare? Tell me a little bit about why this area interests you and any background you have. That will help us make the best choice. I'm excited to hear back from you!]

Treatment D: PRE-WRITTEN CHAT, UNTIMED RESPONSE

[TEXT: Hey there! I'm your new manager Alex Jennings, and I'm excited to get to know you better. We've been looking forward to your first day for a long time! I've been with Acme for 2 years, and I've led this department for 18 months. We have a great dynamic between all the different members of our teams, and I am looking forward to introducing you to everyone. To give you some background, within our department, we have four different teams. These teams are gaming, fashion, agriculture, or healthcare. Before you get started, we will need to place you on one of those teams that fits your interests best. So, let me know: Which of those four areas interests you most: gaming, fashion, agriculture, or healthcare? Tell me a little bit about why this area interests you and any background you have. That will help us make the best choice. I'm excited to hear back from you!]

[CLICK TO REPLY]

[A screen will come up to prompt them to plan their communication. It will reiterate the question that Alex asked. A timer will be in place for treatments A and C but B and D will allow unlimited time. The button to record or type their response will appear after the timer is up, but the next screen will let them know they do not actually need to reply or record a response.]

SURVEY

Next, you will be asked to reflect on your welcome from your new manager. You are working with limited information, so please respond with your first gut reaction.

[INSERT SCALES HERE]

ATTENTION CHECK

The color test is simple, when asked for your favorite color you must enter the word "puce" in the text box below.
Based on the text you read above, what color have you been asked to enter?

DEMOGRAPHICS

What is your current age? (fill in the blank)

What is your gender?
  a) Man
  b) Woman
  c) Another gender identity not listed here (please specify _____)

How many years of full-time work experience do you have?
  a) Less than 1 year
  b) 1-2 years
  c) 3-5 years
  d) 6+ years

Have you worked virtually full-time before (Y/N)

  a) If yes, for how long have you worked virtually?
     a) Less than 1 year
  b) 1-2 years
  c) 3-5 years
  d) 6+ years

What is your highest education level attained?
  a) Less than high school
  b) High school graduate
  c) Some college

d) 2-year degree
e) 4-year degree
f) Professional degree
g) Graduate degree

MTurk participants Follow up

Did you access this survey from MTurk?
    a) Yes
    b) No

Your random code for MTurk is: [insert MTurk link]

Team Psychological Safety
(Adapted from Edmondson, 1999)
[Administered these items using the 1 (strongly disagree) to 5 (strongly agree) rating scale. Please note that item four and six need to be reverse scored.]

After meeting my manager, I believe that…
- If I make a mistake on this team, it will be held against me. [Changed from: If you make a mistake on this team, it is often held against you]
- I will be able to bring up problems and tough issues with this manager. [Changed from: Members of this team are able to bring up problems and tough issues]
- My manager might reject me for being different [Changed from: People on this team sometimes reject others for being different]
- It is safe to take a risk with this manager. [Changed from: It is safe to take a risk on this team]
- It will be difficult to ask my manager for help. [Changed from: It is difficult to ask other members of this team for help]
- My manager would never deliberately act in a way that undermines my efforts. [Changed from: No one on this team would deliberately act in a way that undermines my effort]
- My manager is likely to value and utilize my unique skills and talents. [Changed from: Working with members of this team, my unique skills and talents are valued and utilized]

Two items were removed: "No one on this team would deliberately act in a way that undermines my efforts" and "Working with members of this team, my unique skills and talents are valued and utilized"

Social Attraction
(Newman et al., 2007)
[Eight Likert-rated items on a 7-point metric (from "strongly agree" to "strongly disagree") will measure the extent to which participants feel their imagined manager is socially attractive, easy to work with, and going to be a good boss. Items 3 and 6 need to be reverse coded.]

After meeting with my manager, I feel…
- They could be a good boss for me
- I would like to have a friendly chat with them
- Reverse: We could never establish a friendly relationship with one another*
- They would be pleasant to work with
- Like I know personally
- Reverse Don't care if I ever interact with them again*
- I would like to keep working with this person

Two items (marked with * above) were removed to increase reliability.

Task Attraction

63

McCroskey & McCain (1974)

[Four Likert-rated items on a 7-point metric (from "strongly agree" to "strongly disagree") will measure the extent to which participants feel their imagined attraction to working on tasks with this boss. Items 1 and 4 need to be reverse coded.]

After meeting with my manager, I feel…
- Reverse: They would be a typical goof off when assigned a job to do.
- I have confidence in their ability to get the job done.*
- If I wanted to get things done, I could probably depend on them.*
- Reverse: I couldn't get anything accomplished with them.

Two items (marked with * above) were removed to increase reliability.

Self-Monitoring Scale
Snyder (1974)

[Twenty-five items that could possibly apply to the responder that they rate as true or false.]

T F I find it hard to imitate the behavior of other people.

T F My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.

T F At parties and social gatherings, I do not attempt to do or say things that others will like.

T F I can only argue for ideas which I already believe.

T F I can make impromptu speeches even on topics about which I have almost no information.

T F I guess I put on a show to impress or entertain people.

T F When I am uncertain how to act in a social situation, I look to the behavior of others for cues.

T F I would probably make a good actor.

T F I rarely seek the advice of my friends to choose movies, books, or music.

T F I sometimes appear to others to be experiencing deeper emotions than I actually am.

T F I laugh more when I watch a comedy with others than when alone.

T F In groups of people, I am rarely the center of attention.

T F In different situations and with different people, I often act like very different persons.

T F I am not particularly good at making other people like me.

T F Even if I am not enjoying myself, I often pretend to be having a good time.

T F I'm not always the person I appear to be.

T F I would not change my opinions (or the way I do things) in order to please someone else or win their favor.

T F I have considered being an entertainer.

T F In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

T F I have never been good at games like charades or improvisational acting.

T F I have trouble changing my behavior to suit different people and different situations.

T F At a party, I let others keep the jokes and stories going.

T F I feel a bit awkward in company and do not show up quite as well as I should.

T F I can look anyone in the eye and tell a lie with a straight face (if for a right end).

T F I may deceive people by being friendly when I really dislike them.

Personal Report of Interpersonal Communication Apprehension (PRCA-24)
(McCroskey, 1982)

[All items related to interpersonal communication will be asked.

This instrument is composed of 6 statements concerning feelings about communicating with others interpersonally. Please indicate the degree to which each statement applies to you by marking whether you: Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5.]

Negatively Coded:
- I have no fear of speaking up in conversations.
- Ordinarily I am very calm and relaxed in conversations.
- While conversing with a new acquaintance, I feel very relaxed.

Positively Coded:
- While participating in a conversation with a new acquaintance, I feel very nervous.
- Ordinarily I am very tense and nervous in conversations.
- Usually, I am comfortable when I have to participate in a meeting.

Relational Communication Scale
(Burgoon & Hale, 1987)

[This scale is used to assess impressions of conversational partners. Please indicate the degree to which each statement applies to you by marking whether you: Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5.]

I. Immediacy/affection
- They did not want a deeper relationship between us
- They were intensely involved in our conversation.
- They found the conversation stimulating.
- They communicated coldness rather than warmth.
- They created a sense of distance between us.
- They acted bored by our conversation.

II. Similarity/depth
- They made me feel they were similar to me.
- They tried to move the conversation to a deeper level.
- They acted like we were good friends.
- They seemed to desire further communication with me.

III. Receptivity/trust
- They were sincere.
- They were interested in talking with me.

- They were willing to listen to me.
- They were open to my ideas.
- They were honest in communicating with me.

IV. Composure
- They felt very tense talking to me.
- They were calm and posed with me.
- They felt very relaxed talking with me.
- They seemed nervous in my presence.

V. Formality
- They made the interaction very formal.
- They wanted the discussion to be casual.

VI. Dominance
- They attempted to persuade me.
- They didn't attempt to influence me.

VII. Equality
- They considered us equals.
- They didn't treat me as an equal.