

Running head: ZOOMING IN ON 'ZOOM FATIGUE'

Zooming in on Zoom Fatigue Through a Media Richness Theory Lens

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Abstract

This case study explores what Media Richness Theory (Daft and Lengel, 1986) may offer as a theory to explain employee “Zoom fatigue” during COVID-19 and also examines potential fatigue-related gender differences that may affect our understanding of the theory. This project sought experiences from participants in two focus groups, conducted online, using questions based on an MRT framework and an adapted 15-point Zoom Exhaustion & Fatigue Scale. Data was assessed using narrative analysis to determine content themes. This qualitative study revealed that people want media choice to be intentional and align with communications complexity with failure in these areas potentially resulting in fatigue, disengagement and ineffectiveness, which aligns with MRT. The results also indicate that MRT has numerous shortcomings, including failing to account for gender differences, preferences and complex media which can lead to nonverbal overload, all factors that can contribute to employee fatigue when using video conferencing.

Keywords: Video conferenc*, video meeting, 'Zoom fatigue,' fatigue or exhaustion, COVID-19, pandemic, female, organizational communication, internal communication, employee engagement

Chapter 1: Introduction

In March 2020, the World Health Organization declared COVID-19 a pandemic. Seemingly overnight, many people's work environments were transformed when they were ordered home due to the escalation of COVID-19. People converted kitchen tables, spare bedrooms or other parts of their home into temporary work spaces. Unbeknownst to employees and organizations alike, remote work would be the "new normal" for nearly three years, depending on the employer.

In the early days of the pandemic, Canadian Prime Minister Justin Trudeau, who was isolating after his wife tested positive for COVID-19, shared an outlook that captured people's changing work situation.

"And technology lets me work from home. Of course, it's an inconvenience and somewhat frustrating. We are all social beings after all. But we have to do this because we have to protect our neighbours and our friends – especially our more vulnerable seniors and people with pre-existing conditions" (Chung, 2020).

In-person meetings were no longer an option for many organizations. On a global scale, face-to-face meetings were replaced with video conference meetings for those with access to the technology. Zoom, Skype, Google Meet and Webex became part of the everyday lexicon as organizations turned to virtual meetings in remote work settings (Shockley, 2021; Shoshan & Wehrt, 2022). Zoom, which is free and easy to use, saw a massive increase in users from about 10 million daily meeting participants in December 2019 to more than 300 million by June 2020 (Iqbal, 2022).

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The technology isn't new; Webex formed in 1995 and Skype was launched in 2003. Prior to the pandemic, video conferences had known advantages such as immediacy, time saving and energy reduction from not physically travelling to meetings. "Specifically, the demand for collaboration and the ability to communicate visually with people who are geographically dispersed represents a major reason for using videoconferencing" (Bekkering & Shim, 2006; Wegge, 2006 as cited in Olanira, 2011.)

Video conference meetings were, on first appearance, an easy solution to a global problem: how to keep employees visually and verbally connected while working remotely.

But within a short timeframe, troubling reports began to surface. People were experiencing a range of symptoms that were attributed to video conferences in a phenomenon that was dubbed "Zoom fatigue." What was supposed to be a solution was suddenly a problem, particularly from a communications perspective. The scenario created a natural experiment environment and one that requires examination. There is a need to better understand video conference fatigue as employers and employees explore the future of work, including the potential for permanent flexible options such as hybrid models – a mix of working in the office and remotely.

One well known communications theory, Media Richness Theory (MRT) argues that different media have varying abilities to transmit information with rich media, such as face-to-face, being the best to convey complex and ambiguous information (Daft & Lengel, 1986). The theory argues that straightforward information should be shared via lean channels, such as email, as using complex channel choice should be avoided

when not needed. According to MRT, video conference meetings would be a rich choice to transmit complex information due to its functions that include visual, audio, instant feedback, and other elements. The emergence of “Zoom fatigue” seems contrary to MRT, particularly as early research findings suggest nonverbal overload (Fauville et al., 2021 a, b & 2023¹) can contribute to video conference exhaustion. Additionally, characteristic differences, such as women being more vulnerable to video conference fatigue, is another area that fails to be addressed by MRT. Both findings show a need to examine “Zoom fatigue” through a MRT lens to contribute to our understanding.

Purpose of the study

“Zoom fatigue,” which emerged during the pandemic, is not well understood, creating many opportunities to grow our knowledge of video conferencing-related fatigue and our understanding of MRT. Among early findings is the suggestion that time spent in video conference meetings, combined with fewer breaks, can contribute to video conference fatigue, and interestingly, nonverbal overload also contributes to the phenomenon (Fauville et al., 2023). Additionally, at least two studies show that women are more vulnerable to experience video conference exhaustion (Fauville et al., 2023 & Ratan et al., 2022). Understanding a media’s impact on senders and receivers is vital to successful communications. MRT is described as “one of the most cited theories in media studies and mediated communication research” (Sheer, 2020, p. 1). This research seeks to understand the unexpected “Zoom fatigue” through an MRT lens. Additionally, this project uses an MRT framework to explore any gender differences that

¹ Fauville et al., 2021 a was published online via SSRN and the research was published with some changes, including its title, in *Computers in Science Behavior Reports*, a peer-reviewed scholarly journal, in May 2023.

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emerge during video conference meetings or “Zoom fatigue.” MRT determines richness and leanness of different channels along a unidimensional line and does not consider characteristic factors such as gender. It is important to grow our understanding of MRT in light of the emergence of “Zoom fatigue,” particularly as more employers may be offering flexible work environments that include partial or fully remote roles for employees on a permanent basis. Additionally, we are in an increasingly digital landscape with media evolving to offer more complex options. This project will contribute to our understanding of MRT and its validity in current and possibly, future environments.

At this time, there are few studies that specifically discuss MRT in relation to “Zoom fatigue” during the pandemic. While small in scope and thus not representative of a large sample size, this project will hopefully contribute to our understanding of “Zoom fatigue” and MRT. Additionally, it is hoped that it will also provide insight into people’s experiences, benefiting organizations that are preparing for a transformed workforce.

Preview Literature

Video conferencing and “Zoom fatigue” have wide-reaching implications for society as a whole. This study focused on internal organizational communications and the use of video conferencing and the resulting “Zoom fatigue” experiences that occurred during the pandemic through an MRT lens. The literature review examines MRT, including its mixed results, and then explores video conferencing and “Zoom

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fatigue” experiences during the pandemic through an MRT lens as well as drawing on the 15-point Zoom Exhaustion & Fatigue Scale (Fauville et al., 2021 b).

The literature review also explores internal organizational communications, engagement challenges, including employee fatigue, and the need for two-way communications. Gender is also explored in this literature review to assist in the understanding of early results that found women were more apt to experience video conference fatigue during the pandemic.

Key sources include foundational MRT articles by Daft and Lengel, (1984 & 1986) as well as researchers, such as Dennis and Valacich, (1999) who find shortcomings with the theory. Other key papers include Fauville et al., which argues nonverbal overload triggered by video conferencing contributes to fatigue and that women are more vulnerable (2021 a, b, & 2023). This is critical to our understanding of MRT as these outcomes seem contrary to its arguments. According to MRT, a rich medium, such as video conferencing, would be a successful alternative to face-to-face communications during the pandemic, particularly for ambiguous messaging or to enhance equivocality, making fatigue an unexpected outcome.

Preview Methodology

The pandemic provides a natural experiment to explore video conferencing and “Zoom fatigue.” Few studies to date have examined the phenomenon through an MRT lens, providing an opportunity to contribute to our understanding.

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This case study was largely focused on two focus groups, conducted online, with participants gathered through purposive sampling. A short demographic survey, done in advance of the focus groups, supported the creation of an all-female focus group to help understand gender differences that exist in “Zoom fatigue,” according to limited existing research.

Focus group questions were based on an MRT framework and Fauville et al.'s validated 15-point Zoom Exhaustion & Fatigue scale (2021 b). Participants shared their video conference and related fatigue experiences that occurred during the pandemic. There was no mention of MRT to prevent any presentation of material that may bias the results.

The qualitative data was analyzed to identify codes and themes to see how the results might inform our understanding of MRT.

Summary

When much of the world seemed to switch to a remote work environment almost overnight, it provided a natural experiment environment to grow our understanding of MRT and “Zoom fatigue” in an internal organizational communications setting. Using existing video conferencing technology for people to visually and verbally connect during COVID-19 seemed like an easy solution until video conferencing fatigue emerged; a phenomenon that was unexpected and appeared contrary to MRT, particularly since early research suggests nonverbal overload contributes to the phenomenon. This case study aims to contribute to the understanding of MRT in light of

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video conference fatigue, including early findings that show women are at higher risk of experiencing such fatigue.

The next chapter, the Literature Review, provides an overview of existing research into the different core areas of this project.

Chapter 2 - When the World Went Home - Literature Review

When COVID-19 emerged, numerous nations around the world followed health restrictions and sent their employees home to work. Searching for solutions to stay connected, many organizations turned to existing video conferencing tools as a close alternative to in-person meetings.

Then “Zoom fatigue” emerged, (Daigle, 2021; Doring et al., 2022; Riedl, 2021; Wiederhold, 2020), a phenomenon described as people feeling exhausted or fatigued with video meetings blamed as the cause (Bennett et al., 2021). Reported symptoms include feelings of stress, tiredness, anxiety and headaches (Riedl, 2021) as well as irritation (Mutu & Zanfir, 2021) frustration and feeling overwhelmed (Doring et al., 2022). The North American Nursing Diagnosis Association’s definition of fatigue cites a sense of exhaustion “associated with decreased capacity for physical and mental work” (Voith, Frank, & Smith Pigg, 1989, as cited in Fauville et al, 2021 b), which could indicate a negative impact on performance for organizations. Meeting fatigue’s potential threat to work well-being and productivity is echoed by Ratan et al. (2022). And it’s also suggested that it can contribute to burnout, as well as other mental health challenges, such as depression and anxiety (Maslach et al., 2001 & Corfield et al., 2016 as cited in Fauville et al., 2023).

The unexpected emergence of “Zoom fatigue” seems contradictory to Media Richness Theory (MRT), which suggests that different media have differing abilities to transmit information, particularly when equivocality or uncertainty are considered (Daft & Lengel, 1986). The theory suggests that media have varying degrees of richness due to

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criteria, including feedback immediacy and nonverbal cues. According to MRT, in-person communication is considered the richest and most likely to result in successful communications for more complex transmission of information. This would suggest that participating in video conferences would be less fatiguing than trying to read a complex email.

The pandemic created a natural experiment to examine “Zoom fatigue” and MRT. Studies have recently begun to emerge that contribute to our understanding of video conferencing-related fatigue and its effect on people. To date, there are limited studies that specifically discuss MRT in relation to “Zoom fatigue.” As the pandemic eases, many employees have indicated they want a hybrid option. Of those asked, about 53% of remote-capable employees expect a hybrid arrangement for the long term, according to Gallup’s State of the Workforce (Saad & Wigert, 2021). Such a large-scale flexible work environment would benefit from an understanding of this specific fatigue and its impact as we move forward.

This chapter begins with a literature review search methodology overview, including sources and selection criteria used. This is followed by a comprehensive review of the literature that includes exploration of core themes, critical examination, and discussion of limitations and opportunities for further research. The discussion of related content subjects begins with an overview of MRT because this project seeks to understand how this theory might help us understand “Zoom fatigue” and additionally, how the impact of characteristics, such as gender, might contribute to our understanding of MRT. A foundational understanding of MRT is fundamental to exploring how it might provide insight into video conference meetings and related fatigue during the pandemic.

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The exploration of video conferencing and “Zoom fatigue” is next with organizational communications and gender following.

Key categories are based on literature review findings and include MRT, video conferencing, “Zoom fatigue,” gender, and internal organizational communications, which is a process of strategic communication and information flow across interrelated dimensions including management and employees, peer communication and project communication (Welch & Jackson, 2007).

Literature Review Methodology

This literature review provides a foundational overview to my Capstone project: a critical examination of MRT and its relevance to video conference meetings in organizations throughout the pandemic, including understanding gender differences through a “Zoom fatigue” lens.

My project was narrowed to include a focus on gender after finding limited scholarly research papers that examined human characteristics in relation to “Zoom fatigue.” My literature review research questions are as follows:

RQ1: What possible explanations, if any, might Media Richness Theory offer as a theory to account for “Zoom fatigue” during the pandemic?

RQ2: Does “Zoom fatigue” reveal differences among gender that would affect our understanding of MRT?

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Research is often multidisciplinary and interdisciplinary and this research project required a diverse search strategy that explored different branches of disciplines including psychology, communications, business, computer science, science and sociology. This approach also resulted in increased difficulty as multiple theoretical perspectives were presented.

Information accessed to answer these questions included academic articles, grey literature, and news articles (primary and secondary sources of information) using the University of Alberta Library database, Google Scholar, EBSCOhost, ProQuest, ScienceDirect, Scopus, SAGE and Google search. Boolean logic was used for keyword searches. Key words included COVID19 or coronavirus or pandemic; Zoom or virtual or online or video* or meeting or conferenc*; and fatigue or exhaustion or "Zoom fatigue." Gender or women or female were added when the characteristic angle was explored. When seeking organizational communications information that addressed engagement challenges or what occurs when employees are fatigued, the search terms included org* communication or employee engagement or internal communication* or organizational citizenship (a term that surfaced through searches) with some searches also including fatigue or exhaustion or virtual or Zoom or video* or online.

The literature review search for MRT necessitated foundational articles dating back to the 1980s when the theory was first developed. This search included basic "media richness theory" as well as Daft, Lengel and Trevino. The search covered the decades from initial theory development to 2022 inclusive, to provide an overview of MRT over time, including research that involved MRT and new media evolution. Media richness theory or MRT or media rich* was not common to grey literature or news

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articles but was still incorporated in many searches as an “or” option during the search for information about “Zoom fatigue.” The searches also included criticism or evolution or communication or organization. This tactic was also used in academic searches to ensure a robust search that would result in a well-rounded understanding of the theory and support a critical examination. Academic results that showed positive as well as negative MRT research outcomes were sought.

This literature review found limited studies that discuss MRT and “Zoom fatigue,” perhaps due to the emergence of the “new phenomenon” during the pandemic (Riedl, 2021, p. 153). Among them, Neshor Shoshan and Wehrt (2022) confirmed it was video conferencing rather than any form of meeting during the pandemic that was exhausting for participants. Fauville et al. (2023) drew on MRT as evidence that the effect of being watched is higher in video conferencing due to its design of having multiple faces on the screen. They argue that feeling watched results in people being vigilant to avoid social missteps, an increase in nonverbal overload (2023, p. 3). This is key to establishing the need to examine MRT and its relevance as well as contributing to our understanding of “Zoom fatigue.”

Most academic research cited in this literature review is from reputable, peer-reviewed journals to ensure credibility and a thorough review process. However, the timeliness of the research questions benefited from the inclusion of selected grey literature and news coverage about reported experiences of “Zoom fatigue.” Grey literature screening included a review of the author/s, publication, and content, such as balance, and attribution of credible sources, before being included. Chosen news articles or newsletter content adhered to journalistic standards (Rosenstiel, 2013).

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Present day to earlier research around topics, such as organizational communications or gender, were examined for relevance. Articles were largely North American with a conscious effort to include a few international studies or grey literature to reflect the global aspect of the pandemic and the digital work ecosystem that ensued.

Zotero, a free reference management software, was used to manage data and research materials.

Media Richness Theory

Media Richness Theory (MRT), sometimes called information richness theory, was developed in the 1980s by scholars Richard Daft and Robert Lengel with Linda Trevino joining later as a key scholar (Ishii et al., 2019). Google Scholar shows that Daft and Lengel (1986) has been cited 13,999 times, making it a widely referenced theory. As noted earlier, MRT “is one of the most cited theories in media studies and mediated communication research” (Sheer, 2020, p.1). Daft and Lengel (1986) theorized managers need to consider medium choice when deciding how to communicate. “The theory suggests the effective use of a communication channel (medium) by matching the richness of a medium and the equivocality of a task.” (Ishii et al, 2019, p. 124).

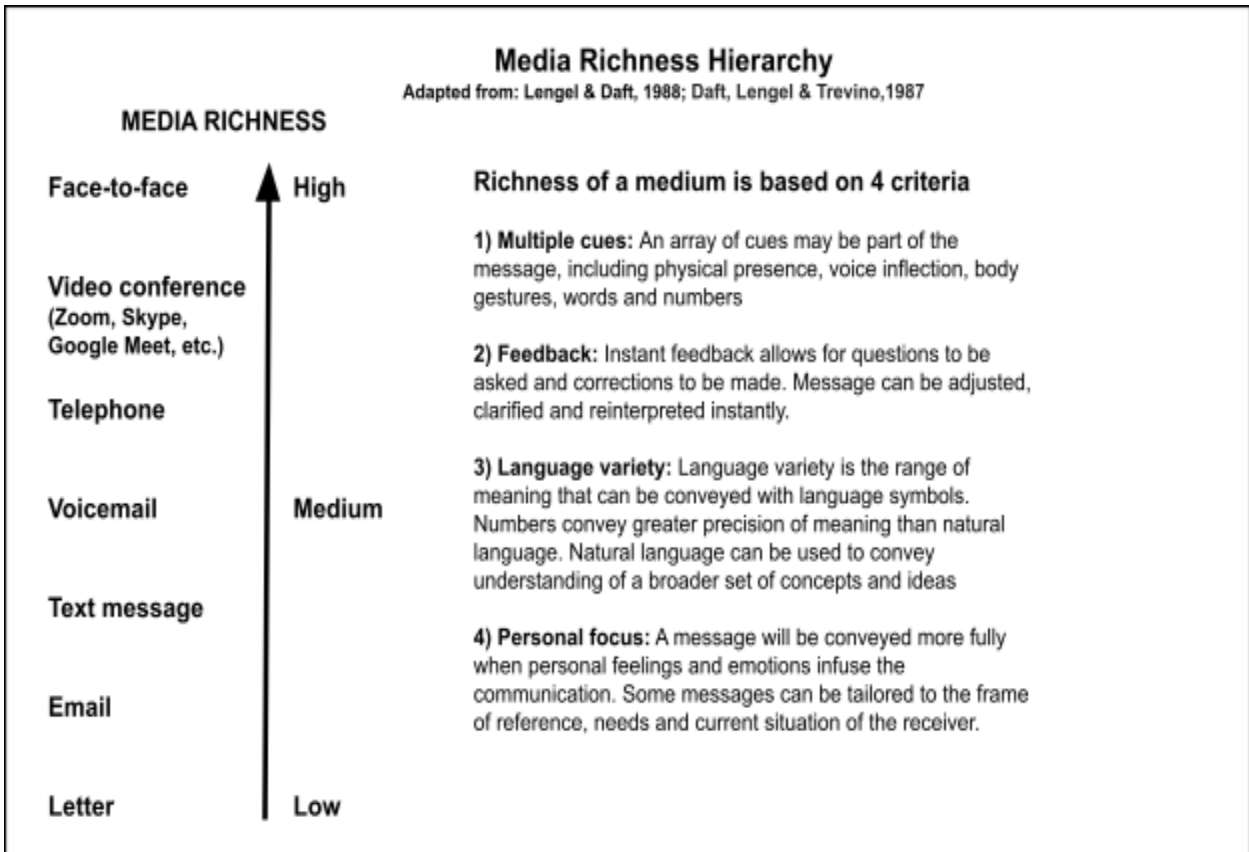
MRT claims that different types of media have varying abilities to support two important processing information tasks for organizations: equivocality (ambiguity) and uncertainty (Daft & Lengel, 1986, p. 554). Accomplishment of a task is more successful when the task equivocality is matched with the right medium richness level (Lengel & Daft, 1984) therefore improving performance (Dennis et al., 1999). “Richer” media allow for better understanding of equivocal or ambiguous messages and thus help achieve

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better performance on those tasks while “leaner” media are best suited for routine information (Dennis et al., 1999.)

MRT suggests the richness of a medium is determined by four criteria (Daft et al., 1987). They include feedback immediacy, and multiple cues, such as physical presence and non-verbal cues (smiles, nods), tone of voice and words. Another criteria, language variety, represents the range of meaning that can be conveyed with language and symbols. While numbers are more precise, natural language conveys a broader set of concepts and ideas (Daft et al., 1987, p. 358). Personal focus is the fourth criteria, suggesting that a medium that enables more personal feelings and emotions will convey the information more fully.

Table 1. Media Richness Hierarchy



Source: Adapted from Lengel & Daft, 1988 and Daft, Lengel & Trevino, 1987

According to the original theory, face-to-face is deemed richest as it can support changes in understanding through rapid and mutual feedback, instant clarification or confirmation of content, multiple non-verbal cues, voice tone and body language and emotion. Written content is leaner as it doesn't allow for emotion and non-verbal cues to be conveyed, but to use a rich media for a lean task would "provide excess cues and surplus information for unequivocal messages," (Dennis et al., 1999, p. 413) resulting in an increase in the time required for decision making (Lengel & Daft, 1988). Additionally, feedback is slow in leaner media, such as email, which adds time to communication (Daft et al., 1987, p. 359). That may have been true at the time of the theory's

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development, but is no longer accurate with the emergence of instant text messages, Google chats and social media, making online media either lean or rich, depending how they're used (Ishii et al., 2019).

In their 1987 study, Daft et. al. found rich channels were preferred for messages high in equivocality while lean media were preferred for unequivocal communications where “the content is clear, and participants have similar frames of reference” (p. 361). It assumes that a richer channel will provide better outcomes when dealing with equivocality or complex tasks (Karl et al., 2022 p. 348). The theory moves across a unidimensional line without taking into account subjective or characteristic factors and has had mixed research results. “The theoretical utility is low because very few real-life media use situations meet those conditions” (Sheer, 2020).

Table 2. Media Selection Framework

		MANAGEMENT PROBLEM	
		Routine	Nonroutine
Media Richness	Rich	<i>Communication Failure</i> Data glut. Rich media used for routine messages. Excess cues cause confusion and surplus meaning.	<i>Effective Communication</i> Communication success because rich media match nonroutine messages.
	Lean	<i>Effective Communication</i> Communication success because media low in richness match routine messages.	<i>Communication Failure</i> Data starvation. Lean media used for nonroutine messages. Too few cues to capture message complexity.

Source: Lengel & Daft, 1988

Source: Lengel & Daft, 1988

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MRT is controversial with inconsistent findings resulting in reliability and validity issues. MRT concerns have been raised for decades (Dennis & Valacich, 1999). For example, Dennis and Kinney (1998) found study participants perceived richness differences due to cues and feedback of media, but it did not improve decision quality; a significant contradiction to MRT's argument that choosing a medium that matches the equivocality of a task improves performance. Kahai and Cooper (2003) found that richer media has "significantly positive impacts on decision quality when participants' task relevant knowledge is high." The knowledge or expertise around the task is an important qualifier and while it may be accurate, it demonstrates positive outcomes for MRT based on specific circumstances that appear contrary to its theory.

MRT mixed results are more profound when exploring the digital evolution (Hall et al., 2021; El-Shinnawy & Markus, 1996; Ishii et al., 2019; Kahai & Cooper, 2003). MRT was adapted to retroactively include new media communication, such as video conferencing. However, MRT theorists cautioned organizations about the use of newer technology, such as "computerized management information systems... and teleconferencing systems" (Trevino et al., 1990, p. 90). The researchers cautioned that such media could not yield the same capacity to resolve equivocal tasks as face-to-face communications. New media, such as instant messaging that allows audio and video features or social media platforms like Facebook, or smartphones has transformed communication, revealing the complexity that has emerged since the theory was initially developed. These types of media would be considered leaner under MRT, but their interactivity capacity in theory makes them richer, making it difficult to align them cleanly within the original MRT framework (Aritz et al., 2018). For example, instant text

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messages have the potential to offer immediate feedback and clarification as well as opportunity for social cues through emojis, gifs and photos (Hall et al., 2021) depending how they're used. And that choice also signals another concern about MRT. When developed, communication media were often described as asynchronous (e.g., email) or synchronous (e.g., face-to-face), but the evolution of media means that today's channels can often be used in a multitude of ways (Kte'pi, 2020).

This aligns with the criticism that MRT is deterministic and that the “confluence of task and participants” (Kahai & Cooper, 2003) should be considered. When it comes to media selection, Daft and Lengel argue it is a medium's varying characteristics that “make it appropriate in some situations and not in others” (1988, p. 225), thus describing the media richness scale as moving along a “one-dimensional continuum” (El-Shinnawy & Markus, 1996, p. 446). However, researchers, even early on, pointed out the need to consider the impact of social influence, comfort levels with a medium, flexibility and other subjective factors (El-Shinnawy & Markus, 1996; Ishii et al., 2019). The richest medium should be chosen based on the situation, individuals, task, and context (Dennis & Valacich, 1999).

MRT has undergone changes from the original theory developed by Daft and Lengel. In 1990, Trevino, Daft and Lengel pointed out the importance of the “symbol,” a subjective concept, that can be connected to each medium. This includes the formality that comes with using an organization's letterhead versus a more casual text or Google chat message. The trio added symbolism as a point to consider when choosing a channel. The idea of symbolism may have played a role in the peak of the pandemic as it was an “exceptional” time when minimal face-to-face interactions took place, noted

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Nesher Shoshan and Wehrt (2022, p. 829). As noted earlier, MRT was retroactively adjusted to include new media (Dennis et al, 1999). In their theory development Daft and Lengel focused on organizational managers connecting the media choice to the task or the information processing required, such as complexity and equivocality. However, many studies that followed, focused more on media choice of the sender rather than examining the performance outcomes (Dennis et al., 1999). One of the goals of Daft and Lengel was to improve organizational performance.

There have been several scholars who have called for further adaptation to MRT, such as considering situational elements, social factors and subjective influences, including people's attitudes, knowledge and experience with a media (Ishii et al., 2019; Nesher Shoshan & Wehrt, 2022). Social information processing, one of the theories that builds on MRT, argues that media use is subjective and needs to consider factors such as people's experiences and perceptions of a medium. (Ishii et al., 2019). Moving "from objective to subjective views towards media richness" (Ishii et al., 2019, p. 124) was also part of Nesher Shoshan and Wehrt's work (2021). Additionally, people may be influenced by their manager's preferred medium to transmit information, which is not considered in MRT (Ishii et al., 2019). Sheer and Chen (2004) found managers adhered to the concepts of MRT when the information being transmitted was positive, but when it was negative then the goal of individual presentation became more important. The two found that media selection included relational and self-presentational goals in addition to Daft and Lengel's instrumental goal. Sheer and Chen also argued that message valence – understanding whether the message was positive or negative – would allow for users of the theory to differentiate between complexity and equivocality (2004, p.

90). Also important to note is that Media Synchronicity Theory (MST) is an extension of MRT. Similar to MRT, MST tries to align the requirements of the task with “the capabilities of the medium” (Maruping & Agarwal, 2004, p. 977) with a focus on conveyance (transmission of new information from one person to another and how it's processed by the receiver) and convergence (information goes back and forth).

Also, in a modern world, where being online for extended hours is the norm, information overload needs to be considered. Richer media is found to lead to processing more information in the short term, which on the surface sounds beneficial, however users are susceptible to “experience information overload and decreased decision-making quality,” particularly if content is negative or novel (Fox et al., 2007 as cited in Xiao et al., 2021) This seems to contradict Lengel and Daft's approach that the “more learning that can be pumped through a medium, the richer the medium” (1988, p. 226).

Despite the inconsistent findings revealed by ongoing research, MRT is viewed by some researchers as “salient to almost all areas of life since its impetus several decades ago” (Ishii et al., 2019, p. 125). Deft and Lengel's theory that there can be an increase in communications effectiveness and equivocality of tasks by choosing the appropriate medium was “derived from an objective view of media characteristics” (Ishii et al., 2019, p. 124). Inconsistent research findings do not negate the validity of some core aspects of MRT, such as the need to carefully consider the different factors of a medium and their potential to impact information transmission, equivocality and performance. The mixed results of this theory do not dismiss the concept that channel choice may affect outcomes of communication transmission, and in light of the

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complexities of evolving digital channels, may make understanding in this area even more important to help achieve successful communications outcomes.

Zooming in on Video Conferencing and Fatigue

Doring et al., (2022) noted that researchers have begun to re-investigate video conferencing “particularly with an eye on the pandemic situation and so-called “Zoom fatigue,” (p. 2) noting that this work spans a wide span of fields including psychology, communication, technology and medicine. At this time, research into “Zoom fatigue” remains scarce (Nesher Shoshan & Wehrt, 2022) and Fauville et al. (2021 b) noted “a scarcity of academic research on the psychological effects and mechanisms of video conferencing, and scholars need tools to understand this drastically scaled usage” (p. 1). Nesher Shoshan and Wehrt (2022) conducted quantitative and qualitative research that validated the existence of video conference fatigue and provided insight into experiences that may cause such a response. Among Nesher Shoshan and Wehrt’s findings were themes of loss such as reduced richness of social cues in video conferences that would align with MRT (2022, p. 840) including participants expressing difficulty determining social cues of others and a perceived pressure to provide these cues during meetings (p. 843). From an MRT lens, their findings add to calls to consider subjective or human perspective/views toward media rather than the original objective MRT approach.

Interestingly, Nesher Shoshan and Wehrt were only able to find one pre-pandemic research project that examined video conferences and strain and its results revealed there was no such impact (2022, p. 830). Pre-pandemic research found

that people preferred in-person communication when compared to video conferences, however video conferences were preferred in some situations such as avoiding long travel (Denstadli et al., 2012).

Research gaps have been identified in aspects of video conferencing, prior to the pandemic. In their 2015 paper, Etudo et al., called for more research, including from an MRT lens, into understanding video conferencing versus face-to-face communication in group support systems settings (GSS), which is defined as an "IT enabled environment of information exchange wherein groups of people may meet across time and space towards the attainment of some goal." (p. 344). The paper, which includes an analysis of MRT studies, argued that "very few studies" examined video conferencing from the GSS perspective because far too often researchers take the position that video conferencing is similar to face-to-face. (Etudo et al., 2015, p. 352).

On the surface and according to MRT, video conferencing seems like a good alternative to in-person meetings. However, during the high adoption rate of virtual meetings during COVID-19, reports began to emerge of people feeling fatigued or exhausted, which was attributed to time spent in video conference meetings (Bennett, 2021; Lee, 2020). Emerging scholarly literature validates video conference fatigue (Bailenson, 2021; Fauville et al., 2021 b; Johnson & Mabry, 2022; Neshor Shoshan & Wehrt, 2022). In one example, a 32-year-old social media consultant found participating in video conferences fatiguing, stating, "it's like a drain of cognitive resources" (Riedl, 2021, p. 153).

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While some people blamed “Zoom fatigue” on an increased meeting load, including unnecessary meetings, metadata of e-calendars found the “average employee” saw a reduction in meeting participation during the pandemic when compared to pre-lockdown times (Kuhn, 2022). However, frequency of meetings and breaks were found to be factors in video meeting fatigue (Fauville et al., 2021 b; 2023), which was echoed in findings by Bennett et al., (2021) who found time of day was also a contributor to videoconferencing fatigue. Meanwhile Shockley et al. (2021) did not find a connection between the frequency and duration of video conferencing.

A 15-point Zoom Exhaustion & Fatigue Scale (Appendix A) was developed and tested for validation by Fauville et al. (2021 b) to specifically assess exhaustion or fatigue associated with video meetings. The researchers conducted five studies with more than 3,000 participants with the 15 items measuring five aspects of fatigue related to video conferencing.

Fauville and her fellow researchers called for more research to understand causes and antecedent variables – explaining the relationship between other variables (2021 b). The group suggested further exploration based on initial qualitative interviews that perceived gaze, self-representation, and mobility constraints from sitting in the centre of the screen were contributing factors to fatigue.

Fauville et al. (2023) found that meeting frequency would increase fatigue while frequent or longer breaks between meetings would reduce fatigue — which may be viewed as predictable. Interestingly, they also confirmed their theory that “Zoom Fatigue” can be caused by non-verbal overload (Bailenson, 2021), which is triggered by

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about five specific mechanisms “unique to current implementations of video conferences” (Fauville et al., 2021 a, p. 2). While it wasn’t focused on MRT, Fauville et al. (2023) argue that nonverbal overload can be exhausting – despite nonverbal cues being one of the components that make this medium “richer.” Fauville et al., (2023) referenced MRT and videoconferencing’s ability to provide high definition images in near real-time, which means that people should expect the effects of being watched to be stronger than some other medium choices “because the richness of communication cues means that people will feel watched by many other people” (p. 3).

One interpersonal interaction factor is hyper gaze that comes from people’s eyes continuously in a participant’s line of sight. Stanford University professor Jeremy Bailenson, a researcher with Fauville’s team and who has studied virtual communications for two decades, argues that similar to how we don’t stare at each other in elevators or during in-person meetings, video conferencing has upset our balance as it requires us to look directly into the video meeting’s screen grid for the entire meeting (Bailenson, 2020). In their research, Shockley et al. (2021) found the perception of being “watched” causes fatigue in video conferencing and the “use of video in virtual meetings poses an additional burden” (p.1145). Additionally, being stared at while speaking can cause anxiety (Fauville et al., 2021 a).

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Source: Microsoft stock image

Mirror anxiety is another mechanism that comes from people seeing themselves on the screen, similar to a mirror. The mirror effect can result in self-evaluation that is stressful (Gonzales & Hancock, 2011), particularly among women (Fauville et al. 2021 b; Shockley et al. 2021). Neshor Shoshan & Wehrt (2021) reported that several participants mentioned “high awareness” due to their face being visible on screen as a source of exhaustion (p. 841). In their research, Johnson and Mabry (2022) heard from participants that the ability to turn off the camera was important to them, and the reason went beyond appearance. One participant shared that “remaining in front of the camera for an extended period of time uses energy” (p. 395). Research found that being on camera in video meetings predicted emotional exhaustion, particularly if participants felt there were too many meetings, or they went beyond what was believed beneficial or necessary (Johnson & Mabry, 2022). And studies showed the complexity of the

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challenge among participants, signalling that not all people react the same way to different media. Feelings towards being visible on screen saw a strongly mixed reaction with 87% of participants noting positive and negative aspects with use of the camera in video meetings (Bennett et al., 2021). A significant cause of fatigue was the effort of having to be always fully present in a meeting with a camera pointed at participants while participants also reported that being able to see others was beneficial and that being on-camera increased attention (Bennett et al., 2021). The same study found about 93% of participants acknowledged experiencing video conference fatigue.

Being forced to sit immobile so that you remain in the centre of your screen was another mechanism found to cause fatigue (Fauville et al., 2021 a). The last two mechanisms connect to the cognitive overload associated with video meetings, which require more concentration and focus than face-to-face meetings, (Fauville et al. (2021 a). This can contribute to fatigue because people are consciously monitoring their nonverbal behaviour and feel a need to exaggerate signs, such as nodding enthusiastically to signal agreement, (Bailenson, 2021). Interpreting nonverbal cues of others is also fatiguing and may be challenging to interpret, leading to situations where “audio only interactions can be more successful in terms of synchronicity and collaboration” (Fauville et al., 2021 a, p. 3), a contradiction to MRT’s theory. Neshor Shoshan & Wehrt (2022) found participants felt the decrease in social cues in virtual meetings compared to in-person meetings were exhausting. Hall et al. (2021) argued that increased social energy expenditure required during video conferencing is more taxing. And extra options, such as the chat function can be engaging for individuals, but

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can become taxing, particularly if the information detracts from the meeting purpose (Wiederhold, 2020).

While “Zoom fatigue” has been validated through research, there are concerns about how much of an impact is due to working from home. Ashforth et al. (2000) found working at home was draining for people, particularly if they were juggling roles of employee and parent. Allison Gabriel, who co-authored a study on “Zoom fatigue” says the degree of engagement in the call can be taxing, particularly for females. “Women often feel the pressure to be effortlessly perfect or have a greater likelihood of child care interruptions,” said Gabriel (Stillman, 2021).

Employees need to be able to detach from work or risk fatigue and negative emotions (Sonnentag et al., 2008), which may indicate that working from home may have a negative effect since it may be a larger challenge to detach from a common environment although other studies have shown it has benefits including time and financial savings from not commuting (Hopkins & Figaro, 2021).

Throughout COVID-19, people on video calls have not only had to make sure they were presentable for the camera, but also worry about a family member walking in – such as a young child – or what people may think about what they observe in their home through the camera lens. Stress could be triggered by the “personal issues around the blurring of boundaries between work and home, managers and colleagues accessing what was a private space distinct from the workplace and company policies that demand that cameras must always be on.” (Williams, 2023, p. 164).

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There are significant findings that indicate there is a need to better understand “Zoom fatigue” and how it impacts employees. Among the research into video conference fatigue among employees, one key study (Fauville et al., 2021 a) shows that nonverbal overload may be triggering exhaustion and that women are more likely to experience video conference fatigue (Fauville et al. 2021 a & 2023). The very richness of visual connections could be part of the problem, a situation that seems contrary to what MRT would predict.

Gender Factor

One of the criticisms of MRT is that it doesn't account for characteristics, such as gender, race, age, or neurodivergence. Lengel and Daft (1988) theorized “communication success will occur” (p. 227) when leaders choose rich communications media when equivocality is present and lean media for routine messaging without discussion about the potential for varying impact along the gender spectrum or other human characteristics. Yet, research examining gender differences in nonverbal communications has been happening for decades (Dennis et al., 1999; Gates, 1923 & Noller, 1986). Research has shown differences in communication styles such as women being more expressive and superior at decoding and interpreting nonverbal cues in others when compared to men (Dennis et al., 1999 & Noller, 1986).

In Fauville et al.'s convenience sample of 10,322 participants, women reported significantly higher fatigue than men (2021 a). One in seven women versus one in 20 men reported feeling very fatigued because of videoconferencing (2021 a). The study found men and women had the same number of meetings in a day, but meetings for

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females were longer and had less break time between meetings. Accounting for these differences, Fauville et al. still found women's fatigue level was higher than men (2021 a). In another survey of 613 adults (Ratan et al., 2022), researchers sought to determine whether viewing self-video during video conferences was a factor in fatigue and found it was 14.9% higher among women. Their findings suggested it was due to facial dissatisfaction or negative self-focused attention caused by people watching themselves in self-video during online meetings (Ratan et al., p. 126).

In Fauville et al., (2021 a) the biggest contributor to women's exhaustion levels was self-focused attention because of video conferencing's self-view feature. Known as mirror anxiety, the findings were confirmed in the self-report data as well as linguistic comments with women using more first-person pronouns, a measure of self-focused attention in previous research (Fauville et al., 2021 a, p. 11). This is supported by the qualitative data of Johnson and Mabry that found women expressed concerns about their appearance more than men in videoconferencing (2022). "Self-focused attention refers to a heightened awareness of how one comes across or how one appears in a conversation," says Stanford University professor Jeffrey Hancock, (DeWitte, 2021) who is a co-author of the Fauville et al. (2021 a) study. Previous research has found females are more apt to experience self-focused attention in the presence of a mirror and it is more likely to be a negative experience (Ingram et al., 1988). Research that used a mirror or a video camera pointed at participants revealed decreased self-esteem (Gonzales et. al, 2011). Fauville et al. (2021 a) also found women reported higher levels of fatigue – although a lesser degree than mirror anxiety – in other nonverbal mechanisms including feeling physically trapped, hyper gaze (being watched) and

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nonverbal signals, such as smiling. While Ratan et al. (2022) did not explore mirror anxiety in their research, they did find that people's facial dissatisfaction should be considered a factor in "Zoom fatigue."

The Fauville research team also revealed differences in other characteristics that, again, are not accounted for in MRT. The study (2021a) revealed less fatigue for extroverts and older people. Researchers also found fatigue was lower in a social context versus work.

Johnson and Mabry (2022) recommended video conferencing participants have the choice, without consequence, to turn on their camera in a meeting (p. 403), a suggestion that indicates a need to recognize different responses to a medium. Others have also suggested that cameras could be turned off or the self-view turned off (Bailenson, 2021; Fauville et al, 2021 a) however it is important to note there is a tension between keeping your camera on or off. People have reported feeling exhausted by the "silent others" (Nesher Shoshan & Wehrt, 2022, p. 841) such as individuals who stay on mute or keep their cameras off during a video conference, which generates feedback that includes "... it is super frustrating to talk blindly to people without knowing if they are even there..." (p. 841).

Internal Organizational Communications Through a Zoom Lens

As COVID-19 drove a dramatic acceleration of digital communication adoption for organizations (McGloin et al., 2022), many employees likely felt unprepared for the shift, including the need to work from home (Waizenegger et al., 2020), resulting in challenges for internal communications. This was the case with the pandemic,

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particularly in the early days as people were trying to understand the complexity of the health crisis (Stephens et al., 2020 p. 427) while adapting to work in a home environment requiring employees and “organizations to innovate and learn on the fly” (p. 440). The emergence of Zoom fatigue compounded an already complex environment for employees, adding further challenges for internal communicators and organizations. The long-term potential for a hybrid or remote work environment makes understanding Zoom fatigue and its impact on internal communications of critical importance for organizations.

Organizations need to understand the impact of “Zoom fatigue,” particularly if it diminishes employee productivity or interferes with information transfer or collaboration that could negatively affect organizational communications. As noted by Lengel and Daft, “Information is the life-blood of organizations” (1984).

The emergence of video conference fatigue, and its potential threat to optimal organizational information flow, including internal communications, came at a time when organizations needed to quickly adapt while facing the reality that equivocality seems to follow unplanned change (Stephens et al., 2020, p. 448). This made the need for effective communications even more important. Successful communication and information transfer is vital in all areas of organizational activities and functions, including providing information to support decision making, (Weick, 1987), task performance, and bolstering motivation (Zink, 2021). Internal communications influences and drives employee engagement. (Welch, 2011) and employee voice is critical for engagement (Ruck & Welch, 2012). Open and two-way communication, which enables employee voice, sees information flowing freely, allowing the sharing of

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vital information and perspectives (Cornelissen, 2020, p.184). Meetings play an important role in achieving goals like problem solving, knowledge transfer and sharing and brainstorming new ideas (Lopez-Fresno & Cascon-Pereira, 2022). Throughout COVID-19, internal communication could be arguably described as strained by “Zoom fatigue.” Previous research demonstrates that mental exhaustion negatively affects people’s ability to meet their job demands or engage with others (Trogakos et al., 2015; Maslach et al., 2001 as cited in Johnson & Mabry, 2022), making this a concern for employers. Organizations want to avoid the risk of poor meeting experiences via video conferences. When employees feel meetings are “bad” it can “negatively impact employee outcomes such as job satisfaction, co-worker trust, and other job attitudes.” (Allen et al., 2016, p. 4340)

The pandemic signalled a need for targeted communications to address equivocality. The sharing of information has no value if a knowledge transfer doesn’t take place and recipients can’t achieve sensemaking. Organizational behaviour scholar Karl Weick, whose studies include sense-making under pressure, argues that in times of upheaval, such as the pandemic, our understanding and traditional responses can become obsolete. (Stephens et al., 2020) and that significant change brings about “substantial uncertainty, ambiguity and equivocality” (Stephens et al., 2020, p. 427). This demonstrates a critical need for strong internal communications and, according to MRT, might suggest rich media be used to transfer information. That would make the impact of “Zoom fatigue” even more problematic during the pandemic.

While the dependence on technology throughout the pandemic is a dramatic shift in how employees traditionally engaged with each other and their organization (Fauville

et al., 2021 b; Johnson & Mabry, 2022), there were positive outcomes. Text messaging between employees and supervisors had a positive relationship effect, indicating that more personal forms of communications may be preferred rather than traditional formal channels (McGloin et al., 2022), again suggesting that media selection is complex.

Also of importance, is the need for people to reveal when they are having challenges. Individuals may feel uncomfortable revealing their concerns about “Zoom fatigue” if they don’t feel psychologically safe or worry that their challenges will be dismissed. Meeting participants who believe it necessary to falsely present positive emotions, known as surface acting, are more apt to face emotional exhaustion, have negative moods and quit (Johnson & Mabry, 2022). Fauville et al., (2021 b) noted people felt the need to exaggerate nonverbal cues, but what if those cues lead to a false presentation of their true emotions such as people thinking they are more upset or happy than is the case? Achieving understanding and empathy requires openness and trustworthiness that can emerge through genuine dialogue as outlined in Jürgen Habermas’ four principles of genuine communication. The need for respect, mutual trust, truth and to seek understanding through rapport is essential for open communication (Habermas, 2007). That also requires organizations to be mindful of privileged points of view and biases including areas of gender, ethnicity, and ability (Cheney, 2000). When employees support each other, there are benefits. Displays of social support by co-workers or leaders, including providing opportunities for personal connection, during video meetings helped reduce feelings of exhaustion for participants (Johnson & Mabry, 2022). Higher levels of feeling that one belongs to a team or group

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was shown to be a protective factor against videoconferencing exhaustion (Bennett et al., 2021).

The pandemic signalled an opportunity for organizations to seek more information about how employees are faring, particularly during times of stress, and whether they are negatively affected by changes, such as “Zoom fatigue.” McGloin et al. (2022) suggested organizations conduct anonymous surveys to learn more about how employees are managing remote work and whether they need more training, particularly if an individual has apprehension about a specific communications channel. Leaders need to consider that employees may need more support and address individual differences (McGloin et al., 2022).

Understanding the impact of “Zoom fatigue” on employee communications is vital to an organization due to the value it holds in achieving organizational success. It is also critically important to understand any negative impact around the use of video conference meetings given that many employees, where feasible, expect the long-term to hold a remote or hybrid working environment (Saad & Wigert, 2021). Organizations may need to prepare for a future where its workforce remains distributed in multiple locations. “Remote workers may no longer be a subset of employees, but how most employees work.” (Blanchard, 2021, p. 294).

Limitations

The literature review acknowledges that scholarly work related to the pandemic and “Zoom fatigue” through an internal communication lens is still emerging.

Researchers acknowledge the opportunity for additional research (Fauville et al., 2021

b). There is extensive opportunity to further our understanding in this area particularly around camera use. Given the impact, there is a need to grow our understanding of characteristics, such as gender and age, that impact vulnerability in videoconferencing.

While COVID-19 is still part of our lives, many people are returning to the office in a hybrid environment, which may impact “Zoom fatigue” levels, another gap in the research literature. It is also not clear whether there are “Zoom fatigue” longitudinal studies underway, which may demonstrate whether this is a long-lasting challenge or if people are able to overcome the fatigue and negative aspects of the communications tool through continued exposure or other means. The recency of the pandemic and emergence of video conference fatigue means we don't have long-term knowledge, and this limits a fulsome understanding of its full impact.

Another limitation of this literature review is that the pandemic environment included significant other variables that could impact stress levels, including fear of health for oneself and others, financial stress, childcare challenges (Lee, 2020) and potentially the complexity of the home office environment which includes access to work at all times and distractions. When the pandemic ends, these mitigating factors would hopefully be excluded but may be relevant for some groups.

Discussion

This literature review provided an overview of MRT, viewed as a “classical” communications theory (Blau et al., 2017), that argues different channel use influences the equivocality of information that is transmitted to receivers. The original MRT places channels on a linear continuum of “richer” or “leaner” based on media's ability to

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transmit multiple cues (body language, tone of voice), provide instant feedback, natural language and the personal focus of the medium (El-Shinnawy & Markus, 1997).

Research studies have shown mixed results, making this a controversial theory, but one that continues to be cited and tested today, evidenced by 13,999 citations of one of Daft and Lengel's (1986) foundational articles on Google Scholar. Its arguments warrant examination through the natural experiment created by the move to online communication throughout the pandemic. The opportunity to explore MRT's relevance to media's ongoing evolution, including its diverse functionality that incorporates lean and rich elements within a single tool, is important to this project and future research to help grow our understanding about the impacts of media choices on communications. Researchers' contributions to the theory, including Ishii et al. and Shoshan and Wehrt who argue there is a need to consider subjective elements, such as people's knowledge of a media and their experience or perception of it, expands the theory. Created in an organizational setting, the original MRT's arguments affect decision making about the most appropriate communication tool to use depending on the information being transmitted. Understanding in this area is more important than ever as we find ourselves in an accelerating digital landscape sparked by the pandemic. We need to be informed about choosing media, such as whether video conferencing contributes to enhanced context for communicating complex topics, reinforcing MRT's theory that media choice is relevant to the task and desired outcome. While it has seen mixed results, MRT is a strong theoretical framework to support this research project.

People's "Zoom fatigue" experiences created a natural experiment opportunity and research is in its early stages with limited data available (Fauville et al., 2021 a).

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More work is needed to understand why people – and in particular, more women – experience symptoms that include exhaustion, stress and anxiety due to participating in video conference meetings, a common employee communications tool during the pandemic for many organizations. Indeed Fauville et al. (2021 b) identified a need for additional research in this area. There is a need to build on their early findings that show negative effects from five key areas: hyper gaze, mirror anxiety, sitting immobile in the centre of the screen and two factors of cognitive overload that are caused by increased concentration to monitor and interpret nonverbal cues as well as a perceived need to exaggerate nonverbal behaviours (Fauville et al., 2021 a). We need to grow our understanding of the impact of factors such as “mirror anxiety” and whether it contributes to fatigue. If there is a realization that video conferencing is exhausting for participants, Neshor Shoshan and Wehrt (2022) argue “it practically implies that organizations should consider using other communication media for meetings more frequently during the pandemic.” (p. 829). The need to grow our understanding is also fueled by predictions that the future of work is expected to include hybrid environments at a higher level than pre-COVID-19 (Buhmann et al., 2021; Fauville et al., 2021 b; Karl et al., 2022; Stephens et al. 2020) and this could mean long-term use of video conference meetings on an increased basis when compared to pre-pandemic work environments. The need to understand the impact on characteristics, such as gender, with initial findings showing women are more likely to experience “Zoom fatigue” is crucial to equity, diversity and inclusion in organizational communications. This raises questions, such as, how is the decision to use video conferencing affecting employees and is it having different effects on different characteristics, such as gender? Does the

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absence of accounting for characteristic differences, such as gender, affect the relevance of MRT? Does the call to recognize subjective elements, such as attitudes, impede the merits of MRT? Based on MRT, are we able to make informed decisions, including consideration of characteristics such as gender, that will result in optimal employee communications outcomes when we use video conference platforms?

The literature review supports the need to grow our understanding about “Zoom fatigue” and video conferencing, in particular the effect on gender, through a MRT lens.

Theoretical Framework

My research project applies an MRT framework to study “Zoom fatigue,” drawing on the 15-point Zoom Exhaustion & Fatigue Scale (ZEF) created by Fauville et al. (2021 b) to understand the impact of video conferencing on organizational communications (See Appendix A). This case study is intended to contribute to the understanding of the use of video conferencing, a “richer” media choice, and the resulting impact on receivers; in this case, a purposive sampling of communications employees in a post-secondary setting. This study will examine receivers’ experiences in video conference meetings during the pandemic by adapting the ZEF assessment tool. Information assessed incorporates MRT’s core criteria including feedback immediacy, and multiple cues, such as physical presence and non-verbal cues (smiles, nods), tone of voice, and words or language variety. Personal focus, suggesting that a medium enables more personal feelings and emotions to help better convey the information, will also be represented in the framework.

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Two semi-structured focus groups of professionals will be conducted online to garner greater understanding of video conference participant experiences during the pandemic. Participants are required to have worked remotely during the pandemic, the timeframe of this study. The impact of recall on research is addressed in the research design chapter. A semi-structured approach to the focus groups allows the facilitator to adapt to emerging information revealed by participant responses.

One focus group will be a mixed gender group and the other will represent individuals who identify as female.

The content will be analyzed and categorized through inductive coding, by finding themes and patterns that emerge. Thematic analysis, a model within Narrative Analysis, ensures that “emphasis is on the content,” (Riessman, p. 2) or verbal experiences shared by participants; common to case studies. Group members’ responses to a participant’s shared experiences will also be monitored. Narrative analysis was chosen to support this qualitative research as it seeks to understand people’s emotions, attitudes and perceptions of videoconference experiences.

Summary

This literature review confirms the need for further research of “Zoom fatigue,” including the need to understand the role of gender, and to critically examine the relevance of MRT. As evidenced by the literature review, to date, there is limited research that focuses on “Zoom fatigue” and gender during the pandemic through a MRT framework.

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Acknowledging the criticisms around the original MRT theory – including inconsistent research results and that it is described as unidimensional, viewing media as objective choices without considering subjective human elements such as experiences and perceptions of a media, does not preclude the use of this theory for this project. MRT is still viewed as a foundational communications theory and is cited regularly in ongoing research that seeks to provide clarity around the impact of a media's choice on information flow, equivocality and task performance.

The literature review supports the need for this research project's questions. What possible explanations (if any) might MRT offer as a theory to account for "Zoom fatigue?" will contribute to the understanding of this theory during the pandemic. This case study of "Zoom fatigue" will provide insight into people's experiences of using a "richer" media like videoconferencing during the pandemic. The issue of video conferencing exhaustion cannot be attributed solely to looking at a screen; we have a history of watching screens, evidence of a more complex situation (Fauville et al, 2021 b) that we need to understand. The limited data to date exposes a need to expand our knowledge in this area, particularly with the digital acceleration sparked by the pandemic and its impact on organizational communications so that we can optimize its use.

The second research question in this capstone project, Does "Zoom fatigue" reveal significant differences along gender lines that might affect our understanding of MRT?, seeks to understand the role gender may play in videoconferencing. A few early findings show that women are more likely to experience video conference fatigue, which indicates more work needs to be done in this area to confirm and grow our

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understanding about gender characteristics when using this communications tool. This research benefits employees wanting to better understand their experiences and employers seeking successful communications in an environment that supports inclusivity and diversity. The exploration of people's experiences will contribute to the understanding of the impact of video conferencing and organizational decision making on communications tools, particularly important as media choice is linked with organizational effectiveness (Daft & Lengel, 1984, 1986).

Additionally, there is an ethical component to ensure that employers seek to understand employee needs when there are indications that they are being affected by an aspect of their employment – in this case, video conferencing – that may result in a diminished experience based on a characteristic, such as gender. The adaptation of the existing ZEF tool provides an opportunity to build on initial findings.

Chapter 3: Research Design and Methodology

Introduction

The COVID-19 pandemic sparked significant public health care restrictions, resulting in mass numbers of people ordered to work from home, where possible, with little time to prepare. In response, many organizations turned to video conferencing as a way to continue meeting with employees, which is generally considered a “rich” form of media according to Media Richness Theory (MRT) (Daft and Lengel, 1986).

This research seeks to explore employee video conference meeting experiences to see whether MRT can account for “Zoom fatigue” during the pandemic. This case study focuses on organizational communications with an aim of exploring if, and how, employees were impacted by the shift to video conferencing that was triggered by the transition to remote work. Also key to this research is understanding the role of gender as initial research (Fauville et al., 2023) revealed women are more likely to experience video conference fatigue.

Limited existing research reveals a need to grow our understanding about “Zoom fatigue” during the pandemic and this project aims to contribute to our knowledge of this topic through two research questions:

1. What possible explanations (if any) might MRT offer as a theory to account for “Zoom fatigue?”

2. Does “Zoom fatigue” reveal significant differences along gender lines that might affect our understanding of MRT?

The research design and methodology chapter begins with an overview of the study design and the rationale for choosing a case study approach. It explains the decision to use semi-structured focus groups to gather qualitative data and a demographic survey specific to focus group participants. Next, the chapter includes an overview of how participants were chosen using purposive sampling, followed by the setting of two semi-structured focus groups. Then there is an explanation of the research instrument and how the framework aligned with MRT and adapted the 15-point Zoom Exhaustion & Fatigue Scale, which was created, tested and validated by Fauville et al. (2021 b). The chapter explains the process of recording responses to capture narrative experiences of participants. Finally, it provides information about data analysis, including coding content.

Ethics Approval

Ethics approval was obtained from the University of Alberta’s Research Ethics Board. All steps in this research project adhered to University of Alberta’s REB protocols and processes.

Research Design

The sudden and widespread use of video conferencing for the remote workplace and the people who experienced “Zoom fatigue” created a natural experiment, which is the study of a naturally occurring situation in the real world. This is the essence of case

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study, which “investigates a contemporary phenomenon with its real-life context,” (Yin, 1992, p. 123). The aim is to gather an “understanding of a single or small number of ‘cases’ set in their real-world context” (Yin, 2012, p. 142) that will provide insight into real-world behaviour. A case study rarely captures an exact moment in time (Yin 2012, p. 142) and it is also complex with conditions that aren’t easily controlled or removed, (p. 143) which aligns with studying “Zoom fatigue” during the pandemic. A case study can be exploratory research that can help determine whether more investigation is warranted (Yin, 2012, p. 143) and while quantitative data is possible as Yin notes, it should rely on qualitative data to achieve its goals. Distrust in the procedures, including that they don’t sufficiently protect against bias, and lingering credibility issues that surround qualitative research are limitations flagged by Yin (2012, p. 144). Despite the limitations, the natural study environment of a new phenomenon and finding people with appropriate experiences, makes the case study the most appropriate research design choice to examine the two research questions that focus on video conferencing and fatigue through a MRT lens.

This case study’s sample group is drawn from alumni relations and development teams within the University of Alberta with several individuals sharing their experiences and addressing the female perspective, which results in multiple units of analysis. (Yin, 2012, p. 146). Prior to the pandemic, these professionals had in-person and video conference meeting experiences. The specific focus on an organization’s employee experiences with video conferencing and any subsequent fatigue naturally aligns with the required boundaries for a case study (Denscombe, 2010). Researching a group of

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people from the same organization, who were working remotely during the peak times of the pandemic, limits other variables, such as different work culture or geographical influences. This solidifies the case study as the appropriate choice to answer the targeted research questions. The small-scale research size also aligns with a case study approach (Denscombe, 2010). However, the small sample size limits the ability to generalize outcomes, one of the main criticisms of a case study (Denscombe, 2010). While a case study is the appropriate choice for this project, there are drawbacks to not gathering a broader sample population.

The decision to collect data through semi-structured focus groups provides an opportunity to gather open-ended responses, which can result in deeper and more extensive information than a survey (Yin, 2012). However, as Yin (2012) notes, an amount of skepticism about candid responses and accuracy is required during data collection. Another potential concern about focus groups is that data may be limited if one or a few people dominate the session (Cary & Asbury, 2012). Conducted with skill, semi-structured focus groups allow people to share their experiences and feelings in a narrative or storytelling format. Cary & Asbury (2012) note that “one story usually leads to another” (p. 28). Thus sharing of one experience may trigger other contributions, creating a more fulsome gathering of information, essential to growing our understanding.

Both research questions in this study feature an exploration of MRT and seek to understand how it accounts for video conference fatigue and characteristic differences

with women showing more vulnerability to experiencing fatigue (Fauville et. al, 2021 a, & Ratan et al., 2022). The fatigue outcome appears contrary to MRT (Daft & Lengel, 1986), however the original theory does not address different factors, including attitudes, as a consideration in media selection. Theory testing is an important aspect in determining the appropriateness of a case study approach. In their explanatory article about case studies, Lokke & Sorensen (2014) draw on Brinberg & McGrath (1985) to highlight that “concept-driven theoretical paths focus on understanding the explanation(s) underlying a phenomenon” (p. 67).

MRT served as a framework to inform the creation of questions for the focus groups. The 15-point ZEF scale (Fauville et. al, 2021 b) also informed the questions, with opportunities for adjustment based on participant responses during the focus groups. While Denscombe (2010) and Yin (2009) indicate that case studies can be used to examine or test theories, and this was the approach in this particular study, it is important that the research “not, however, constitute a strait-jacket” (Crowe et al., 2011, p.7) by trying to force the case to fit the framework.

Research Participants

Two focus groups were conducted online with three participants in the first group and five in the second; this was lower than anticipated as both groups had two cancellations the day the groups were running. However, smaller groups lead to deeper data collection (Carey & Asbury, 2012) so the focus groups were conducted as scheduled.

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These participants were chosen through purposive sampling, ensuring individuals had knowledge and relevant experience. “Purposive sampling works where the researcher already knows something about the specific people or events and deliberately selects particular ones because they are seen as instances that are likely to produce the most valuable data” (Denscombe, p. 35).

Participants were University of Alberta team members within alumni relations and development, who worked in-person before pandemic safety orders mandated remote environments. Participants worked throughout the pandemic and participated in video conference meetings using such tools as Zoom or Google Meet. Such criteria contributed to the established boundaries that are important for a case study (Denscombe, 2010).

Choosing members from within the same organization limited variables, such as significant differences in socio-economic factors, workplace culture or management styles, that could make it difficult to form conclusions if convenience sampling had been chosen.

Participants attended one of two focus groups: one was open to any gender and the other was restricted to individuals who self-identified as females to allow for deeper exploration of whether this characteristic was a factor in the likelihood of experiencing “Zoom fatigue” as Ratan et al. found women were 14.9 per cent more likely to experience virtual meeting fatigue due to facial dissatisfaction (2022). Unfortunately, only one male participant volunteered for the focus groups and on the day of each focus

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group, two female participants – for a total of four – were unable to attend the sessions. This resulted in a smaller group than intended and is a limitation.

Participants and I work at the same post-secondary institute, which needs to be acknowledged due to the potential for bias. Documentation stated the project was separate from my paid position.

Setting

Focus groups were held online via Google Meet to increase ease of accessibility for as many participants as possible. There was no requirement that participants turn on their camera and they had freedom to choose their background environment and when to unmute their audio.

Data Collection Technique

The data collected for this research came from two primary sources: a short demographic survey and the two focus groups. The survey's quantitative data provided characteristic information that may not have been acceptable to gather in a focus group environment due to privacy concerns, including age, gender, marital status and dependents. The focus groups were recorded and transcribed using rev.com.

Instrument: Semi-Structured Focus Groups

There is a risk with focus groups that people may not feel comfortable sharing their true thoughts or feelings, however, as this was not a highly sensitive topic, this was deemed a minimal risk. It was felt the focus group setting may “enhance candor and

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spontaneity” (Carey & Asbury, p. 17) thereby resulting in a more indepth and meaningful collection of data.

During the focus groups, open-ended questions were asked as they provided more robust qualitative information (Denscombe, p. 173), particularly important as this research sought participants’ personal experiences, including feelings and opinions. Focus groups allow for flowing conversation between participants and encourage “exploration of the interactional mechanisms involved in sense making” (Figgou & Pavlopoulos, 2015, p. 545). Focus groups can also foster strong results such as “rich stories that likely would not be told in such detail in another type of study” (Carey & Asbury, 2012, p. 16).

A set of core topics and issues were identified based on MRT, which is the theoretical framework for this research. Questions were adapted from the 15-point ZEF scale (Fauville et al., 2021 b) (Appendix A) to align with the theoretical framework. The series of questions that aligned with the theory and scale were designed to elicit participant experiences with video conference meetings, including “Zoom fatigue” or characteristic factors, including gender. None of the questions specifically mentioned MRT, but they all connected to the theory as shown in the logic table (Appendix E). The questions included exploring nonverbal cues, which aligns with MRT, to understand how camera use affects participants, such as resulting in mirror anxiety, which is connected to the ZEF scale.

Procedures

Potential participants were invited to attend a focus group via email (Appendix B). Interested participants were sent a demographic questionnaire (Appendix D) to complete and results were stored in a secure folder. Prior to the focus groups, each participant needed to complete an information and consent form (Appendix C) that included an option to choose a pseudonym, or have one chosen, if they didn't want their real name used. Information and consent form were stored in a secure folder on a password protected computer.

For the focus groups, an introductory script (see Appendix F) included a reminder that participation and responding to questions was voluntary, they could leave at any time and the need for confidentiality of other participant responses.

Each focus group was scheduled to run 90 minutes and ended on time. The primary investigator stayed in the meeting room for an additional 30 minutes should anyone want to speak privately after the session. Each question was assigned a time limit to ensure that the group could move along at an appropriate pace. Prompts, or additional questions, such as "Can you tell me more about that?" were used in addition to the set questions.

Analysis

After each focus group was concluded, the audio recording was transcribed using rev.com software system, and then double-checked for accuracy of transcription. Noteworthy comments were then added to the document as recommended by Denscombe: "These annotations can be based on the memories that come flooding back during the process of transcribing" (2010, p. 276). This part of the analysis included cleaning up of punctuation and grammar, including adjusting for missing words and removing extra words such as 'like' or 'uh', which, as Denscombe (2010) notes, can affect authenticity. "It also means that the raw data get cleaned up a little by the researcher so that they can be intelligible to a readership who were not present at the time of the recording" (Denscombe, 2010, p. 276).

The sharing of personal experiences that occurs in focus groups warranted a form of narrative analysis. Denscombe (2010) notes that analyzing narrative content, such as people sharing their experiences in a storytelling format, helps us understand how people "construct the social world" (p. 291). Narration offers depth to an experience. "Narratives do supply more than simply what happened, expressing the narrator's emotions, attitudes, beliefs and interpretations" (Holstein & Gubrium, 2012, p. 7). The thematic form of narrative analysis was chosen as the "emphasis is on the content," (Riessman, p. 2) and in this study, analyzing multiple people's experiences, attitudes, emotions and feelings provided a range of descriptions. It is an appropriate analysis to capture what participants feel are noteworthy and meaningful aspects of their personal experiences (Allen, 2017).

At the time of this study, health restrictions had eased and many study participants had returned to the office part-time, working in a hybrid environment. Participants were asked to recall their fully remote experiences, a retrospective report that is common in qualitative research. “A central tool of social science research – perhaps the central tool – is asking people questions about what happened,” notes researcher Roger Tourangeau (1999, p. 29). However, asking people to remember can be problematic. “A major source of error in social science data is memory error,” (1999, p. 29), writes Tourangeau. The results sought in this study may align with Tourangeau’s (1999) description of what occurs when people experience similar events; multiple incidents form a collection or “generic memories” where they can remember what “usually happens” (p. 36.) While it is a small sample size, the reliability around experience outcomes would be expected to be similar to previous findings unless the shared experiences highlighted an explainable difference.

An inductive analysis, common in case studies, was conducted that included reading the transcripts several times to identify and code themes and patterns that emerged among the participant responses. This is described as a ‘bottom up’ approach with researchers analyzing content until patterns appear (Williamson et al, 2018, p. 454). This also aligns with the four-step PESI approach: prepare, exploration, specification and integration (Rashid, et al., 2019, p. 8).

Table 3. Inductive analysis coding process

Inductive analysis – coding process Adapted from Thomas, 2002 & Creswell, 2002, Figure 9.4, p. 266				
Initial read of text	Flag specific segments of text	Label segments of information, creating categories	Eliminate overlap and redundancy in categories	Final produce should use most important categories
Many pages	Multiple segments	As many as 30-40 categories	15-20 possible categories	3-8 possible categories

Source: Adapted from Thomas, 2002 & Creswell, 2002

Inductive analysis aims to unearth dominant, frequent or notable themes in raw data “without the constraints imposed by structured methodologies,” (Thomas, 2003, p. 2), but its needs to be noted that the approach from specific content to a general conclusion may result in false conclusions, especially in a small study.

During the transcript readings, a set of categories was documented in list form, which became a coding manual. Themes or categories were added and refined as the work progressed. Relevant responses were placed under different categories and themes.

In both focus group transcripts, information about people’s reactions, experiences, feelings, emotions and “why” was examined. Comments about characteristics, such as gender and attitude, were also examined and explored for

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potential impact on video conference experiences and fatigue. Coding took an estimated 30 hours with high-level or broader categories chosen first, which were then separated into smaller codes, based on the data.

As noted earlier, four people cancelled participation in the focus groups, which resulted in smaller discussions and reduced data. Additionally, one of the participants, the only male, experienced technical difficulties, which meant he was not able to contribute to the full discussion. The fact that only one male attended negatively impacted the second research question, which is acknowledged in the discussion and findings section.

Summary

This case study employed a narrative analysis. The inductive approach saw coding of themes based on responses shared in two semi-structured focus groups – one all female group and another with one male participant. Focus group participants also completed a quantitative demographic survey.

Questions were based on a MRT framework and adapted from Fauville et al.'s (2021 b) 15-point ZEF scale. Participants were not aware of the theory examination during the focus groups or the questionnaire to prevent any unintentional bias in their responses. Multiple reviews of the transcribed focus groups helped ensure accurate categorization and coding of responses.

This work was undertaken to contribute to our understanding about what possible explanations (if any) MRT might offer as a theory to account for “Zoom fatigue”

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Additionally, this research was designed to examine if “Zoom fatigue” reveals differences among gender that would affect our understanding of MRT.

The next chapter, Findings and Discussions, provides insight into the outcomes of the survey and focus groups, and their contributions to our understanding of video conference experiences, fatigue and how they affect our understanding of MRT.

Chapter 4: Findings and Discussion

Introduction

This qualitative case study examined data from two focus groups gathered through purposive sampling to contribute to our understanding of video conference and fatigue that arose during the pandemic. The research focused on exploring what possible explanations (if any) MRT might offer as a theory to account for “Zoom fatigue” and whether video conference fatigue reveals gender differences that could impact our understanding of MRT.

This chapter begins with demographic survey results of the eight group participants, seven females and one male. An explanation of the analysis procedure, including coding is next. That is followed by the findings of the focus group material, the primary research component that used a MRT framework with questions based on the 15-point ZEF scale (Fauville et al., 2021 b). This includes overviews of each of the seven themes that emerged from the coding of participant experiences, opinions and attitudes during the discussion. Each theme and subtheme is highlighted with a table that features examples supporting each code.

The discussion section assesses the findings and the impact on our understanding of MRT, including what it may reveal about gender characteristics, which was limited due to the participation of just one male. Surprises that arose from the two focus groups and limitations are discussed along with identification of further research opportunities.

Data Coding and Interpretation

One focus group was open to mixed genders and the other for females, with the only requirement needed that they identify as female. A demographic survey ensured an all female group could be created.

Table 4. Participant identity to sort for different groups

Participant	Pseudonym or real name if permitted	Self- identified gender
1	Taylor	F
2	Michelle	F
3	Sarah	F
4	Gayle	F
5	Elise	F
6	Zara	F
7	Trish	F
8	Daniel	M

After each online focus group, analysis began with reading the transcript with notes added to the side, such as “connects to MRT’s equivocality.” An initial coding version was started during the second reading of the first focus group. This aligns with Denscombe’s description of qualitative research that data analysis can occur during data collection (2010, p. 239). After the second focus group was completed, a refined version of themes and codes was undertaken with a desire to keep coding simple for manageability while balancing the need to be “sensitive to nuance in the data”

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(Campbell et al., 2013, p. 300.) Both transcripts were read several times to hone themes and patterns that emerged, as recommended by Denscombe (2010).

Differences were flagged between the two groups, such as the second group's specific points of nonverbal language while the other group mentioned it in indirect ways such as the camera example between Sarah and Courtney, both in the first group, discussed in the data analysis section. "Being able to see people's faces feels really nice" (Sarah) while Courtney shared "I hate it when I'm just talking into a black void."

Phrases and shared experiences were grouped into themes or sub-themes and examined through a MRT lens. Themes and codes were refined four times during the multiple readings to ensure categories represented the context and key takeaways. Each theme required a definition to help determine content placement. A separate Google document was created for each theme with comments moved into each appropriate section. As the themes and sub-themes were refined, comments were moved as needed. This prevented duplication of content as each comment could only be used once. There was difficulty in sorting the content when a comment could fall under two themes, "which is common with this kind of data" (Campbell et al., 2013, p. 302). As much as possible, content was coded by using predefined blocks of text, such as a full sentence, to support appropriate context and avoid coder subjectivity (Campbell et al., p. 302). No predetermined amount of text, such as a minimum of one sentence or a paragraph, was required for coding. Having multiple coders, or at least a second coder, conduct the same work and compare outcomes can help measure reproducibility, a component of reliability (Campbell et al. 2013), however this was a single student project, requiring one coder who had a deep understanding of the

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research questions. As noted by Campbell, coding text “requires subjective interpretation, contextualization, and especially a thorough understanding of the theoretically motivated questions guiding the study.” Multiple coders could limit the risk of bias through subjective interpretation of content. Using full sentences and phrases should minimize the risk of taking content out of context. Comments that were not aligned with the research parameters, such as referencing attending a personal event, were marked as unrelated.

Nine themes were initially created and the final number was seven. Given the questions were based on a framework drawing from MRT and the 15-point ZEF scale, it was not surprising that codes and themes were in alignment with these two areas. This also was seen as evidence that the responses aligned with the information being sought.

Validity and reliability can be questioned when it comes to qualitative research, where methods, such as interviews – or in this project’s case, focus groups – dominate the “naturalist (interpretive) paradigm.” (Golafshani, 2003, p. 600) which is markedly different from quantitative research. In this project, reliability was demonstrated through video conference experiences and resulting fatigue showing strong similarities with Fauville et al., (2023) outcomes in areas such as mirror anxiety and nonverbal overload. Reliability was affirmed through similar responses or outcomes shared by different participants among both focus groups, which were then categorized into appropriate themes. These themes are evidence that the concepts are shared among different individuals, which raises confidence that the material is valid (Denscombe, 2010). Additionally the purposive sampling approach ensured that all participants were

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experienced in video conferences, which adds to their credibility and thus validity (Denscombe, 2010, p. 189). The content gathered in the focus groups aligned with the information sought in the two research questions, which suggests the outcomes were successful in measuring what was intended to be measured. The small sample size of this project does limit the ability to generalize the data to a larger population.

Surprises and limitations were noted in a document throughout the coding process.

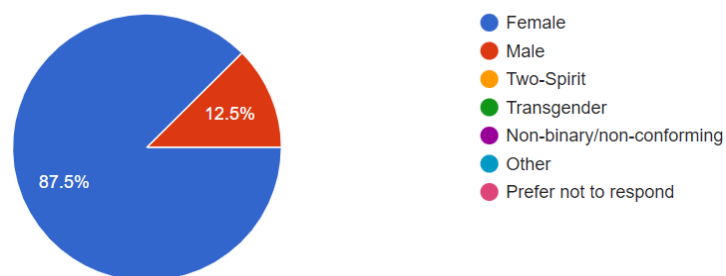
Data Presentation

Participant Demographic Data

Demographic information was collected prior to the focus groups.

Gender information was gathered to confirm the creation of one female only group and to help identify whether gender is a factor in video conference fatigue.

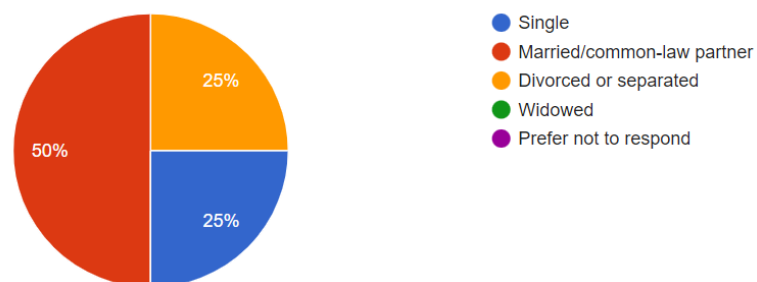
Figure 1: Focus group participants by gender



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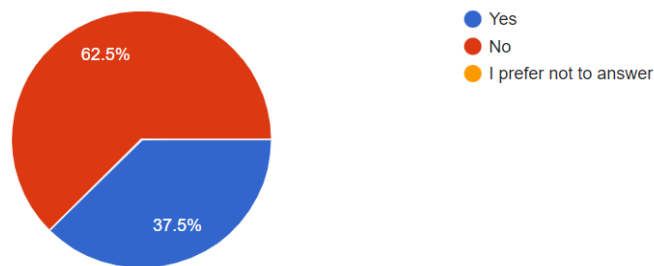
Marital status was also gathered to help understand whether being single, including being a single parent, or having more family members at home was a factor in video conferencing experiences. The two individuals who spoke about significant experiences with fatigue were both married or had a common-law partner. The small sample size did not reveal whether marital status was a factor in “Zoom fatigue.”

Figure 2: Focus group participants marital status



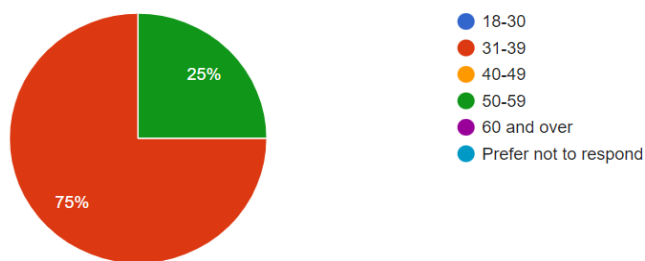
Understanding the complexity of home life, including caring for children or adult dependents during the pandemic provides more context for people’s experiences and would understandably add to the stresses of suddenly working from home while also being a caregiver. Of the eight participants, three were caring for children or an elderly parent. One participant had two university students and a mother, aged 90, at home. One female had a one-year-old and the male participant had two children, aged six and one, living in the family home – the latter two did not experience significant video conference fatigue.

Figure 3: Focus group participants caregiver status



There were six individuals between the ages of 31 to 39 and the other two were between 50 to 59 years of age. Age was included to see if it was a factor for “Zoom fatigue.” In this project, all participants experienced “Zoom fatigue” with a person from each age group indicating they experienced significant “Zoom fatigue.”

Figure 4: Focus group participants age categories



While the staff areas accessed for this study have a high female population, which was anecdotally shared by participants, it was expected that multiple males would volunteer to participate. Despite only one male participant, the focus groups proceeded.

Focus Groups

Twelve individuals registered for two focus groups, with 11 identifying as female and one male. Unfortunately, four women – two from each group – cancelled the day of each focus group, which were held online. Short notice prevented recruiting additional participants. The first focus group had three female participants and the second group had four females and one male.

Seven themes emerged from the two focus groups.

Table 5. Coding themes and sub-themes

Themes	Sub-themes
Matching Channel Choice (major)	Fatigue and disengagement in large & lengthy meetings
Meeting schedule	
Use of camera	Non-verbal cues
Complex environment	
Gender	
Advantages	
Attitudes	

Matching Channel Choice

Channel choice, including the type of information communicated and its impact, was a dominant theme among both groups. Participants indicated channels have different strengths and capacities for information transmission, such as using

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videoconferencing for two-way communications, as shown in Table 6. Google chat or text messages were described as quick ways to contact colleagues for a short message, simple question or request. Interestingly, these departments largely lost access to telephone as well as in-person communications when remote work was ordered during the pandemic. This was due to many staff not having a work cell phone and landlines remaining in vacated offices. Participants shared the perception that video conferencing was often the primary choice to make up for the loss of two communication modes, making the technology shift even more pronounced for staff.

Seven participants shared that sitting in a video conference meeting to hear information that was perceived to have been better served as an email was disengaging and resulted in fatigue. "That's just sort of draining my personal social battery." (Taylor) Smaller group meetings where people could participate in two-way conversations was seen as more engaging and beneficial. "When we are in small group meetings where we're active participants, then it's not tiring because you're involved." (Sarah) Frustration also surfaced around meetings that repeated information previously shared in an email. "I would notice that, 'Oh, you got that information in an email and now we're going to rehash it again in a group, like six pages of Zoom meeting situation.'" (Michelle)

A sub-theme emerged where 7 out of 8 participants reported large video conference meetings that saw their role limited to listeners were disengaging and resulted in fatigue. "When you're not getting a chance to participate, those meetings feel way longer." (Michelle) or "But when you're in those meetings where you have nothing to do but listen, that is tiring." (Sarah)

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Participants shared that, for the most part, one-way information flow should be an email. One individual commented that the approach had the same results in-person, but another felt large, in-person meetings provided a superior experience to its video conference counterpart, including around social connections. “I actually think they did feel better. Similar to a conference, it was equal parts about the social and professional connection as it was the content. And normally, the content had interactive elements, like table exercises, which felt more natural and dynamic than breakout rooms on Zoom.” (Zara)

Finally, one person shared that large meetings are likely the only way for the highest level of leaders to connect, which is essential for organizational culture. However, the participant also noted one-way communication should be kept short and not feature multiple leaders, particularly mid-level management.

Several participants discussed that the technology that connected them during the pandemic also allowed them to more easily and quietly disengage, and in some cases, do other work.

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***Note:** Frequency in each table is indicative of how many of the eight participants experienced or spoke directly to the identified code.

Table 6. Theme: Matching channel choice with type of communication affects fatigue			
Definition: Channels usage throughout the pandemic to transmit information internally to staff.			
Code	Frequency	First group example	Second group example
Match communication purpose with channel	8/8	When you're in meetings and you're like, 'Boy, this could have been an email. Why are we here?' That's just sort of draining my personal social battery. - Taylor	When the pandemic started, the things that could have been a quick phone call ended up being a video conference call that maybe wasn't necessary - Elise
Video conference is for complex or two-way communication	7/8	A lot really comes down to the complexity of the issue. So if I am writing an email and I start drafting it and I'm just like, 'oh my God, there's a lot here.' It just would be easier to explain it verbally then I schedule a meeting. Or if I need some feedback or we're processing something, brainstorming, to me that's more beneficial to have a meeting. - Taylor	A VC meeting is needed when you're trying to bring a team together or to solve a problem, where there's more dialogue that is common to the entire group. - Gayle
Email is suited to information that doesn't require back-and-forth	7/8	If updates are all it is, then save that for an email blast. Then we're really using people's time wisely. - Michelle	Emails certainly could be used for information sharing more than we do currently - Gayle

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Ability to participate in video conference is more engaging	7/8	When we are in small group meetings where we're active participants, then it's not tiring because you're involved. But when you're in those meetings where you have nothing to do but listen, that is tiring. - Sarah	In the collaborative environment, it definitely jazzes me up a little bit and I would want to be more social maybe after that. Elise
Content matters	8/8	I find those meetings can be equally exhausting in person too where you already know the information and you have no participation at all. - Sarah	I believe with intentionality every meeting can be wonderful. But I think a lot of meetings are convened without purpose, intentionality and outcomes. Those are the ones that would be useless. - Zara
Social connections are different in video conference versus in-person	8/8	I feel like now I'm being supplemented because I get to come into the office and I get to see my colleagues in real life and we get to have those relationships whereas during the pandemic it was so isolating and I hated Zoom and I would do meetings and I would just be so, so, so heavy and tired and exhausted after. - Taylor	I did see sometimes, you know, that the attempts for social connection, which I appreciated, that sometimes they felt a little bit awkward and flat, like even in team meetings early on and stuff where it would be like, 'OK, let's do a fun activity.' And it's like, 'oh, forced family fun.' And it just isn't organic in the way that in-person facilitates teams. - Zara
Sub-theme: Fatigue and disengagement in large and lengthy team meetings			
Definition: 75 plus participant video conference meetings for one hour minimum			
Code	Frequency	First group example	Second group example

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Listener only role	7/8	I think the fatigue comes from, I've been asked to sit in another (video conference) meeting and when you're not getting a chance to speak, when you're not getting a chance to participate, those meetings feel way longer, - Michelle.	I struggle to see the purpose in a lot of the larger meetings. There is I think a genuine desire to inform and to have everybody be in the loop on several issues. But I just don't think that we're able to engage with the material in a meaningful way in a forum that large virtually. So I think the intention's there, but it's lost along the way. So as it's more futile, I just think, we have to think differently about how we use those channels. - Zara
Easier to disengage in video conference	7/8	When you're chatting in a small group meeting like this, you are alert. But in a big meeting, it's hard to stay alert when you're just passive and being fed information. - Sarah	If it was an in-person meeting, obviously you have to look like you're paying attention, but in a Zoom meeting you can turn the camera off if you're not participating. You can sort of listen and continue your work. - Elise

Meeting Schedule

People were asked to recall their meeting load experiences throughout the pandemic, including the early days of remote work. At the beginning of the pandemic, people experienced a sudden and significant increase in online video conferencing due to safety restrictions requiring remote work and the loss of two modes of communications. Participants anecdotally shared that video conference meetings were particularly frequent in the early stages of the pandemic. "It just got to the point I was on Zoom all the time. It was exhausting. I hated it." (Taylor) The technology made it easy

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to book back-to-back meetings since there was no travel time. Both factors – meeting frequency and lack of breaks – were described as fatiguing.

Almost all participants spoke of fatigue that decreased over time and that video conference meetings lessened as the pandemic continued for all but one individual. “I think my useless meeting load has decreased and so I find in my current position my meetings are very purposeful and very much a working nature. And so maybe that's why I don't feel burdened by them currently.” (Zara)

While this wasn't a direct question, there was consensus that fatigue abated for those who returned to work in a hybrid model where they work a mix of in-person and remote throughout the week. The one person who remains working fully remote indicated their video meetings have not decreased, but their fatigue overall has lessened compared to the beginning of the pandemic.

Table 7. Theme: Video conference meeting schedule			
Definition: Meeting frequency and breaks			
Code	Frequency	First group example	Second group example
Heavy use of video conference meetings	7/8	It just got to the point I was on Zoom all the time. It was exhausting. I hated it. - Taylor	“In the beginning it almost seemed like a sense of panic and nobody knew what to do so it just seemed like ‘Oh, let's have this Zoom meeting’ and it was the answer to everything. - Trish

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Meeting load affected social capacity	6/8	There have been mornings where I was in three back-to-back meetings and it was like, yeah, I need to not be near the screen. I need to just be by myself and somewhere quiet and take my lunch break and get away. - Michelle	At the beginning of the pandemic, I suffered from fatigue greatly because I was doing about six to eight hours a day on Zoom. I couldn't spend any of my social time with family on Zoom as a result of that. So I was more distanced from family, from my mother as a result of that, but I've gotten used to doing that without having the headaches or visual distortions and all the things that went with early use. - Gayle
Video conference could mean no breaks between meetings	5/8	It would be nice to have a break. In person I have to walk from one meeting room back to my office so I have that little down time. - Michelle	I think the capacity building that this technology has given us is fantastic, but our human brain is still the human brain that at one time we were farmers agrarian. So it's a lot for the mind. I would've had breaks walking between group meeting rooms, and I'm literally running to the microwave to grab my hot water that I drink and then you're back into it. That's not healthy. - Gayle

Through the Camera Lens and Nonverbal Cues

Camera use in video conference meetings generated significant conversation and emerged as a major theme in both groups. Six of the seven female participants indicated they do a pre-meeting check where they scan their background and their appearance in the camera and make any deemed necessary adjustments (hair, makeup, angle of camera, etc.) before entering the meeting. The male participant

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indicated his pre-meeting check was of his background environment to see if any children's toys were visible with no mention of scanning his appearance. Additionally, all female participants shared negative associations with the camera, particularly in large meetings where they weren't participating, which resulted in an experience that made three women feel like they were being "watched." Other descriptive words to describe camera usage included: distracting, self-conscious, being critical, and three women indicated it was more relaxing to attend a large or non-participatory meeting when they turned the camera off. While there was discussion that camera usage anxiety had reduced after three years of pandemic life, female participants are still aware of their appearance: "I always notice my image. Always." (Sarah)

The second group spoke specifically to nonverbal communication being both exaggerated and restrained and their self-awareness due to the camera. But having the camera off was also noted as a loss of nonverbal communication when discussing how communications are received by a sender, particularly when people are muted. Four of the eight participants viewed this as a challenge, especially in gauging whether content was resonating with the audience. "I hate it when I'm just talking into a black void." (Courtney) In large meetings even when cameras are on, it can be hard to measure nonverbal reactions. The onscreen view displays people in small square tiles and there is a need to scroll to see everyone in large meetings. "It's really hard with all the faces and you can't really see them. It's very disengaging." (Gayle)

Table 8. Theme: Use of camera in meetings			
Definition: Utilization of the camera for video conference meetings			
Code	Frequency	First group example	Second group example
Pre-appearance scan before meetings	6/8	You're more aware because you see yourself versus when you're in a real meeting you don't see yourself. So I usually take that couple of minutes when you first sign in, before you actually enter the meeting to do that little check: OK, is my lipstick on right or is my hair doing this? - Sarah	I have to say I am guilty as charged that I do sign on early to see what I look like in front of the camera, the different angles and set it up just right. Trish
Seeing yourself	7/8	I found it distracting. I'd make an expression or I'd be talking and I'd be, 'Oh, I didn't know I looked like that when I was talking and maybe I don't like it. I was finding myself being pretty critical at certain points.' - Taylor	It is very distracting to be watching myself speak. - Elise
Self-view can be negative	7/8	I actually started taking off my own camera for quite a few months just because I was sick of seeing myself. - Taylor	That was probably part of my Zoom fatigue. I wasn't used to seeing myself. I found it quite a distortion initially, but I've gotten used to that. - Gayle

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<p>Comments on personal appearance</p>	<p>6/8</p>	<p>Someone commented on the shirt that I was wearing and it was complimentary. 'Oh, that's a really nice top' and that made me realize people are looking at me. And I'm not doing anything except sitting here but people can see me and are looking. Then I was like OK, what does my background look like? Does my hair look OK? That definitely reminded me that people are watching. - Michelle</p>	<p>There would be days where, 'Oh yeah, you look great today.' Then there's other days, 'Oh, you kind of look a little rough today.' Yes, we had people be that bold. - Trish</p>
<p>Your home enters the picture</p>	<p>7/8</p>	<p>Oh, this person's going to see my house. What can they see in my house right now? Is it my kitchen? Is it dirty? Is it my living room? I think it was just the anxiety that this was so unfamiliar - Michelle</p>	<p>Before joining a meeting, I need to adjust the angle because I have a lot of toys in the background. I don't want to have that in the frame. - Daniel</p>
<p>Camera has benefits</p>	<p>8/8</p>	<p>It's always just so nice to see people's faces again. You miss that, especially when we were all wearing masks for so long. And it was a really helpful way during the pandemic that we could still see each other. - Sarah</p>	<p>I think it worked out well for me. I don't really like public speaking, but when I talk on Zoom or the video call, I find it really effective for me to improve my communication skills by listening to myself and seeing myself. - Daniel</p>

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Camera makes it easy for people to look at you	7/8	When I'm just a listener then I shut it off because I feel weird having others watch me just listening to something. Then I feel self-conscious and that makes me feel weird. Whereas when I'm normally in a meeting (in-person or smaller meeting), I don't feel weird. - Sarah	If my input isn't required, then what is my face on screen for, except for people to potentially scrutinize. And I don't think that's a feeling anybody loves. I would also have this thought, even if it's a senior leader, even if it's this colleague that I don't work closely with, they've taken time and energy to prepare something and I need to give them the credence of a face to nod back at them or smile back. - Zara
Turning off camera/self view feels better in large meetings	5/8	I felt it kind of increased my (focus). - Taylor	In terms of the camera, I totally agree that it was a great life hack when they said you could hide it. I don't need to see myself. - Zara

Sub-theme: Nonverbal cues

Definition: Using body language to convey information

Code	Frequency	Second group example	Second group example
Showing a response is different online	4/8	I think it's harder in virtual meetings. The energy and the body language that we have. As human beings, this is not in our nature to be looking at screens and connecting with each other like this at all. This is totally abnormal for us, really. - Trish	You're in a big meeting. You want to show support so you're trying to laugh but you're not actually laughing out loud so you're over-dramatizing or mime laughing. - Elise

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Scaling back non-verbal language	4/8	I talked with my hands. I would try not to. I didn't want to see myself when I was speaking and then I would catch a glimpse out of the corner of my eye and like, what is that on the screen, moving around and it's my hands. So it's like, OK, reign it in. - Trish	I used to talk with my hands a lot anyway, but I probably wasn't aware of it, but now you have this constant feedback. I'm more gentle with my hands. If I'm trying to make a gentle comment, my hand gestures change. And because I can see myself doing that, I'm more aware of it. I've become purposeful in my hand gestures for emphasis and to make a point so I'm sort of self-checking. - Gayle
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It's Complicated

Both focus groups discussed the complex factors sparked by the abrupt shift to working from home and that video conferencing did not replicate the in-person experience. "It's no replacement for in-person. When everyone is in-person they feel the energy in the room." (Gayle)

Unscheduled appearances from children or pets could be stressful for the parent/owner, but other participants shared that as outside viewers, the feeling was one of understanding, joy, and at times levity. "My one dog's name is Babe. Once in a meeting I was like, 'Babe, go lay down,' or something like 'stop barking.' And people thought I might be talking to my partner." (Elise)

Video conference meeting technology issues were common at the beginning of the remote work experience and included forgetting to unmute/mute or struggling to share a presentation, which was described as fatiguing. During the focus group, the

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male participant experienced microphone issues, which caused him to miss part of the discussion, which prompted an immediate response: “Live Zoom fatigue issue.” (Zara)

The richness of video conference technology, which includes reactions, raising hand, and chat messaging to the whole group or a specific person, could be positive or negative, including delaying or preventing contributions to discussion, according to participants. Additionally, people spoke of the stress of seeing Google chat or email messages during a meeting.

Table 9. Theme: Complex environment			
Definition: Factors that were specific to adjusting to working life at home due to COVID-19.			
Code	Frequency	First group example	Second group example
Missing in-person interactions	7/8	That’s one of the nice things about being in-person, you can be walking by to go get water and I run into someone and you don’t have those moments in Zoom. Everything has to be so much more intentional about who you see. - Michelle	It’s no replacement for in-person. When everyone is in-person they feel the energy in the room. They love the in-between conversations during breaks, the networking, there’s a certain vibe. And also we do more techniques where people are standing to talk around a board, for example, with strategic planning. We have a lot of movement building into our days and you can’t do that when you’re sitting on a chair for five hours. - Gayle

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Technology issues can cause stress	8/8	I set up the meetings and was in the background. 'I can't get into the meeting. I'm having trouble with my camera.' I was the support system for people trying to join the meetings and it was exhausting. 'I'm sorry, I don't know why your camera isn't working.' - Michelle	Anything I have to run or present I would way rather do in person because the added tech element of what may or may not go wrong is sort of an ever worry. - Zara
Multi-tasking in a meeting	5/8	If all this is going to be information sharing that has already been shared, but now we are going to speak it instead of type it, then I'm just going back to what I was doing. I can keep doing that while semi listening to the things I've already heard. - Michelle	I'm getting emails and pings as meetings are going on. We're all multitasking in this intense environment we're working in. - Gayle
Trying to navigate life at home	4/6	I live by myself so I didn't have other distractions but I could see other people panic or stress over their child or pet making noises. Everyone was really understanding about having a child interrupt or a pet bark. - Michelle	At the beginning of the meeting if my kids showed up, it's kind of fun to say hi to everyone but then in the middle of the meeting when you were talking then they kind of unintentionally deter you. Personally, I feel a bit stressed. - Daniel

Gender

Only one male participant limited exploration of gender differences. During recruitment, four women requested to be in the all woman group, although one later withdrew. General conversation about the differences between genders included a

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feeling of safer spaces in all female environments. "There's kind of more freedom. No one's going to cut me off. There's not going to be any mansplaining or less of a chance of someone explaining my experience to me. That can definitely happen in male-dominated conversations for sure." (Taylor)

When asked why they thought only one male registered, participants spoke to the high female demographics in the two departments and mentioned that women are more likely to be helpers and step forward when someone is seeking volunteers.

Previous research that found men are less likely to experience video conference fatigue may signal more active participation by males in meetings since they dominate leadership positions, suggested one participant.

Table 10. Theme: Gender			
Definition: Individuals who identify with a gender group			
Code	Frequency	First group example	Second group example
Female perspective	4/8	I was one of the people who volunteered to do the women's only focus group just because I felt there's a bit of a sisterhood and you can share your feelings. - Sarah	I find that often when a request for help goes out in the workplace, it is the women who step up so I guess it's just ingrained into us to help out - Elise

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Male perspective	2/8	I think of the men that I've talked with about something like this and they're usually in a senior role. I think from that point of view they're more facilitating, they're leading a conversation so maybe there's less chance of fatigue when you're running the meeting. - Michelle	Speaking from my working experience, many of my male colleagues did complain about the virtual-working environment where there was no human connection, lack of support, technology, etc., and more, but I am not sure why they chose not to attend. - Daniel
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Advantages

While all participants experienced "Zoom fatigue" they noted advantages to video conferencing such as increased efficiency through working collaboratively on live documents on screen or having two-screen setups, which allowed searching and sharing for links in real time.

A commute-free environment increased inclusion as people from geographical distances could join video conference calls, and for introverts, technology, such as polls, opened up contribution opportunities. "If a meeting's too large, I don't want to talk. So if there's a chat, poll or jam board, then definitely I'm going to give my feedback." (Elise) Increased accessibility is another important factor, such as Gayle who found it easier to hear the full conversation in video conference meetings versus in-person meetings. And several participants spoke of increased comfort, which included dressing from the waist up for meetings and ditching high-heeled shoes for flat or more comfortable footwear.

Table 11. Theme: Advantages			
Definition: Positive elements that enhance experience			
Code	Frequency	First group example	Second group example
Can increase efficiency	7/8	My boss, he'll often be sending me links to different websites or different things that we're working on. It's really helpful. It works out better than in-person. For meetings with my boss, I prefer Zoom for all the technical benefits it provides. - Sarah	Remote virtual meetings have optimized our work in many ways. You can look at somebody, look at your project and be in it. You can take your laptop when we're in person but it doesn't afford the same comfort and ease of navigation like your two screen full set up. I believe meetings have gotten much more efficient. - Gayle
Increase accessibility	7/8	When I'm in the office now I have to go find somewhere else to take that meeting, right? I have to go find a meeting room. - Michelle	I'm starting to become hard of hearing, so I find this format wonderful because I can hear everyone. I can hear everyone here and I find that in terms of accessibility, I'm really struggling to hear it in person. - Gayle
Enhance comfort	6/8	If someone's just seeing me from you know this up, then it's just an opportunity to be even more comfortable because sometimes dress pants are not always that comfortable. So it's kind of a perk. - Sarah	I'm a terrible fidgeter and when I'm in a Zoom meeting I feel like I can fidget without being seen. People must think I'm a child sometimes because I fidget so much and I have literal fidget spinners. - Elise

Attitudes

At the end of each focus group participants were read a list of words and asked to pick one or choose their own that summarized their general feelings towards video

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conferencing. They shared it one-by-one with a short explanation. Four participants chose a positive word, two a positive and the remaining two, a neutral word.

“Anxiety,” a symptom of video conference fatigue, was chosen by Elise and while she stressed it didn’t reflect all meetings, it was a general feeling. “You have this screen of all these faces looking at you and when you are speaking you really feel like you are on stage, almost like it’s a performance.”

Three people commented they liked “is” chosen by Zara, a word that reflected acceptance. “My thinking is that it just is and that's kind of my life philosophy. It's different from how we used to do it, but it's fine. It's now accomplishing what we used to accomplish in different ways and I'm kind of like, it just is.”

“Privileged” was among the positive responses, chosen by Sarah. “When I was growing up we didn’t have this. I’m still just amazed it even exists and that this is even an opportunity that we have, that we can connect in this way. And it’s so simple to use and inexpensive”

Table 12. Theme: Attitude		
Name	Word	Positive/negative/neutral
Taylor	Fine	neutral
Michelle	Hopeful	positive
Sarah	Privileged	positive
Gayle	Motivated	positive
Elise	Anxiety	negative
Zara	Is	neutral
Trish	Powerless	negative
Daniel	Flexibility	positive

Data Analysis

An inductive analysis, common in case studies, was used to identify themes and patterns in the transcripts of both focus groups. A narrative analysis approach resulted in participant responses assessed in phrases rather than looking for frequency of keywords. For example, different phrases described non-verbal camera experiences: “Being able to see people’s faces feels really nice” (Sarah) while Courtney shared “I hate it when I’m just talking into a black void.” This approach is preferable as it provides a more fulsome understanding (Denscombe, 2010). “For some kinds of content analysis it is not a problem to focus on instances of individual words extracted from the text. For approaches like discourse analysis and narrative analysis, it is important not to separate units of the text from their wider social context” (Denscombe, 2010, p. 281).

Discussion

These focus groups were conducted just days before the World Health Organization announced that COVID-19 was no longer a global health emergency. Of more than three years of living in a global pandemic, much of it was a fully remote work environment for these focus group participants.

The focus group outcomes have been analyzed through a MRT lens to examine possible explanations, if any, the theory can account for video conference fatigue in internal organizational communications during the pandemic. Additionally, it explores whether video conference fatigue reveals gender differences that affect our understanding of MRT.

Media Richness Theory – Equivocality and Channel Choice

Daft and Lengel's theory (1986) argues that communications channels have varying capacities to transmit information with a task having a higher chance of being successfully accomplished when the task equivocality is matched with the right medium level (Lengel & Daft, 1984.) MRT uses a unidimensional line from rich to lean that determines face-to-face to be the richest mode of communications, most suited for tasks with high equivocality.

Focus group participants shared a strong perception of different strengths of channels to transmit different information. This was evident in statements that verbal and non-verbal communication and instant feedback offered through video conferencing

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were needed for more complex discussions such as collaborating, brainstorming, providing feedback, or problem solving. The need for rich media choices for high equivocality tasks aligns with MRT and its richness scale. And it was clear that participants valued that nonverbal communication also provides two-way information for both the sender and receiver. When cameras were turned off, the lack of nonverbal reactions was seen as problematic for senders who wanted visual confirmation their information resonated with their audience. Additionally, the points that video conferencing doesn't offer the energy or vibrancy of in-person communication also aligns with MRT's richness linear scale.

All focus group participants shared a desire to see communications purpose matched with an appropriate channel, which signals a need for intentionality around media choice for information transmission, again aligning with MRT. Participants indicated that this alignment affects communication satisfaction and engagement, thus potentially affecting the success of information transmission. For example, participants spoke of fatigue resulting from attending meetings that should have been an email, such as receiving updates. "When you're in meetings and you're like, 'Boy, this could have been an email. Why are we here?' That's just sort of draining my personal social battery." (Taylor) The more straightforward task or routine information transmission would be best suited for a leaner channel, such as email to prevent excess cues and surplus information (Dennis et al., 1999) which supports MRT's argument, and is revealed to be a contributing factor to fatigue. Research shows that employees can view face-to-face meetings negatively if they feel the meetings aren't effective (Rogelberg et

al., 2006). Participant reflections suggest that organizational communicators need to consider that failure to match channel choices with the type of information being transmitted and goal risks a negative impact, which aligns with MRT. “If employees feel such communication is conducted inappropriately, the communication process could inadvertently damage internal relationships.” (Welch, 2012, p. 246). This emphasizes the need for discernment around the use of video conferencing as the appropriate meeting choice. As Stanford University communications professor and researcher Jeremy Bailensen said: “Videoconferencing is a good thing for remote communication, but just think about the medium – just because you can use video doesn’t mean you have to” (Ramachandran, 2022). These outcomes suggest that intentionality is required when choosing what media to transmit information to reduce negative outcomes, such as fatigue.

However, focus group discussions revealed MRT’s unidimensional line fails to adapt to new media’s evolution, particularly since a channel can be both rich and lean, depending on its chosen use by the sender or the receiver. This was described as a video conference fatigue factor in both focus groups. For example, participants recognized the benefit of video conferencing’s two-way visual communications around potentially ambiguous or complex content, such as one-to-one meetings with a supervisor providing feedback or team conversations involving collaborative or problem-solving discussions. Such meetings resulted in communications satisfaction and were viewed positively. However, participants expressed frustration at attending large and lengthy meetings that did not allow two-way communications. Meetings that

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required staff stay muted also saw all participants indicating they had turned off their cameras with varying frequency. Video conferencing's flexibility of being able to control the camera reduces the channel's richness once it is turned off and conversations are muted. These are concerns for organizational communications as mental exhaustion negatively affects people's ability to meet their job demands or engage with others (Troughakos et al., 2015; Maslach et al., 2001 as cited in Johnson & Mabry, 2022).

The reference to side functions, such as the chat function – which increases the platform's richness as another engagement opportunity – can be viewed as taxing and interfering with meeting content (Wiederhold, 2020), demonstrating the complexity of the platform and the vulnerability to information flow. This provides evidence that richness is not always positive in a complex environment, which would be contrary to MRT.

As well, focus group participant descriptions that such meetings can be fatiguing seem to contradict MRT's theory as it would be viewed as a "richer" choice. Several people shared that if they felt the information about to be shared was already known to them, they would turn the camera off and work on something else on the side without the sender's awareness, thereby potentially missing information and lowering the success of communications transmission. These outcomes and disengagement suggests that the complexity of new media needs to be considered and thus it does not fit into MRT's unidimensional line. Multiple researchers have cited the theory's mixed results as being more problematic when new media are examined (Hall et al., 2021;

El-Shinnawy & Markus, 1996; Ishii et al., 2019; Kahai & Cooper, 2003). This analysis suggests that the features and complexity of video conferencing are not addressed in MRT's unidimensional scale.

Looking Into the Camera & Nonverbal Communications Via a Gender Lens

This project found strong alignment with two of the five nonverbal factors that contribute to video conference fatigue as outlined in Bailenson's theory (2021) and confirmed by Fauville et al. (2023). In particular, the first two factors were strongly confirmed by focus group participants: mirror anxiety and hyper-gaze (feeling watched by others). The other three factors were mentioned less often by participants: feeling physically trapped, challenges in producing nonverbal cues and the effort required to monitor other people's nonverbal cues.

With only one male participant, validity can not be accurately determined by the gender differences that surfaced in the two focus group conversations. However, the gender outcomes appeared to align with Fauville et al. (2023) findings that women are more likely to experience mirror anxiety and negative self-view, which contribute to "Zoom fatigue." Six of the seven women participated in pre-appearance scans prior to entering a meeting while the male explained his scan was of the background to look for children or their toys. All participants spoke about being aware that the camera meant people could see into portions of their homes, another stress point. Only female participants commented about their appearance, including "always" being aware of themselves on camera, finding their own image "distracting" or feeling "critical" of their appearance to the point that one person turned off their camera for months "because

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they were sick of seeing myself.” This aligns with Ratan et al.’s research (2022) that females who view themselves on self-view mode are more likely to experience “negative self-focused attention that contributes to virtual meeting or “Zoom” fatigue” (p. 124). Significantly, women in the focus groups spoke negatively about their experiences of being visible on the computer screen, particularly when they were not actively participating in a meeting with three women specifically referencing a feeling of being “watched.” One person described the resulting sensation as leaving them feeling “self-conscious” and “weird.” These experiences echo previous research (Bailenson, 2021, Fauville et al., 2021 a & 2023, & Ratan et al. 2022). Bailenson (2021) and Fauville et al. (2023) discuss that mirror anxiety can worsen “Zoom fatigue” due to people focusing increased attention on how they look and how they appear, including their reactions, on screen.

Additionally, Fauville et al. (2023) shares that hyper-gaze is another fatigue factor that can also result in anxiety and stress and reduced functioning (p. 10). The focus group findings align with previous research results, particularly that women are more likely to experience nonverbal overload and, as a result, video conference fatigue. The discomfort shared by females may result in diminished information transmission. Successful information transfer is vital for organizational functions, including decision-making (Weick, 1987), task performance and bolstering motivation (Zink 2021).

While video conferencing is not as rich as in-person communication, MRT does not factor in the cognitive load, described by Bailenson (2021) that is required to use or receive nonverbal cues in video conferencing. These findings seem contrary to MRT’s

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expected outcome and suggest that the lack of accounting for characteristics, such as gender, is a flaw.

A Complex Time

There were significant pressures throughout the pandemic, including the rapid requirement for remote work. This required quick skill growth in video conferencing that, for most staff, became a dominant verbal communications tool due to the loss of two modes of communications – in-person and telephone.

People's comfort level with a channel is not considered by MRT and the focus group discussion suggests this is problematic, as demonstrated by the fatigue associated with people forgetting to mute/unmute or seeking assistance for technological issues, such as a camera not working. Consideration of this factor may have helped prompt leaders or meeting organizers to try to use email more effectively to ease the pressure of video conferencing as people developed their skills with the technology. This indicates another shortcoming of MRT that can result in a negative experience for participants and may have contributed to video conference fatigue.

The advantage of video conferencing to save commute time also meant people could be booked in back-to-back meetings without a break, two contributors to fatigue experienced by participants. An earlier finding (Fauville et al., 2023) that meeting frequency and lack of breaks were also connected to video conference fatigue levels. This, combined with the loss of two communications channels – in-person and telephone – is an important consideration when evaluating channel choice impact

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during the pandemic. The decrease of two channels may have required increased intentionality in choosing video conferences as a communications tool to prevent meeting overload and frequency pressures.

Other variables, such as the stress of having to work from home almost overnight, juggling family life in the work environment and the uncertainty of living in a pandemic, also need to be considered as potential contributors to fatigue and participants spoke of the stress around these factors.

Limitations

There were several limitations to this research project. A total of eight participants was smaller than initially intended and precluded applying outcomes as representative of a larger group. Additionally, one research group was intended to have more diverse gender representation and only one male participated, which again, prevented applying findings as representative of a larger population. Another limitation was the male participant experiencing technical difficulties during the focus group. While it was representative of the issues that people experience using the technology – and prompted a discussion point that such challenges triggered video conference fatigue – it did impede the individual's participation.

As well, the primary investigator works at the same organization as the focus group participants. While this supported purposive sampling it also created opportunity for bias although it is important to note the investigator joined the large post-secondary institute in mid-2022 and also works in a separate department.

An Alternate Theory

These results, taken through the lens of the pandemic and “Zoom fatigue” concur with previous negative findings that MRT has limited relevance to more complex new media. That noted, MRT still has merit in its call for intentional channel choice in organizational communications. Additionally, MRT has been used as a basis in several other theories, including media synchronicity, created by Alan Dennis and Joseph Valacich, and social information processing. Media Synchronicity Theory may be more suitable to a changing media landscape as it argues “the fit of media capabilities to the communication needs of the task influence the appropriation and use of media, which in turn influence communication performance” (Dennis et al., 2008, p. 576). It focuses on two primary processes: conveyance of information and convergence on meaning. It is more adaptable to media evolution by focusing on features rather than a specific medium; this fits better with technology’s advances that provide rich functionality within what would be viewed as a lean media under MRT, such as texting, which offers audio, video, photo and word options. Another key point, presented by Dennis et al. (2008), is the synchronicity aspect, suggesting the process of convergence benefits from channels that enable synchronicity or what the authors define as the “ability to support individuals working together at the same time with a shared pattern of coordinated behaviour” (p. 576). Another important distinction is that the theory proposes using multiple media, which may provide enhanced outcomes, such as an email that provides an agenda, followed by a meeting and then a meeting summary document. This is a more intentional approach and one that would provide options for different characteristics.

Surprises and Future Research

Most of these participants experienced the loss of two communications channels for internal organizational communications as a result of the pandemic. While the absence of in-person communications is well documented, there has not been much discussion in current research about the additional loss of telephone access at organizations throughout the pandemic. Two participants discussed that they shared personal cell phone or home-based landline numbers with colleagues at their discretion. Video conferencing was an alternative without increased cost to the organization and became the only accessible verbal communications tool to connect across multiple teams for these participants. This placed a heavier burden on video conferencing as a verbal communications tool and participants felt in the beginning this was a heavily utilized option and then frequency began to diminish over time. Evaluating the loss of two verbal communications channels – in-person and telephone – would be an interesting area of focus in future research.

The second surprise was around the perception that video conference fatigue decreased as the pandemic continued. One person, who continues to work remotely and does not feel their meeting load has decreased, referred to conditioning, similar to an endurance that is built up with practice. This would be interesting to explore further to see if this is a factor in “Zoom fatigue.”

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Six of eight participants felt video conference meetings had decreased when compared to the early stages of the pandemic. Additionally, in recent months, these participants were allowed to return to work with almost all participants choosing a hybrid model, a mix of in-person and remote work, which was not widely available pre-pandemic. Participants indicated they were enjoying the hybrid model. It would be interesting to see if “Zoom fatigue” reduces over the long-term with widespread use of a hybrid work environment – or if there is a tipping point when it returns. This is worthy of further investigation, particularly if remote work, even partially, is part of people’s work environments in the future.

It would also be interesting to include position roles when analyzing video conference fatigue in organizations to see if leaders experience less fatigue and whether they are more actively involved in meetings and how that affects video conference fatigue. Most participants shared that actively participating was more engaging compared to listening-only meetings.

Finally, attitudes towards video conferencing three years into the pandemic showed a mixed reaction among participants with four people describing a positive feeling, two being neutral and the remaining two feeling negative. There was not enough data to determine an outcome. It would be interesting to explore this area further to see if attitudes play a role in video conference fatigue, which would again be contrary to MRT.

Summary

While this sample is too small to apply to a larger population, the analysis of the two focus groups through an MRT framework found that participants recognized differences in media richness and validated MRT's argument that matching the channel to the equivocality of a task affects information transmission. Participants also indicated that this alignment affects communication satisfaction and audience engagement. However, participant discussion revealed the theory's linear richness scale is more successful for basic channel choice and does not align with new media's evolution, particularly since a channel can be both rich and lean, depending on its chosen use by the sender or the receiver and this can be a fatigue factor. The technology that allowed connection during the pandemic also allowed users to disengage through turning off their camera or muting. This requires increased understanding, particularly with the expected long-term mass continuation of complex choices such as video conferencing as many organizations adopt a hybrid environment and is a significant issue for the relevance of MRT. There also needs to be consideration for the continued acceleration of the digital landscape, which could result in the evolution of more complex media.

Additionally, analysis affirmed earlier research findings that MRT's lack of considering characteristics, such as gender and attitudes, is problematic as it can affect people's communications experience and potentially contribute to fatigue. Participants expressed concerns around the camera's use in meetings where they weren't

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participating and four of the seven women specifically referenced the feeling of being watched, a common description associated with hyper gaze (Fauville et al., 2023).

These results are similar to previous studies that found concerns with MRT, including around the need to consider subjective factors, such as comfort levels with a technology (El-Shinnawy & Markus, 1996; Ishii et al., 2019). Participant outcomes suggest that decisions for a communications channel need to consider the situation, individuals – including gender – task, and context, just as argued by Dennis and Valacich (1999).

Chapter 5: Conclusion

Introduction

When COVID-19 escalated into a pandemic and forced masses of people around the globe to work remotely, seemingly overnight, video conference meetings became a means for organizations to stay verbally and visually connected with employees since face-to-face meetings weren't an option, and in this case study, telephone calls were also largely unavailable. When "Zoom fatigue" emerged with people sharing symptoms such as stress, headaches, irritation, anxiety and exhaustion, it created a natural experiment environment for researchers to grow an understanding of this new phenomenon. This research project focused on internal organizational communications and sought to grow our understanding of how the widely referenced communications theory, Media Richness Theory (MRT) could account for video conference fatigue and whether any gender differences would affect our understanding of MRT.

This chapter provides an overview of the project key findings and how they connect to the research questions. That is followed by a contextual discussion of how these outcomes are placed within current research and potentially, future research. Limitations and opportunities for future research are noted with final discussion points concluding this paper.

Zooming in Summary

This case study found a need for intentional alignment of communications tool choice with the information being transmitted, which is consistent with MRT. This finding indicates that we cannot separate the 'how' from 'what' we are communicating or we risk disengagement and/or fatigue. The notable level of frustration about meetings with one-way communication flow, which were viewed as passive and fatiguing, also aligns with MRT and demonstrates how the theory can account for some of the fatigue generated through video conference meetings.

However, the most significant findings of this research project revolve around the shortcomings of MRT. Its unidimensional line to measure 'richness' or 'leanness' of a communications channel is not part of the reality of new media complexity that results in a channel being lean or rich, depending on how it's used. This was evidenced by participants who would turn off their camera – one of the key elements that makes video conferences 'rich' – so they could do other work, largely removing themselves from a participant role unbeknownst to other meeting attendees. The camera also sparks nonverbal overload, which leads to fatigue, among women, in particular, who feel "watched," self-critical of their appearance or worry about their background environment. This finding supports earlier research (Fauville et al., 2021 a, 2023 & Ratan, 2022) and contradicts what one would expect according to MRT. Not only does it fail to account for nonverbal overload, MRT also doesn't consider people's response to nonverbal factors or gender characteristics, which clearly emerged as problematic in this case study and aligns with previous research (Fauville et al., 2023). Unsurprisingly,

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meeting frequency and lack of breaks were also determined to be contributing factors to video conference fatigue, which also aligned with Fauville's research team findings (2023).

Additionally, people's comfort level with a communications tool impacts their experiences, which is not considered by MRT. Throughout both focus group discussions, people shared the frustration of video conference technology fumbles such as forgetting to mute or unmute and the drain of people not understanding how to navigate different functions, such as sharing a presentation, or having trouble with their camera. These outcomes not only show insight into video conference fatigue, but reveal flaws with MRT.

Context of Findings

The alignment of these findings with previous research (Fauville et al., 2023) add to the validity and reliability of the suggested triggers and factors that contribute to video conference fatigue, such as nonverbal overload. And as a result, these outcomes confirm aspects of MRT's theory, but also highlight shortcomings that limit its validity and reliability, particularly around new media. While there is evidence that some elements of MRT are effective, such as the need to be purposeful with choosing the right channel to match the information being transmitted, the evidence revealed issues with MRT's unidimensional approach when applied to new media, and lack of consideration for characteristics, such as gender, attitudes and comfort with a channel.

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These outcomes suggest that MRT is unable to account for several factors involved in video conference fatigue, demonstrating flaws within the theory. The findings also identify that leaders and meeting organizers need to be more intentional about channel choice when communicating information, including the need to consider preference, comfort and characteristics, such as gender. As noted, “employees suggested ways to mitigate “Zoom fatigue,” particularly, better management of meetings by leaders.” (Nesher Shoshan & Wehrt, 2021, p. 827) The frustration with one-way communication flow in video conference meetings and other outcomes in the focus group conversations signals opportunities for organizations to improve their internal communications approach and more research in this area would be beneficial.

The impact of living in a pandemic is another potential perspective that needs to be considered as a fatigue factor sparked by video conference meetings, which were used significantly less prior to the pandemic. It wasn't until masses of people were forced to work remotely on very short notice that the exhaustion phenomenon surfaced. One has to consider the potential significance of pandemic-related pressures, including juggling child care and living with uncertainty and fear, as a contributor to fatigue. Indeed, a Mayo Clinic article noted that people could feel overwhelmed and experience anxiety and other mental health struggles (2022) during the pandemic.

These findings validate MRT's argument that people must be intentional about media choice to transmit information within an organization, being aware of communications purpose. The findings also show the negative outcome of MRT's failure to consider potential characteristic impact, such as gender, and people's familiarity and attitudes towards a channel.

Limitations and Future Research

Research remains limited in the study of this phenomenon, particularly through the lens of MRT. While too small to be generalized to a large population, this case study does generate ideas for future research and may provide a limited contribution to existing knowledge.

In addition to the small sample size preventing application to a larger population, the one male participant means that it is not possible to draw valid conclusions from the gender differences that emerged. Rather, the outcomes from this project confirming previous findings that women are more likely to experience mirror anxiety and negative self-view, suggests that more research is required in this area, and arguably, would be of interest to organizations through both an ethical and productivity lens as they seek inclusive and meaningful communications.

This project also reveals future research opportunities for MRT and its contributions in an evolving digital landscape. With the knowledge that a channel can be lean or rich depending on how it's used, there is opportunity to grow our understanding of people's experiences with different complex channels, particularly how the choice of different functions impacts receivers and senders as evidenced in the nonverbal overload results in video conference meetings among some participants. This is a more expansive approach than MRT's traditional unidimensional line between rich and lean. Additionally, as a theory MRT may need to broaden its criteria to include the complexity of people's attitudes, preferences and characteristics, such as gender or neurodiversity. The concept of broadening MRT's scope to include subjective elements has been

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suggested by other researchers including Neshor Shoshan and Wehrt (2021). Further research would determine the validity and reliability of such changes.

This research also signals a need to examine whether professional position is a factor in meeting-related fatigue. Those in a leadership position may be more actively involved in meetings and it would be interesting to determine whether that decreases the risk of video conference fatigue since focus group participants cited fatigue in passive roles with one-way communications in video conference meetings. These research ideas would further impact our understanding of MRT.

Importantly, the stressors of living in a pandemic, such as fear for one's self or family and pressure from uncertainty, must be considered. This situation may have created less ability to cope with nonverbal overload and it would be interesting to explore this angle further. As well, most participants discussed how their video conference fatigue decreased as the pandemic continued with one person referencing it as something similar to conditioning that is built up over time, which is another potential area to explore. And finally, there could be research around video conference fatigue in environments with a balance of communications touchpoints – in-person, telephone, email and video conference – to see if it affects levels of video conference fatigue.

The Final Word

This project sought to determine how MRT may account for “Zoom fatigue” since its existence seemed to contradict the widely-cited communications theory. Additionally, early reports suggested that women are more likely to experience video conference

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fatigue, which again, prompted a question about how MRT might be able to explain this outcome.

This qualitative study revealed that people want media choice to be intentional and align with communications complexity and to do otherwise runs the risk of potentially contributing to fatigue, disengagement and communications ineffectiveness, which aligns with MRT. The results also indicate that MRT has numerous shortcomings, including failing to account for gender differences, preferences, and complex media which can lead to nonverbal overload, all factors that can contribute to employee fatigue when participating in video conference meetings. These results, taken through the lens of the pandemic and “Zoom fatigue” concur with previous negative findings that MRT has limited relevance to complex new media.

There is much to still learn about “Zoom fatigue” and its triggers with research still in the early stages. It is hoped this project makes a small contribution to the ongoing discussion about MRT, which has had mixed results, particularly around new media.

Adding to the importance of the need to grow our understanding in this area is the expectation that many employees expect the future of work to include remote or hybrid-work environments (Saad & Wigert, 2021). Technology’s ongoing digital evolution also makes it likely that adjusting to new ways of working will continue to be part of our future.

Time doesn’t change everything. As noted by MRT creators, “Information is the life-blood of organizations” (Lengel & Daft, 1984). An understanding of communications,

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including theory, to ensure information transmission success needs to be a priority for employers.

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Appendices

Appendix A - 15-point Zoom Exhaustion & Fatigue Scale

Survey Questions for the ZEF Scale

Constructs	Questions
General Fatigue	How tired do you feel after video conferencing?
	How exhausted do you feel after video conferencing?
	How mentally drained do you feel after video conferencing?
Visual Fatigue	How blurred does your vision get after video conferencing?
	How irritated do your eyes feel after video conferencing?
	How much do your eyes hurt after video conferencing?
Social Fatigue	How much do you tend to avoid social situations after video conferencing?
	How much do you want to be alone after video conferencing?
	How much do you need time by yourself after video conferencing?
Motivational Fatigue	How much do you dread having to do things after video conferencing?
	How often do you feel like doing nothing after video conferencing? *
	How often do you feel too tired to do other things after video conferencing? *
Emotional Fatigue	How emotionally drained do you feel after video conferencing?
	How irritable do you feel after video conferencing?
	How moody do you feel after video conferencing?

Source: Fauville et al., 2021 b

Appendix B – Email invitation



Invitation Participants needed: Zooming in on Zoom Fatigue: A case study

Dear U of A Alumni Relations or Development team member

I am seeking volunteers for two focus groups to support a research project as part of my studies in the Master of Arts in Communications and Technology (MACT) program at the U of A.

During the COVID-19 pandemic, many professionals, including members of Alumni Relations and/or Development teams, underwent a significant work environment transformation when they were ordered to work remotely as part of health restrictions. I am seeking to understand your experiences with video meetings, including “Zoom fatigue” through an internal organizational communications lens.

To participate, you must have worked throughout COVID-19, undergone the transition of moving from a university-based workspace to a remote work environment as part of pandemic restrictions, and participated in video meetings using such tools as Zoom, Google Meet, or Microsoft Teams during this period.

The first focus group will be open to all genders and will be conducted via Zoom or Google Meet. The second will be open to those who identify as female and will also be held via Zoom or Google Meet.

Participation is completely voluntary and you can withdraw up to the focus group discussion. You are free to leave at any time during the focus group discussion and you determine which questions you would like to answer. Maintaining confidentiality and anonymity is a shared responsibility between the researcher and the participants, and participants are requested to avoid talking about who attended or

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what was said outside the focus group. There are no known risks to you associated with participating in this study. All identifying materials will be removed from the published results unless you give permission for your name to be used. Data will be stored in an encrypted file on a password protected computer.

If you are interested in participating in either of these focus groups (90 mins), please email me at sjdecker@ualberta.ca and identify whether your preference is for Focus Group 1 or Focus Group 2. Participants cannot attend both sessions. If the responses exceed the required number of participants, then names will be selected randomly. All individuals will be asked to complete a consent form before participating in a focus group.

Many thanks for your consideration.

Shelly Decker

Ethics ID: Pro00128716

Revised: April 3, 2023

Appendix C – Consent form



Participant Information and Consent Form

WORKING TITLE OF STUDY: Zooming in on Zoom fatigue: A case study

Research investigator

Shelly Decker, graduate student
MACT, University of Alberta
Email: sjdecker@ualberta.ca

Supervisor

Gordon Gow, PhD
Interim Director, Media & Technology Studies
College of Humanities & Social Sciences
Faculty of Arts/ 4-26 Tory (HM) Building
University of Alberta, Edmonton
Email: ggow@ualberta.ca

You are being invited to participate in a research study. I am a senior communications associate with the U of A's strategic communications department and I am conducting this research as a MACT program graduate student, completely separate from my employed position. Before you take part, I am available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

Why am I being asked to take part in this research study?

You are being asked to participate in this research project because of your work-related experience with video meetings during the COVID-19 pandemic. To participate in this study, you must have been working during the pandemic, experienced the transition of working in a university-based workspace to a home/remote environment and participated in internal work-related video conferences, such as Zoom or Google Meet, during the COVID-19 pandemic.

What is the reason for doing the study?

This research study will contribute to our understanding of employee experiences with video conferencing and video conference fatigue. It will focus on internal organizational communications during the pandemic.

What will I be asked to do?

You will be taking part in one of two focus groups, the first is open to everyone and the second is open to those who identify as female due to early findings revealing that women are more likely to experience video conference fatigue. Each focus group will

last about 90 minutes and will be audio recorded and transcribed. Observations will be noted. Published results will be available to the public.

What are the risks and discomforts?

You are unlikely to experience risks or discomforts by participating in this research. As a part of the group discussion, your opinions and experiences may become known to other participants so you are invited to contribute as much or as little as you like. It is not possible to know all of the risks that may happen in a study, but we have taken all reasonable safeguards to minimize any known risks to you.

What are the benefits to me?

There may not be any direct benefit to you, however you may become more aware of your experiences and available options. The results from this study may help us learn about video conference experiences and video conference fatigue, which may benefit others in the future.

Do I have to take part in the study?

- Being in this study is your choice. You are under no obligation to participate.
- During the focus group, you can skip responding to a question/s and may terminate your participation at any point in the discussion.
- You may withdraw from the study at any time. Due to the complexity of conversation exchange that is inherent in focus groups, your data cannot be withdrawn from the focus group, but you can be assigned a pseudonym if this has not been already requested up until June 1, 2023.
- There are no penalties or consequences for not participating.

Confidentiality

- As part of your consent to participate, you are asked to maintain confidentiality and anonymity about other participants in the focus group. While I strive to protect the confidentiality of the data, I cannot guarantee that other participants in the focus group will do the same.
- During this study, I will do everything possible to make sure all information you provide is kept private. No information relating to this study that includes your name will be published, unless permission is granted. All identifiable information will be removed from published results. Unless permission is granted to use your real name a pseudonym will be used. If you would like to choose your pseudonym or to have your real first name used, please indicate this on the signed consent form on the last page of this document. If you indicate you would like a pseudonym and don't provide one, then one will be chosen.
- Due to the small size of the sample, even with identifiers removed, it is possible that some reading the report, who are knowledgeable of the departments or the participants, might perceive that they recognize the identity of the participants. Occasionally, there can be context or wording that allows someone to recognize an individual.

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- On occasion, this data may need to be checked for accuracy. For this reason, your data, including your name, may also be looked at by people from the Research Ethics Board.
- Participant names and identifying information will not be included in transcripts.
- Research data will be retained for a five-year period before being destroyed. Information is securely stored on a password-protected computer file.

Further information

Should you have any questions about this study, contact:

Shelly Decker - email: sjdecke@ualberta.ca

Note: video meetings can be arranged should that be preferred.

Ethics Review

This research plan has been approved by a University of Alberta Research Ethics Board. If you have questions about how the research is being conducted you may contact the Research Ethics Office via email: reoffice@ualberta.ca or 780-492-2615. This office is independent of the study investigators.

CONSENT

Please indicate if you would like to have your real first name used in published or public documents relating to Zooming in on Zoom fatigue: A case study. You have until June 1, 2023 to change your mind about this decision.

I would like my real name used:

- Yes
- No
- If no, I would like to choose my pseudonym to be

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study until the focus group discussion begins.
- You have until June 1st to change to a pseudonym should you have earlier consented to your real name being used.
- That you do not waive your legal rights by being in the study/
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

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Participant's name - printed and signature

Date

NOTE: If you are not completing this form in my presence, you may return this completed form to sjdecker@ualberta.ca, or contact me via email and I will pick it up if you are on north campus or alternatively you may drop it off at SAB 2-03.

U of A Ethics ID: Pro00128716

Revised: April 3, 2023

Appendix D - Demographic survey - conducted via Google forms

Zooming in on “Zoom fatigue”

Principal Investigator: Shelly Decker, MACT graduate student, sjdecker@ualberta.ca

Supervisor: Dr. Gordon Gow, interim director, Media & Technology Studies
College of Humanities & Social Sciences
Faculty of Arts/ 4-26 Tory (HM) Building
University of Alberta, Edmonton
Email: ggow@ualberta.ca
Phone: 780.492.9557

You are invited to participate in this research study *Zooming in on “Zoom fatigue”* because of your work-related experience with video meetings during the COVID-19 pandemic. To participate in this study, you must have been working during the pandemic, experienced the transition of working in a university-based workspace to a home/remote environment and participated in internal work-related video conferences, such as Zoom or Google Meet, during the COVID-19 pandemic. This research study is open to members of the University of Alberta Development and Alumni Relations teams. This questionnaire will be used to look for patterns or themes along with the information gathered in the focus groups, which are connected to this Capstone research project, part of the U of A's MACT program.

Purpose of the Study: This research study will contribute to our understanding of employee experiences with video conferencing and video conference fatigue. It will focus on internal organizational communications during the pandemic.

Participation: If you wish to participate in this study, please complete the survey. The survey should take you approximately three to five minutes to complete.

We would appreciate your survey being submitted by 4 p.m. April 14. If we do not receive it by said date, we will send you a notice of reminder.

Benefits: There may not be any direct benefit to you. The results from this study, which includes the demographic survey and the focus groups, may help us learn about video conference experiences and video conference fatigue, which may benefit others in the future.

Risks: You are unlikely to experience risks or discomforts by participating in this

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research. It is not possible to know all of the risks that may happen in a study, but we have taken all reasonable safeguards to minimize any known risks to you.

Confidentiality and Anonymity: The information that you will share will remain strictly confidential and will be used solely for the purposes of this research. The only people who will have access to the research data are the principal investigator and the supervisor. Your name and other identifying information will not be included in published results. In order to minimize the risk of security breaches and to help ensure your confidentiality we recommend that you use standard safety measures such as signing out of your account, closing your browser and locking your screen or device when you have completed the survey.

Data Storage: The survey responses will be encrypted and stored on a password protected computer in the department of Media & Technology Studies at the University of Alberta.

Voluntary Participation: You are under no obligation to participate and if you choose to participate, you may refuse to answer questions that you do not want to answer. Should you choose to withdraw midway through the survey simply stop completing the survey and do not submit the responses.

Information about the Study Results: The results of this study will be published online as part of a Capstone Project in the MACT program at the University of Alberta. A link will be shared with participants once the study is published.

Contact Information: If you have any questions or require more information about the study itself, you may contact Shelly Decker at sjdecker@ualberta.ca or research supervisor, Dr. Gordon Gow at ggow@ualberta.ca or phone: 780.492.9557

The plan for this study has been reviewed by a Research Ethics Board at the University of Alberta. If you have any questions regarding your rights as a research participant or how the research is being conducted you may contact the Research Ethics Office at 780-492-2615.

Completion and submission of the survey means your consent to participate. The following demographic information will be used in the study analysis to help determine whether these characteristics are factors in employee video conference experiences.

Participant age

Please check off your age group. This information is being gathered to determine whether age may be a factor in video conference experiences.

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- 18-30
- 31-39
- 40-49
- 50-59
- 60 and over
- Prefer not to respond

Gender

Please check off the gender option that best applies to you. This information is being gathered to determine whether gender may be a factor in video conference experiences. It will also help determine potential participants for the second focus group, open to females.

- Female
- Male
- Two-Spirit
- Transgender
- Non-binary/non-conforming
- Prefer not to respond

Children/dependents

This information is being gathered to determine whether caring for dependents while you were working remotely during the pandemic may have been a factor in video conference experiences. At the time of the pandemic, when you were working remotely, did you have any dependents (including children and/or adults) for whom you are a parent/ guardian/ primary caregiver?

- Yes
- No
- I prefer not to answer

If yes, please indicate the age (i.e., 4 years) of each dependent you were responsible for during this period. We realize that birthdays may mean the age changed, but please indicate the age for the greatest period of time that you were working remotely.

_____ (first dependent)	_____ (fourth dependent)
_____ (second dependent)	_____ (fifth dependent)
_____ (third dependent)	

Marital status

Please indicate your marital status at the time you were working remotely during the pandemic. During that time period, were you:

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- Single
- Married/common-law partner
- Divorced or separated
- Widowed
- Prefer not to respond

Submit survey

Thank you.

UofA Ethics ID: Pro00128716

April 3, 2023

Appendix E – Logic Tables

LOGIC TABLE - Focus group 1 - mixed gender

Media Richness Theory	Construct/statement link	Focus group question
Core themes	Connects to 15-point ZEF	Aligns with MRT or theory criticism
Channel choice	Video conference participation	All of you have participated in video conference meetings in the pandemic. When is a video conference meeting needed versus another type of communications, such as an email. Please explain.
Nonverbal cues - physical presence of self (receiver)	Mirror anxiety connected to emotional fatigue	<p>Do you pay attention to your appearance during the meeting? (Do you check how you look before speaking, are you distracted by your image and want to present well to others who can see you? Is this different from an in-person meeting?)</p> <p>How often do you notice your image during video conference meetings? Has anyone ever commented on your appearance? How does this make you feel?</p> <p>Do you feel that your surroundings, such as your furniture or what people can see around you, are part of your image? (Do you pay attention to your environment or others in meetings? Comment on the effect it has on you.)</p> <p>Have you turned off your camera or turned off the self-monitor so you can't see yourself even though your</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		<p>camera is still on in a video conferencing meeting? Why? Did that change your experience? (please explain)</p> <p>Does having the camera or self-monitoring on or off make a difference in how you feel after participating in a videoconference? Do you feel better if the camera is off or not self-monitoring? – please share your experiences.</p> <p>- Prompts - Do you experience a change in emotions during a meeting (joy/irritable)</p>
<p>Nonverbal cues via camera - physical presence of others foundational to experience - Social presence</p>	<p>Social fatigue</p>	<p>How do you feel and/or prepare leading up to the start of a video conference? Do you do anything different/special in anticipation of the meeting? Do those actions depend on the type of meeting?</p> <p>Have you noticed a change in your desire to participate actively in social situations after video conferencing?</p> <p>-Prompts - could include wanting to be alone. How much do you need time by yourself after video conferencing</p>
<p>Audio - language (Exchange of cues from linguistic content, tone of voice)</p>	<p>Social fatigue</p>	<p>Does listening to someone in a video conference meeting affect your desire to be around others?</p> <p>Do you feel any difference between attending a meeting where you are required to listen compared to one where you are expected to talk?</p> <p>Do you feel when you speak in a meeting that it affects your interest</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		<p>in participating in social activities following a video conference? (prompts - seek a break from people/do a quiet activity/want another meeting)</p> <p>Do you have any comments about factors in your physical environment such as children, pets, that may or may not contribute to fatigue?</p>
<p>Equivocality - near instant two-way communications - according to MRT, the ability to respond/seek clarification should boost equivocality and task performance outcomes.</p>	<p>Outcomes of meeting. General fatigue</p>	<p>How tired do you feel after videoconferencing?</p> <p>Do you ever feel exhausted after videoconferencing? Can you describe that experience? How mentally drained do you feel after video conferencing? How do you describe that experience</p>
<p>Task performance</p>	<p>Motivational fatigue</p>	<p>Do you ever feel energized or motivated after video conferencing? Why might that be? What would you attribute that to?</p>
<p>Subjective - criticism of MRT</p>	<p>Attitude</p>	<p>Facilitator I'm going to ask a question and then provide a range of descriptive words. You can choose one from the list or pick a different word. I want you to write that word down and then we will go around the call and reveal our answer and explain why that word was chosen.</p> <p>Q: How do you feel about video conference meetings?</p> <p>Possible words: Overwhelmed, joy, powerless, relaxed, anxious, energized, exhausted, hope, dread, motivated, frustrated</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		(Goal to see how similar/different choices are among group)
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LOGIC TABLE - focus group 2 - participants who self-identify as female

Media Richness Theory	Construct/statement link	Focus group question
Core themes	Connects to 15-point ZEF	Aligns with MRT or theory criticism
Nonverbal cues - physical presence of self (receiver)	Mirror anxiety connected to emotional fatigue	<p>Have you ever talked about your videoconference experience with male counterparts or family members? Do males report different experiences compared with your own experience?</p> <p>How often do you notice your image during video conference meetings? Has anyone ever commented on your appearance? How does this make you feel?</p> <p>Do you pay attention to your appearance during the meeting? (do you check how you look before speaking or are you distracted by your image and want to present well to others who can see you - is this different from an in-person meeting?)</p> <p>Do you feel that your surroundings are part of your image? Do you pay attention to your environment or others in meetings? Comment on the effect it has on you</p> <p>Have you turned off your camera or turned off the self-monitor so</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		<p>you can't see yourself even though your camera is still on in a video conferencing meeting? Why? Did that change your experience? (please explain)</p> <p>Does having the camera or self-monitoring on or off make a difference in how you feel after participating in a videoconference? Do you feel better if the camera is off or not self-monitoring? – please share your experiences.</p> <p>- Prompts - Do you experience a change in emotions during a meeting (joy/irritable/moody)</p>
<p>Nonverbal cues via camera - physical presence of others foundational to experience - Social presence</p>	<p>Social fatigue</p>	<p>How do you feel or how do you prepare leading up to the start of a videoconference session?</p> <p>How do you feel and/or prepare leading up to the start of a video conference? Do you do anything different/special in anticipation of the meeting? Do those actions depend on the type of meeting?</p> <p>Have you noticed a change in your desire to participate actively in social situations after video conferencing?</p> <p>-Prompts - could include wanting to be alone. How much do you need time by yourself after video conferencing</p>
<p>Audio - language (Exchange of cues from linguistic content, tone of voice)</p>	<p>Social fatigue</p>	<p>Does listening to someone in a video conference meeting affect your desire to be around others?</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		<p>Do you feel any difference between attending a meeting where you are required to listen compared to one where you are expected to talk?</p> <p>Do you feel when you speak in a meeting that it affects your interest in participating in social activities following a video conference? (prompts - seek a break from people/do a quiet activity/want another meeting)</p> <p>Do you have any comments about factors in your physical environment such as children, pets, that may or may not contribute to fatigue?</p>
<p>Equivocality - near instant two-way communications - according to MRT, the ability to respond/seek clarification should boost equivocality and task performance outcomes.</p>	<p>Outcomes of meeting. General fatigue</p>	<p>How tired do you feel after videoconferencing? Do you ever feel exhausted after videoconferencing? Can you describe that experience? How mentally drained do you feel after videoconferencing? How do you describe that experience</p>
<p>Task performance</p>	<p>Motivational fatigue</p>	<p>Do you ever feel energized or motivated after video conferencing? Why might that be? What would you attribute that to?</p>
<p>Subjective - criticism of MRT</p>	<p>Attitude</p>	<p>Facilitator I'm going to ask a question and then provide a range of descriptive words. You can choose one from the list or pick a different word. I want you to write that word down and then we will go around the call and reveal our</p>

ZOOMING IN ON 'ZOOM FATIGUE'

		<p>answer and explain why that word was chosen.</p> <p>Q: How do you feel about video conference meetings?</p> <p>Possible words: Overwhelmed, joy, powerless, relaxed, anxious, energized, exhausted, hope, dread, motivated, frustrated,</p> <p>(Goal to see how similar/different choices are among group)</p>
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FOCUS GROUP QUESTIONS

(90 mins – target: six participants for each focus group)

Moderator Introduction and Focus Group Purpose (Time: 5 minutes)

Welcome everyone. I am Shelly and I am your facilitator for this focus group that is seeking to understand your internal communications, work-related video conference experiences, including video conference fatigue, during the pandemic. I want to thank all of you for being a part of this conversation.

If you need to take a break at any time, please feel free to do so.

As a reminder, participation in this focus group is voluntary. You are free to leave at any time. If you decide that you no longer want to participate in the focus group you can simply send a chat message and let me know you are leaving without having to say anything to the group.

I want to let everyone know that this focus group is going to be recorded so it's important that we have one person speak at a time. In the transcription of the recording, I will remove any identifying information unless you have granted consent for your name to be used.

I'm going to be asking questions and encouraging discussion from everyone in the meeting room. I'm hoping that everyone will feel comfortable to contribute to the conversation.

Before we begin our conversation, I'd like to go over a few ground rules and housekeeping information to make sure we're able to make the best use of the next 90 minutes that we'll be spending together.

While I hope to hear from all of you, there is no pressure to answer every question. It's important that everyone has an opportunity to speak. And it's important to remember that there are no wrong answers. This is a friendly conversation so even if you disagree with what's been said, we need to be open and respectful to everyone's opinion. And it's OK if you're the only person in the room who feels a certain way. We are all individuals.

ZOOMING IN ON 'ZOOM FATIGUE'

There is no need to share information that you are concerned will be embarrassing or is private. If you want to share that information afterward, then you can speak with me privately after the focus group discussion. I will stay in this meeting room for an additional 30 minutes or, if that isn't convenient, you can reach out to me via email to arrange a time for us to talk.

Is everyone comfortable with this process? Are there any questions?

Wait for confirmation.

Great. Let's begin.

Mixed gender focus group

1. Warm-up question and confirmation VC participation (5 mins)

We've all participated in video conference meetings for work during the pandemic, correct? I'm wondering if you can share when a video conference meeting is needed versus another type of communications, such as email?

2. Core theme (non-verbal cues/physical presence of self as a receiver)

Time: 20-25 mins

When you are attending an internal communications meeting, do you pay attention to your appearance during the meeting? (Do you check how you look before speaking, are you distracted by your image and want to present well to others who can see you? Is this different from an in-person meeting?)

How often do you notice your image during video conference meetings?
Has anyone ever commented on your appearance? How does this make you feel?

Do you feel that your surroundings, such as your furniture or what people can see around you, are part of your image? (Do you pay attention to your environment or others in meetings? Comment on the effect it has on you.)

Have you turned off your camera or turned off the self-monitor so you can't see yourself even though your camera is still on in a video conferencing meeting? Why?
Did that change your experience? (please explain)

Does having the camera or self-monitoring on or off make a difference in how you feel after participating in a videoconference? Do you feel better if the camera is off or not self-monitoring?

– please share your experiences.

Prompts - Do you experience a change in emotions during a meeting (joy/irritable)

3. Core theme - Nonverbal cues via camera - physical presence of others
Time: 10-15 mins

How do you feel and/or prepare leading up to the start of a video conference? Do you do anything different/special in anticipation of the meeting? Do those actions depend on the type of meeting?

Have you noticed a change in your desire to participate actively in social situations after video conferencing?

Prompts - could include: Do you need time by yourself or do you seek to be around others after video conferencing?

4. Audio - language/exchange of cues linguistically/tone of voice
Time. 15 mins

Does listening to someone in a video conference meeting affect your desire to be around others?

Do you feel any difference between attending a meeting where you are required to listen compared to one where you are expected to talk?

Do you feel when you speak in a meeting that it affects your interest in participating in social activities following a video conference? (prompts - seek a break from people/do a quiet activity/want another meeting)

Do you have any comments about factors in your physical environment such as children, pets, that may or may not contribute to fatigue?

5. Equivocality - near instant two-way communications
Time 10-15 mins

How tired do you feel after videoconferencing?

Do you ever feel exhausted after videoconferencing? Can you describe that experience?

How mentally drained do you feel after video conferencing? How do you describe that experience?

6. Task performance (motivation)
Time: 5-10 mins

Do you ever feel energized or motivated after video conferencing? Why might that be?

ZOOMING IN ON 'ZOOM FATIGUE'

What would you attribute that to?

7. Attitude - ACTIVITY

Time: 15 mins

Facilitator: I'm going to ask a question and then provide a range of descriptive words. You can choose one from the list or pick a different word. I want you to write that word down and then we will take turns revealing the answer and explaining why that word was chosen.

Q:How do you feel about video conference meetings?

Possible words

Overwhelmed

Joy

Powerless

Relaxed

Anxious

Energized

Exhausted

Hope

Dread

Motivated

Frustrated

(Goal to see how similar/different choices are among group)

Ending the Focus Group

Thank you for participating in this focus group about video conferencing and Zoom fatigue. Before we wrap up, I want to check in to make sure everyone's okay with our conversation. If you have any questions at all, I'm more than happy to answer them. I will be here for about 30 minutes after our session ends and you have my contact information as well. Please reach out.

Enjoy the rest of your day.

SAME INTRODUCTION AND END FOR BOTH GROUPS.

Second group - those who identify as female

Note: the only change is the Question 2

2. Nonverbal cues

Have you ever talked about your videoconference experience with male counterparts or family members? Do males report different experiences compared with your own experience?

How often do you notice your image during video conference meetings? Has anyone ever commented on your appearance? How does this make you feel?

Do you pay attention to your appearance during the meeting? (do you check how you look before speaking or are you distracted by your image and want to present well to others who can see you - is this different from an in-person meeting?)

Do you feel that your surroundings are part of your image? Do you pay attention to your environment or others in meetings? Comment on the effect it has on you

Have you turned off your camera or turned off the self-monitor so you can't see yourself even though your camera is still on in a video conferencing meeting? Why? Did that change your experience? (please explain)

Does having the camera or self-monitoring on or off make a difference in how you feel after participating in a videoconference? Do you feel better if the camera is off or not self-monitoring?

– please share your experiences.

Prompts - Do you experience a change in emotions during a meeting (joy/irritable/moody)