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1 INTRODUCTION

1.1 Background and motivation

The COVID-19 pandemic is changing how work is conducted, affecting both individual workers and entire organizations (Brynjolfsson et al., 2020). One of the most significant changes, is the shift from working at a "physical" office in a company building with colleagues nearby, to working from home and relying on digital communication channels to stay in touch with coworkers (Kramer & Kramer, 2020). Although "remote work", as a phenomenon, made a breakthrough in the 1970s (Lindström et al., 1996, p. 54), there has not been a societal-scale implementation of it until the COVID-19 pandemic.

Before the COVID-19 pandemic, the implementation rate of telework was not as high as scholars in the 1980s and 1990s estimated (Harker Martin & MacDonnell, 2012, p. 603). In 2017, only 5% of workers in the EU "usually" worked from home. The Netherlands was the country where home office was most common, with 14% (Eurostat, 2018), which is not that high of a percentage. In 2019, the number of employees who worked from home, in the EU, had a slight increase; the number rose to 6.4% (Eurostat, 2020). In a 2017 survey conducted by the independent research foundation FAFO, 35% of Norwegian workers responded that they had the opportunity to work from home in case there was a need for it (Nergaard et al., 2018, p. 47). However, only 10% of the respondents had home office as permanent practice (p. 52).

During the pandemic, the percentage of employees working from home got a noticeable boost: A survey on home office and digital solutions conducted in by FAFO in 2020, found that 80% of Norwegian workers had their work situation greatly affected by the COVID-19 crisis, 52% of workers were ordered to work from home (Nergaard, 2021). It is suggested that the percentage of remote workers will increase post-pandemic (Blenford, 2021), as workers are expressing that they wish to continue working from home after the COVID-19 measures are removed and they are allowed

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back to the office (Egge, 2021). For instance, most Norwegian workers would prefer to work at least one day a week from home post-pandemic (Holm Ingelsrud & Hoff Bernstrøm, 2021, p. 26)

It is not only employees who express a desire to work from home, organizations deem remote work as beneficial. Jack Dorsey, CEO of the social media giant Twitter, announced that the company's employees can "work home forever" post-pandemic, if they want to (Paul, 2020). Moreover, the EU is planning to decrease half of its office space in Brussels by 2030, the reasoning being that the majority of the staff are "in favor of having two to three days per week of teleworking" (Burchard, 2021). These major workplace changes are a result of the pandemic, as the European Commissioner for Budget and Administration, Johannes Hahn, stated "Like all public and private organizations, we are now looking at the most useful balance between office and home working for the longer term (…) it's the new norm" (Burchard, 2021).

Although remote work has been embraced by individuals and organizations alike, workers have expressed that they miss the physical office space (Goldfarb, 2020). One reason being the change from how one communicates with their coworkers at the "physical" office (Goldfarb, 2020; Tett, 2021). Effective communication is fundamental for organizations that want to succeed (Corrado, 1994) and organizational communication has been described as "the glue which bonds people working together toward a common goal" (p. 10). The way one communicates with their colleagues radically changes when the work is conducted, making a shift from the *physical* to the *digital*. Face-to-face interaction decreases, and so does the exchange of informal information (Lal & Dwivedi, 2009, p. 268).

One of the "key goals" of communication, is information exchange (Nardi & Whittaker, 2002, p. 84). Information is a key asset for organizations, as it aids the organization in responding to competition, and ensures "effectiveness and efficiency" (Kaye, 1995, p. 5). The physical office space provides workers the opportunity to

accidentally overhear what others are saying, thus experiencing "incidental information exchanges" throughout the workday. Workers regard incidental information exchange as an important aspect of work and feel as if it is a missing aspect when working from home (Tett, 2021). Those working from home pre-pandemic had fewer opportunities to exchange informal information compared to those at the physical office (Lal & Dwivedi, 2009, p. 268), but how has the informal information exchange been affected when *everyone* is at home?

While there is an expectation that the most invasive and strict COVID-19 measures eventually will disappear (Regjeringen, 2021), it is assumed that the pandemic will permanently affect how office work is conducted (Dwoskin, 2020). Home offices are an example of a situation where workers are removed from their physical office and have to rely on a digital space to share information with their coworkers. Mapping challenges, opportunities and consequences of this practice is highly relevant as it will be able to aid companies who heavily use digital information sharing channels. As information and communication are connected (Hogard & Ellis, 2006, p. 174; Nardi & Whittaker, 2002, p. 84) it is relevant to see these two aspects in context of each other when researching how they have been affected by the COVID-19 pandemic.

As several large companies have made plans to implement home office post-pandemic, research into this subject can benefit organizations that will be using virtual office spaces in the future, or organizations who consider implementing it. This study is an addition to a growing number of studies on the COVID-19 pandemic's effect on the workplace. As efficient communication is vital to organizations, assessing how workers exchanged information during the pandemic will provide a unique insight into a short-lived phenomenon (assuming that the pandemic ends).

The COVID-19 pandemic is a rare occurrence, and interviewing employees about their work practices *during* the pandemic provides the opportunity to gather unique data.

1.2 Research questions

The aim of this study is to get an insight into how employees have experienced working from home under the COVID-19 pandemic by examining their communication channel usage and information exchange practices. This is especially interesting because employees use many digital communication channels at work, some of them very similar in nature.

The following research problem, and research questions, are coined:

How do employees experience and navigate among multiple digital communication channels at the workplace, in particular during the COVID-19 pandemic?

RQ1: What characterizes the employees' experiences of multiple communication channels in a mainly digital work environment?

RQ2: What are main reasons for channel selection when exchanging information digitally?

RQ3: What kinds of information exchanges are associated to each channel?

1.3 Thesis structure

This thesis consists of 7 chapters in total.

Chapter 2 provides an overview of previous research that has been conducted on the following topics: remote work, ICTs at the workplace, and work conditions under the COVID-19 pandemic. Chapter 3 presents the theoretical framework for this thesis. In this chapter, theories about information, media richness, and channel choice are presented. Chapter 4 gives an overview of possible methodologies, before a research approach is chosen. This chapter also provides information about the participants of my study, how the interviews were conducted, in addition to discussing limitations in relation to the data gathering process and ethical considerations. Chapter 5 presents

the analysis, which presents the study's findings in three parts: Working full time at the virtual office, communication channel use, and reasons for channel choice. Chapter 6 discusses central findings and compares them with previous research. Chapter 7 is the final chapter, which concludes the study.

2   PREVIOUS RESEARCH

The amount of research precisely about communication channel usage and information exchange at the workplace during the COVID-19 pandemic, is limited. As a result, this chapter includes research that represents central aspects of the themes this study is centered around, they are as follow: Remote work, information communication technology at the workplace, and work conditions under the COVID-19 pandemic. At the end of the chapter, these aspects will be seen in context of each other as key findings from previous research are presented.

2.1   Remote work

It is suggested that telework (used synonymously with "remote work") started gaining traction in the mid-70s, when the term was popularized by Jack Nilles (Lindström & Rapp, 1996). Lindstöm and Rapp (1996) define *telework* as "working with the aid of technical equipment whereby the agent works full-time or part-time at one or several workplaces outside the head office or the central main office" (p. 54), a common form of telework is to work from home (p. 55). In their literature review on the subject, Tung and Turban (1996) found that a considerable amount of the research on telework was conducted in the mid- to late-1990s, when it had a surge in popularity (p. 103).

Much of the literature on telework focuses on its *physical* aspect, which is the office space. A case study conducted by Bentley and Yoong (2000) explores how workers adapt to telework. The results of their study indicate that working at home is suitable if one needs to conduct their work tasks in a quiet environment without interruptions. However, not everyone has a suitable work environment at home, for example those

living with housemates (p. 352). Furthermore, Bentley and Yoong's (2000) results indicate that when a worker makes the move from a "regular" office to a home office, it leads to their colleagues assuming that they are available at all times (p. 351). In a more recent study, Jarrahi and Thomson (2017) identify negative aspects related to workers being physically distanced from the rest of the workplace. Their findings indicate that, when working remotely, workers risk missing out on informal information sharing meetings such as "cubicle chats, cafeteria discussions, and impromptu team meetings" (p. 1081).

Positive outcomes of telework that affect the organization is "improved staff retention" and "improved productivity" (Lupton & Haynes, 2000, p. 326). As pointed out in a meta-analysis conducted by Harker Martin and MacDonnel (2012), the advantages that benefit workers, such as increased productivity, also benefit the organization. Advantages of remote work that directly affect the workers are, for instance "greater productivity", "better morale", "fewer interruptions at office" and "lower absenteeism" (Bailey & Kurland, 1999, p. 56). Tremblay and Thomson (2012) echo several of these advantages in a more recent study. The workers they interviewed listed "less interference by colleagues" and "less work travel" as benefits of telework (p. 110). Additionally, their results indicate that telework made workers gain better work hours and job flexibility (p. 109).

There is also a *technological* perspective in the literature on telework. The technological perspective has its focus on the channels which individuals use to communicate with their coworkers, when working remotely (Siha & Monroe, 2006). Davenport and Pearlson (1998) argue that communication is critical when it comes to telework (p. 57), while Scott and Timmermann (1999) state that telework seemingly is "strongly related to workers' media choices" as it is reliant "on the use of communication technologies" (p. 243). Workman and colleagues (2001) found that remote workers prefer to use "media that better simulate face-to-face exchanges" when communicating in virtual teams (p. 200). However, Lal and Dwivedi (2009)

challenge this view, as their findings point toward remote workers being able to "retain close relationships" with their colleagues by using their mobile phones (p. 265).

Attaran and colleagues (2019) argue that there is a lack of research about digital workplace technologies and claim that "the traditional office is transforming and will become obsolete in the near future" (p. 1). Indeed, many of the studies on the technological aspect of telework were published in the 1990s (Tung & Turban, 1996). This means that conducting research on current telework practice is relevant.

2.2   Communication channels at the workplace

As stated by Attaran et al. (2019), information communication technology (ICT) is a central part of remote work. There has been conducted vast research on the use of different kinds of ICTs at the workplace. The focus of this chapter is on channels that are frequently used at the workplace: E-mail, phone calls, instant messages, enterprise social media and video calls.

Turner et al. (2010) found that phone calls and e-mail, which were used daily, were the ICTs most used by workers. Although phone calls were frequently used, they were not a *preferred* form of communication and were described as "disruptive" by the workers who were interviewed (p. 848). Turner and colleagues' research point towards e-mail and face-to-face communication being workers' preferred communication channels (p. 847).

Although workers prefer to use e-mail, the channel may affect them negatively, as e-mail overload is a reoccurring issue (Dabbish & Kraut, 2006). According to Ingham (2003), e-mail overload is characterized by workers spending a lot of time managing and sorting all the e-mails they receive. Because the channel is used for a multitude of purposes, such as arranging meetings and sending documents, handling e-mails often becomes a time-consuming task (p. 177). Though it is not the channel's

intended purpose, Bellotti and colleagues (2005) found that workers also use e-mails as a tool for archiving messages. Some workers even fear deleting e-mails from their inbox because there might be a chance that the information which they contain is important (Mackay, 1988).

Nardi and colleagues (2000) discovered that workers mainly used instant messaging if they had a question that required a quick answer, or if they needed to clarify something (p. 3). Their findings indicate that workers deem instant messaging as more informal than e-mails. The workers they interviewed described instant messaging as a "fun thing" compared to e-mails, which were described as an "adult thing" (p. 3). Instant messaging's informality was exemplified by the fact that workers would use multiple exclamation points and omit using capital letters when writing messages (p. 3). Another discovery was that workers who used instant messaging had a tendency to interact with their "inner circle", that is coworkers who are close to them, which often resulted in informal conversations (p. 3-4). Nonetheless, Isaacs et al. (2002) found that workers mainly use instant messaging to discuss work related matters, but that these conversations sometimes turned personal.

Much of the research on enterprise social media usage in organizations indicates that it has positive effects on the workplace. Leonardi and colleagues (2013) state that enterprise social media allows individuals to share information with the workers in the entire organization. These findings are echoed in more recent research; Liu and Bakici (2019) found that information sharing, in addition to social interaction and entertainment, is one of the reasons workers use enterprise social media (p. 168). However, information sharing on enterprise social media can affect workers' job performance negatively (Lu & Pan, 2019, p. 137538). For instance, creating a post for ESM can be time consuming, and workers often post information that does not directly relate to their work tasks (p. 137538).

Forsgren and Byström (2017) have researched the usage of *multiple* social media in the workplace. While they found that having several social media at the workplace had benefits, such as improving the maintenance of coherence when it comes to activities such as information sharing (p. 458). However, their research also revealed negative aspects. If an organization implements multiple social media, it may result in some of the workers preferring one platform to the other. Preferring X social media over Y is problematic as it may lead to disagreements about where one should store information (p. 459). In addition, Forsgren and Byström (2017) point out that having multiple social media could be the source of redundancy (p. 445).

Research concerning video communication focuses on the factors that separate it from real-life face-to-face communication (Doherty-Sneddon et al., 1997). An example of this is the fact that several studies have been conducted on the lack of eye-contact in video calls, and how this can be improved (e.g., Solina & Ravnik, 2011; Bohannon et al., 2013). Eye-contact is deemed important as it increases trust (Jaklič et al., 2017). Although scientists have attempted to develop technological solutions to this issue, they have yet to succeed in replicating eye contact digitally (Solina & Ravnik, 2011).

2.3   Work conditions under the COVID-19 pandemic

A major difference between working from home during the pandemic and working from home pre- pandemic, is that during the latter, employees were "forced" to work from home, rather than decide for themselves. This is due to the fact that working from home measures were implemented by national, or local, governments almost overnight (Oslo Kommune, 2020). Kniffin et al. (2021) point out that not everyone has access to an appropriate office space at home (p. 66). Even those with suitable physical workspaces might be interrupted by their family members who also have to stay at home (Reuschke & Felstead, 2020, p. 211). Indeed, "work-home" interference is something workers, especially those who are parents, struggled with during the COVID-19 pandemic (Wang et al., 2021, p. 28).

Working from home reduced the number of social interactions and face-to-face communication workers had on a regular basis. Consequently, this amplified feelings of loneliness and social isolation amongst workers (Wang et al., 2021, p. 29). Although ICTs were used as a tool to feel connected to others during the pandemic (Lee et al., 2021), when used in the context of the workplace ICTs were "more task focused" (Wang et al., 2021, p. 29). This led to a decrease in informal conversations (p. 26). Dwivedi and colleagues (2021) found that, in the context of remote work, impromptu social interactions require more consideration and planning. This is a consequence of workers having several ICT channels that they can contact their coworkers through (p. 8). Thus, the need to spend time on finding the most appropriate channel is created.

During the pandemic, the usage of video conferencing became widespread (Iqbal, 2021). While video calls are used by workers as a way to communicate and cooperate with each other, video call usage might also be a result of superiors wanting to keep tabs on their employees. This may lead to workers feeling like their privacy is invaded, and increase their stress levels (Kniffin et al., 2021, p. 66). This is echoed in a study conducted by Wang et al. (2021) on remote workers in China during the COVID-19 pandemic. Workers who were interviewed stated that they felt that a large amount of phone and video calls increased their workload, stating that the workload was "super high". Additionally, working remotely increased their working hours (p. 26), which negatively affected their well-being (p. 45).

Researchers have found that frequent video calls can lead to fatigue (Nadler, 2020; Wiederhold, 2021). "Zoom fatigue" is used as an umbrella term for this phenomenon (Nadler, 2020, p. 2). Wiederhold (2021) defines *Zoom fatigue* as "tiredness, anxiety, or worry resulting from overusing virtual videoconferencing platforms" (p. 437). Zoom fatigue is a common, yet undesirable occurrence (Nadler, 2020), stemming from "how we process information over video" (Fosslien & Duffy, 2020). Although Zoom fatigue is a prevalent issue, video call software does have benefits; Hacker and colleagues

(2020) state that it "afforded a new virtual togetherness" and facilitated "social activities and events, and meetings that could not have taken place otherwise" (p. 564) during the COVID-19 pandemic.

There is a need to conduct more research on the way in which the pandemic has affected the workplace: Reuschke and Felstead (2020) propose that there needs to be more research done on the workers who involuntarily must work from home (p. 211), while Kniffin and colleagues (2021) state that there needs to be conducted more research on how working from home has affected work practices (p. 66).

2.4 Summary of key findings

While remote work is beneficial for both organizations and individual workers, it also has negative aspects. The negative aspects are mainly related to the lack of "real life" communication with one's coworkers (Jarrahi & Thomson, 2017) During the pandemic, negative aspects of remote work are mainly related to social isolation (Wang et al., 2021).

E-mail, instant messaging, and video calls are ICTs that are frequently used at the workplace. Each of these channels have aspects that are unique to them, and the situation they are used in varies: While e-mails are often used when sharing formal information, instant messaging is seen by an informal platform by some (Nardi et al., 2000). Yet, both e-mails and instant messaging are used to share work-related information (Isaacs et al., 2004).

The research conducted on remote work has reached some of the same conclusions as research that has been conducted on work conditions under the COVID-19 pandemic. For instance, that feelings of isolation are a negative consequence when not working in the office (Tremblay & Thomsin, 2012; Wang et al., 2021). However, a finding that separates studies on *remote work* and *remote work during the COVID-19* isolation amongst workers (Wang et al., 2021).

3 THEORETICAL FRAMEWORK

In this chapter, the concept "information" is discussed and defined. Theories related to communication and media usage are presented, and the theoretical framework of this study is outlined.

3.1 Information

"Information" is an ambiguous term, and researchers (Buckland, 1991; Wilson, 2002) have defined the term in many ways. To further complicate the usage of the term, "information" and "knowledge" are used synonymously by some researchers but seen as two different entities by others (Wilson, 2002). As the act of exchanging information is a vital part of this thesis, it is necessary to clarify how the term "information" is interpreted and used.

To illustrate the ways in which researchers have defined "information", two concepts of information are presented. The first concept is Buckland's (1991) "information-as-thing", while the second concept is information as explicit knowledge (Nonaka & Takeuchi, 1995; Smith, 2001). These concepts are briefly presented, and aspects from both of them are used as a foundation for a definition of the term "information".

3.1.1 Information-as-thing

Buckland (1991) identifies three ways in which the word "information" can be used: (1) Information-as-process, (2) information-as-knowledge, and (3) information-as-thing (p.351). Furthermore, Buckland (1991) states that information is situational, thus the circumstances decide whether something, like an object or a document, is information (p. 356).

Information-as-process refers to the *act of informing* someone or *being informed* by someone (p. 352). For instance, a boss presenting the ins-and-outs of the workplace to a newly hired employee is considered information-as-process because the employee gains knowledge by *being informed* by her boss. Information-as-

knowledge is characterized by concepts that are unmeasurable, for instance, beliefs and opinions. Both information-as-knowledge and information-as-process are intangible. To communicate information-as-knowledge, Buckland (1991) argues that the beliefs, or opinions, one is expressing must be "described, or represented in some physical way, as a signal, text or communication" (p. 351). Books, data, and computer files are examples of such physical expressions; these items are also *instances* of information-as-thing. A defining factor of information-as-thing's factors is the fact that it is tangible, unlike information-as-process and information-as-knowledge (p. 356). Due to its tangibility, information-as-thing is the only type of information that can be used in information retrieval systems (p. 352).

It is noteworthy that Buckland (1991) sees data as an instance of information-as-thing, as this perception stands as a contrast to those of scholars, such as Rowley (2007). Rowley (2007) views data and information as parts of a larger hierarchy in which data is converted into information, information is converted into knowledge and knowledge is converted into wisdom. While Rowley (2007) interprets data as a steppingstone towards more complex concepts, such as knowledge and wisdom, Buckland (1991) considers data as fixed subcategories of information. The notion that information can be *transferred* to a "higher" form, such as knowledge, is a recurring perspective in literature on information and knowledge (Nonaka & Takeuchi, 1995; Rowley, 2007; Nonaka & von Krogh, 2009).

3.1.2   Information as explicit knowledge

In literature, knowledge is often separated into two categories: Explicit knowledge and tacit knowledge (Nonaka & Takeuchi, 1995; Smith, 2001; Nonaka & von Krogh, 2009). Explicit knowledge is defined by the fact that it is easy to express through words, whether these are written or verbalized. Tacit knowledge, however, is difficult to "put into words" as it is "rooted in action, procedures, routines, commitment, ideals, values and emotions" (Nonaka & von Krogh, 2009, p. 636). The distinction between explicit knowledge and tacit knowledge gives an insight into the kind of

knowledge that is transferred in organizations. Nonaka and Takeuchi's (1995) impactful SECI model of knowledge conversion, which illustrates how explicit knowledge can be converted into tacit knowledge, exemplifies the relationship between the two forms of knowledge.

To further examine the correlation between explicit knowledge and information, Smith (2001) will be used as an example. In an organization, data, information, knowledge and wisdom all correlate. Although wisdom resembles tacit knowledge, the gap between these concepts is large; the step from knowledge to wisdom is "the ultimate challenge" (p. 312). The term "information" is defined as "data that have relevance, purpose and context, like units of measurement" (p. 312). Smith's (2001) view on information has similarities with that of Rowley (2007), as both of them see data, information, knowledge, and wisdom as entities that are connected.

By stating that "most explicit knowledge is technical or academic data or information that is described in a formal language" Smith (2001) uses the term "explicit knowledge" as an umbrella term that contains both the entities data and information. Additionally, Smith (2001) argues that explicit knowledge, after it has been codified, can be stored in, and extracted from, databases (p. 315). This interpretation of explicit knowledge has similarities to Buckland's (1991) information-as-thing being able to be retrieved from information systems.

3.1.3 Defining "information"

The presented perceptions of information contain many opposing aspects, but also share some similarities. While Buckland (1991) sees the ways in which information can be used, Smith (2001) interprets information as a part of explicit knowledge, which, according to Nonaka and Takeuchi (1995) can be *transformed* into tacit knowledge.

Rowley (2007) describes information and data as being entities of explicit knowledge. This is similar to Buckland's (1991) concept of information-as-thing, although nothing

indicates that Rowley (2007) views information and data as *things*. However, one could argue that data are a *manifestation* of information, as they are represented by files which are retrieved from information systems.

Information-as-knowledge has similarities to tacit knowledge, as both concepts are challenging to put into words and exist as something abstract. This aspect of the term "information" is important to present as it exemplifies how information functions as a part of a larger process. Instead of choosing one of Buckland's (1991) uses for information or seeing information as a part of a larger transformative knowledge creating process, it is more practical to create a definition suitable for this study. However, the following definition does contain aspects from the aforementioned definitions:

"Information" is a message that can easily be put into words and transferred to another person verbally or through text – it can also be represented by data files, including formats such as audio, picture and video".

3.2   Media richness

The concept of media richness is based on "information richness", which was developed by Daft and Lengel (1983) as a measure to aid organizations in successfully processing information. A main goal of information richness was to avoid situations in which uncertainty and ambiguity occurs (p. 6). As information richness was further developed, it was renamed "media richness" (Lengel & Daft, 1984).

3.2.1   Media richness theory – core principles

MRT was originally created for the purpose of aiding managers in finding the most suitable media when relaying a message (Lengel & Daft, 1984), which means that the theory is suitable for exploring media usage in an organizational setting.

According to Lengel and Daft (1984), media contain different levels of "richness". There are four criteria that define the level of richness: "(1) the use of feedback so

that errors can be corrected; (2) the tailoring of messages to personal circumstances; (3) the ability to convey multiple information cues simultaneously; and (4) language variety" (Lengel & Daft, 1984, p. 8).

Increasing Media Richness	Media Classification		Feedback
↑	Face-to-face	Oral	Immediate
	Telephone	Oral	Fast
	Addressed Documents (e.g., letters, Memos)	Written	Slow
	Unaddressed Documents (e.g. MIS Reports, News letters)	Written	Slowest

Figure 1: Hierarchy of Media Richness (Lengel & Daft, 1984)

Face-to-face communication is considered the richest media, as this form of communication eliminates ambiguity (Lengel & Daft, 1984, p. 7). It is the "feedback" that you get from someone you are communicating with face-to-face, that makes the media unambiguous. Examples of "feedback" are facial expressions, the tone of one's voice, and their body language (p. 8). On the other end of the scale, the media with the lowest richness is "unaddressed documents" (p. 16).

Rich media should be used when the message can be interpreted in various ways or is unclear, this concept is referred to as "message equivocality". Leaner media, on the other hand, are suitable when the message is less equivocal and easy to interpret (Lengel & Daft, 1984; Daft & Lengel, 1986). For example, if a manager is going to convey a vague message that can be interpreted in various ways, she should use a rich media as a measure to avoid misunderstandings. However, if she is going to convey a message that is straightforward and easy to understand, a lean media is appropriate.

3.2.2 Measuring the richness of ICTs

"Communication channels" is used as an umbrella term to refer to information communication technologies (ICTs) that allow individuals to share information by facilitating one-to-one communication, or communication between multiple individuals. Additionally, "communication channels", and "channels" are used synonymously with the term "media".

Even though MRT was created in the early 1980s, the media represented in the framework are still used at workplaces today. Face-to-face communication, telephone, and e-mails are communication channels that are used in modern organizations all over the world. In addition to the aforementioned "traditional" channels, new media channels have emerged since the MRT framework was developed (Yuan, Zhao & Liao, 2013, p. 1661), namely instant messaging and enterprise social media.

In the MRT framework, face-to-face communication is considered as the richest media. In the context of ICTs, video calls are the media that resembles face-to-face communication the most. However, video calls are far from identical to face-to-face communication. For instance, eye contact is an aspect that separates video calls from face-to-face communication (Solina & Ravnik, 2011; Bohannon et al., 2013) and is considered a factor that increases richness (Bekkering & Shim, 2006). Even though

video calls do not enable eye contact, individuals who use the channel are nevertheless able to hear the recipient's tone of voice and see their facial expression. Hence, video calls are the ICT with the highest amount of richness.

Telephone conversations are the second richest media, according to Daft and Lengel (1986). Today, one does not rely on a phone to call others. Voice calls have emerged as a popular feature in both computer software and mobile apps. For this reason, instead of "telephone" the more general term "voice calls" will be used. Voice calls do have the same features as "traditional" phone calls, but the term "voice call" implies that calling someone is not solely associated with mobile phones anymore, let alone stationary phones.

Instant messages (IMs) are commonly used at the workplace. Nardi et al. (2000) argue that emoticon-usage is a key factor that separates IMs from e-mails. While emoticon usage also occurs in communication through e-mail (Derks et al., 2008), research (Kaye et al., 2016, p. 466) found that emoticon usage is interpreted as unprofessional. Additionally, it is more common to use informal language and exclamation points when sending IMs (Nardi et al., 2000). Emoticons have been described as "emotional aids for conversations" (Kaye et al., 2016, p. 463).

Feldman and colleagues (2017) argue that there are parallels between body language and emoticons, which is supported by empirical results (see: Lo, 2008). Emoticons being a "surrogate" for body language when communicating through text, and the normalization of emoticon usage in IMs, increases the channel's richness. Additionally, instant messages are seen as more *urgent* than e-mails. One of instant messaging's defining factors is the expectation of a fast response time (Whittaker & Bradner, 2000). Consequently, the accepted usage of emoticons and informal language, combined with its urgency, rank IMs higher than e-mail.

Enterprise social media (ESM) are defined by the fact that they are a platform in which "social interaction occurs" (Leonardi et al., 2013, p. 2). Kaplan and Haenlein (2010),

who examined usage of social media in the context of MRT and social presence place social media in the middle of the MRT scale (p. 62). They define social media as platforms which "enable users to connect by creating personal information profiles, inviting friends and colleagues to have access to those profiles, and sending e-mails and instant messages between each other" (p. 63) – which is similar to the definition of Leonardi and colleagues (2013). Kaplan and Haenlein (2010) further state that personal profiles on social networks include information in the form of photos, videos, and audio files (p. 63). ESM give its users the opportunity to choose which, and how many, coworkers they want to communicate with. On ESM, a worker can send a message to just one worker or choose to share it with the entire organization (Leonardi et al., 2013).

ESM are not represented in the MRT framework (Daft & Lengel, 1986). One factor that separates ESM from e-mail, is the fact that the former allows users to create their own content (for example statuses). Additionally, on ESM, worker have more options when it comes to communication; they can communicate with their colleagues through features such as public, or private, groups. However, such features do not necessarily increase ESM's richness. E-mails have features that let users send files, like ESM, and is still considered a rather lean media in the MRT framework. Unlike e-mail, ESM focus more on users *creating* something, rather than *exchanging* or *sharing* something. This places EMS on the bottom of the scale and leaves it as the least rich channel.

How should the categories "unaddressed documents" be interpreted in a modern context? While these categories exist today, one could argue that they are less common. Rather than seeing these categories as their own channel, they are considered a part of already existing channels. For example, spam mail can be considered an example of a modern unaddressed document. While it is important to acknowledge that these media types exist, they are not the focus of this study. Additionally, the fact that Lengel and Daft stated (1984) that they "learned that

managers did not think in terms of addressed and unaddressed documents" (p. 16), indicates that this channel is not as significant as the other channels even back when the model was developed.

A revised version of MRT, which includes ICTs, has been created:

High
Richness

Video call

Voice call

Instant message

E-mail

Enterprise social media

Low
Richness
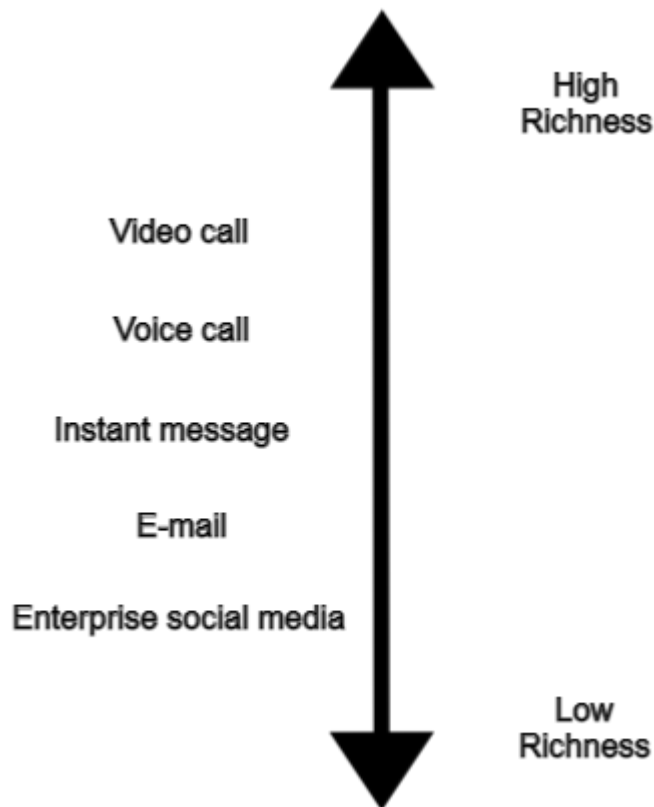
Figure 2: ICTs seen in the context of media richness theory

MRT and modern communication channels

Although one can view ICTs in the context of MRT, the framework's age starts to show if one attempts to apply it on specific *software*. There are few instances of "pure" communication software, that is software which consists of only one channel. E-mail software is the only example of "pure" communication software. Most communication software *combines* the channels presented in Figure 2 (Microsoft, n.d.; Zoom, n.d).

Software that is used for communication purposes at the workplace have numerous media features, thus the following question arises: How should one study software in the context of MRT? On one hand, it could be argued that, by combining several channels, the richness increases. On the other hand, it is not guaranteed that software users will take advantage of all its channels. Additionally, software is frequently updated and becomes more advanced by adding features. For example, the video call software Skype emerged as an instant message and voice call software, but later implemented a video call feature (Aamoth, 2011). Should the richness of software be judged by its original intended purpose? Or should one combine the richness of the channels a software contains, add them, and calculate the richness level?

These questions are important to ask, but difficult to answer. Workers use multiple software, some of these having similar, if not the same, features. MRT does not seem to be enough to explain why it is that workers choose to use software X over software Y. For this reason, it is relevant to find a framework that says more about channel choice when it comes to communication software.

3.2.3 Criticism of MRT

To illustrate the flaws of MRT, research conducted by El-Shinnawy and Markus (1997) and Dennis and Kinney (1998) are used as examples.

El-Shinnawy and Markus (1997) have identified inconsistencies associated to MRT. When researching what media individuals would prefer to communicate through, they found that e-mail was the preferred channel in situations that dealt with equivocality, rather than voice mail (p. 457) – the latter being the richer media of the two, according to MRT. According to El-Shinnawy and Markus (1997) MRT "ignores factors underlying individuals' preferences for, and usage of, communication media" (p. 102), and that MRT "in its current formulation" may not be suitable when studying new media (p. 102).

When applying the MRT framework to video calls, which they describe as "modern media" (p. 262), Dennis and Kinney (1998) found that individuals perceive the richness of media differently than the theory suggests. Their results did not support MRT, as "matching media richness to ask equivocality did not improve performance" (p. 256). Dennis and Kinney (1998) point out that research about MRT has focused on the *perception* of media, rather than examining *the actual use* of media (p. 257), which can "skew" perceptions of the model's validity. However, their study only included two aspects of MRT; "immediacy of feedback" and "multiplicity of cues" (p. 259) and may not represent the framework as a whole.

3.3   Subjective aspects of media choice

Notably, the studies by El-Shinnawy and Markus (1997) and Dennis and Kinney (1998) were both conducted on media, which at the time, was new. This indicates that the framework does not fare well when applied to media that were developed after the model was created. While the MRT framework's richness principle is relevant, it is not enough to explain channel choice in relation to modern media. However, other theories have been built on the MRT principles by adding subjective aspects.

3.3.1   Recurring themes

Critique on MRT is often aimed at the fact that the model views media characteristics in a very technical, or "objective" way (Ishii et al., 2019, p. 124). Consequently, theories that are based on, or related to, MRT have added subjective factors while keeping the framework's richness principle. To give an insight into the subjective side of media choice, subjective aspects of theories based on MRT are presented:

Social influences play a big role when it comes to an individual's choice of media (Fulk et al., 1990). There is no completely objective way for an individual to perceive media, as one's perception is "subjective and socially constructed" (p. 123). In the context of an organization, a worker's perception of media is affected by their coworkers (p. 121-122). In situations where individuals are faced with ambiguity, they

rely on social comparison (p. 125). For example, if an employee is insecure about which channel to use, she might think back to a time when one of her coworkers was in a similar situation and what kind of channel they eventually decided to use. Even though, objectively, the richness level of the media her coworker chose in the past might not be optimal. Workers may choose rich media to rely low-equivocality messages simply because a high usage of rich media is normalized in their organization.

In organizations, media can be perceived as symbols that carry meaning, which is collectively understood by the employees (Trevino et al., 1990, p. 73). In other words, workers in an organization view media as the carriers of *symbolic meaning* (Trevino et al., 1987, p. 555). This means that media represents what is valued, or devalued, in the organizational culture. Thus, media can be referred to as "a carrier of meaning" (p. 569-570). Media's symbol carrying capacity defines the way it has expressed or manifested a symbolic meaning - that is "the core values, shared beliefs and a tacit understanding" a set of people have about said media (Sitkins et al., 1992, p. 569).

Moreover, the *act of choosing* a media can be regarded as a symbol, as the act of making a conscious decision carries meaning (Trevino et al., 1990, p. 85). For example, in an organization where e-mails are viewed as formal symbols, while instant messages are interpreted as informal symbols. If an employee is to share information with one of her close colleagues and chooses to contact them through instant messaging, the choice if an informal communication channel symbolizes that she is communicating with someone she is familiar with. Depending on the organization one works in, the symbol carrying capacity of both media and one's media choice, may have differing meanings (Sitkins et al., 1992, p. 569) because symbols are the result of organizational norms (p. 569-570).

Lastly, contextual factors also affect an individual's choice of media. Unlike the aforementioned aspects, contextual factors are not influenced by organizational

norms. Contextual factors refer to aspects such as distance and time pressure (Trevino et al., 1990, p. 83). For instance, contextual factors are represented in the dual capacity model (Sitkins et al., 1992), which states that "characteristics related to the communicator and recipient", and "characteristics related to the message and task" are some of the factors that affect an individual's choice of media. For example, if a worker is in a hurry and under a lot of pressure to complete a task, this may lead to her choosing a lean media because it is a faster way to convey a message. These factors will be more fluid than social influences and symbolic meaning, as the context communication happens in frequently changes.

Although the aforementioned subjective factors may give a further insight into media choice and perceptions of media richness, they seem to be relevant when applied on a *macro level* or used in studies with a large number of respondents. For example, it is difficult to gauge what media symbolize in an organization without gathering data from a large number of workers from the same organization. For this reason, channel expansion theory, which sees subjective factors on an *individual level* will be presented.

3.3.2 Channel Expansion Theory

Channel expansion theory (CET) builds on the principles of MRT (Carlson & Zmud, 1999), but adds subjective factors that are related to one's to experiences. According to Carlson and Zmud (1999), every individual develops a "knowledge base" related to the channel they use when communicating with someone. The more an individual uses a channel, the stronger their knowledge base grows and the richer they perceive it. However, not everyone will develop knowledge bases. This means that there are instances where an individual perceives richness of a media as consistent. In other cases, the richness of a media might be perceived as *declining* (p. 155). Individuals can also develop knowledge bases related to the person they communicate with, if they do so frequently, in that case the individuals will develop knowledge bases for each other. This will affect how they perceive the channel they use to communicate

with each other by increasing its richness. Additionally, knowledge bases can be developed for *topics* individuals frequently talk about (p. 156).

CET identifies four "experiences" that shape the way an individual perceives the richness of media. These are as follow: "(1) experience with the channel, (2) experience with the messaging topic, (3) experience with the organizational context, and (4) experience with communication coparticipants" (p. 155). For instance, a worker may perceive e-mail as a rich if they frequently use the channel to communicate with a close colleague. However, if they are using a communication channel for the first time, while also talking about an unfamiliar topic, this may lead them to perceive the media as leaner.

CET has been applied in research and has empirical support. Urso and Rains (2008) examine the scope of channel expansion theory by looking at it in the context of "old media" (face-to-face communication, telephone and e-mail) and "new media" (instant messaging) (p. 486). Their findings indicate that the four CET-experiences are indeed affecting the perception of richness. Timmermann and Madhavapeddi (2008) applied the CET framework three channels: Face-to-face communication, e-mail and telephone, and found that the theory was supported.

Because of aspects of CET can be seen in other communication models and theories (Trevino et al., 1987; Fulk et al., 1992; Trevino et al., 1990). While CET is not a theory that *explains* channel choice, it is relevant for this study, as it is applicable on an individual level. It is especially relevant to use in a setting where workers have the option to choose between multiple communication channels. However, the term "organizational context" is vague and not clearly defined by Carlson and Zmud (1999). In this study, the term "organizational context" is interpreted as the context interaction through a channel happens in, for example a formal meeting.

3.3.3 Summary

MRT is based on the concept that information, which is being communicated unambiguously (Daft & Lengel, 1986, p.560), is considered rich. Information that is ambiguous and takes a long time to understand when exchanged, is considered less rich, or "lean" (p. 560-561). As MRT has received criticism for not taking subjective aspects into account, CET is presented as a supplementary theory.

4 METHODOLOGY

This chapters begins with an overview of possible research methods and analyzing their strengths and weaknesses. A method is chosen, and its limitations are presented. Additionally, this chapter gives an insight into how the interview guide was constructed, the participant selection process, and the analysis of the data. After discussing the quality of qualitative data, the chapter ends by reflecting over ethical aspects one must be aware of when conducting qualitative research.

4.1 Research method

Information exchange can be classified as "social research" as it is considered a social phenomenon (Haythornthwaite & Wellman, 1998, p. 1101). In social science research, two methods are prevalent: Quantitative research and qualitative research (Johannessen et al., 2016; Ringdal, 2018; Bryman, 2016). While this categorization of research methods is common (Johannessen et al., 2016, p. 27), it is necessary to point out that the exact differences between qualitative and quantitative research are not set in stone (Arghode, 2012). Researchers (Allwood, 2011) argue that the distinction between them is "unclear" and "problematic" (p. 1417). Thus, the focus of this chapter will be on the aspects that researchers *do* agree on.

According to Johannessen and colleagues (2016), the way in which the data is "registered and analyzed" (p. 239), is what separates qualitative and quantitative research. This view is supported by Ringdal (2018), who divides the research methods by stating that qualitative research is based on textual data, while quantitative

research is based on numerical data (p. 24-25). While it is common to base qualitative research on "textual data", it can also be based on media, such as pictures (Glaw et al., 2017, p. 2).

4.1.1 Choice of method

While it is possible to combine quantitative and qualitative approaches (Ringdal, 2013, p. 106), only one of them will be applied in this study.

A quantitative approach is appropriate when one intends to *measure* phenomena, as mathematic methods, such as statistics, are applied (Johannessen et al., 2016, p. 239-240). This means that the researcher relies on "hard" data (Bryman, 2016, p. 401). Such methods are especially relevant if one wants their "findings to be generalizable to the relevant population" (Bryman, 2016, p. 401), or their aim is to "uncover large-scale social trends and connections between variables" (p. 401). This means that, in order to be able to make generalizations based on the data, one requires a sizable group of participants.

A qualitative approach, however, is suitable when the aim of the research is to *understand* a phenomenon (Bryman, 2016, p. 401; Tjora, 2017, p. 24) and examine *why* it occurs (Johannessen et al., 2016, p. 95). It is especially appropriate when studying a small number of subjects in their "natural surroundings" as a way to understand the situation they are in (Ringdal, 2018, p. 110), or if the aim of the study is to research "small-scale aspects of social reality, such as interaction" (Bryman, 2016, p. 401). Group interviews, one-to-one interviews, and documentary analysis are common ways of conducting qualitative research (Johannessen et al., 2016).

Both Johannessen et al. (2016, p. 95) and Ringdal (2018, p. 25) emphasize that it is the problem statement, and the research questions, that point toward which method should be used. In the context of this study, a quantitative approach could provide a broad overview and identify trends in information exchange and communication

channel usage related to the COVID-19 pandemic. However, using a qualitative method is necessary in order to gather "the right" kind of data, that is data which will correspond with the problem statement and research questions. Because the focus of this study is on the employees' thoughts and experiences, a qualitative approach is appropriate. The ability to ask follow-up questions, which one can do in an interview setting, is essential, as it provides the opportunity to gather more insightful data. According to Bryman (2016), qualitative studies are apt when one aims to examine interaction, which is a key aspect of information exchange.

According to Johannessen and colleagues (2016), qualitative research interviews are appropriate if one intends to explore the "experiences and perceptions" (2016, p. 145) of individuals. Interviews give the participants room to express themselves (p. 145) and allow them to describe complex social phenomena (p. 146). Tjora (2017) supports this point of view by stating that in-depth interviews are suitable when the researcher is interested in studying one's "opinions, attitudes and experiences" (p. 114). A group interview would have been a possible method, but it is suggested that they are conducted by researchers who are familiar with group dynamics (Johannessen et al., 2016, p. 147). As some of the participants in this study are from the same organization, the prospect of sharing certain opinions about their workplace amongst their colleagues may be daunting. Consequently, this can lead to the participants of this study feeling uncomfortable, which may result in them censoring themselves. Additionally, if disagreements amongst coworkers with conflicting opinions occur, it might negatively affect the work environment.

Therefore, in order to collect relevant data and avoid situations that can make the participants uncomfortable, one-on-one interviews are deemed as the most apt interview method.

4.2 Limitations

Although qualitative research is the most suitable method for this study, the method brings various limitations. The combination of a relatively low level of participants will result in data that cannot be used to make generalizations, as the answers to the research questions will only represent the ten workers that were interviewed. While making generalizations is not the intention of this study, such data could be valuable – especially when it concerns the COIVD-19 pandemic, which is a unique phenomenon. It may, however, provide a good starting point for others, if they choose to build on this research by conducting a quantitative study.

A limitation of both quantitative and qualitative research is the fact the researcher must interpret the data (Tjora, 2017; Ringdal, 2018). In the context of this study, it involves interpreting transcribed interviews. Tjora (2017) points out that a text can be interpreted in various ways (p. 164), which creates the possibility of the participants' answers being misinterpreted.

4.2.1 Research setting and participant selection

The participants were recruited from university libraries in Norway, belonging to two separate universities. The term "organization" will be used to refer to the universities that "hosted" the libraries in which the participants work at. All the organizations the participants worked in have branches around the country, but the headquarters of the organizations lies in Oslo. The organizations' headquarters have the highest number of employees, compared to the branches around the country, which have smaller amounts of employees. Employees from both the headquarter in Oslo, and in the branches around Norway, were interviewed.

When conducting qualitative interviews, one should select participants who will be able to provide reflective descriptions about the topic that is being researched (Tjora, 2017, p. 130). Criteria that potential participants need to fulfill should be chosen as a

measure to make sure that the data one collects is as consistent as possible (p. 131). To find suitable participants, a criteria-based selection was used.

The criteria for participants were as follow:

- Is a full-time employee
- Pre-pandemic they spent most of their work time at the office
- Due to the pandemic, they have experience in using home office

Full-time workers are especially relevant to interview because they represent the majority of the current workforce in Norway (SSB, n.d.). The participants of this study must have experience with sharing information at work, whether this is through "formal" channels or through unofficial channels. Ideally, the participants share their office space with others, for example by working in an open landscape. If this is not the case, the participant shall at least have their colleagues close by (in the same building, if not on the same floor).

It is employees who have been "forced" to work from home, that is the workers who spent most of their time at the office pre-pandemic, that are relevant to interview. Many workplaces in Norway have a concept called "flexi time" and may have experienced small-scale arrangements of home office pre-pandemic (Arbeidstilsynet, n.d). If this is the case, and participants have experience using the home office pre-pandemic, it is necessary to assess to which degree they used this work practice, as it might have affected their experience of working home during the pandemic.

4.2.2 The participants

Ten employees participated in this study. Although the participants worked in the same field, they had differing work tasks. As previously mentioned, the participants will be referred to with gender-neutral pronouns and have been assigned gender-neutral pseudonyms. The participants' work experience at their current organization, and their main work tasks, are as follow:

- August worked with coordination. They have worked at their institution for about 20 years.

- Alex worked with teaching and literature searches. They have worked at their institution for about 10 years.

- Blake worked with research and organizational development. They have worked at their institution for about 3 years.

- Dakota worked with teaching. They have worked at their institution for about 10 years.

- Jo worked with references and digital quantitative questionnaire tools. They have worked at their institution for about 6 years.

- Kim worked with communication and social media. They have worked at their institution for about 2.5 years.

- Max worked with e-resources and databases. They have worked at their institution for about 6 years.

- River worked with administrative tasks. They have worked at their institution for about 8 years.

- Tay worked with teaching. They have worked at their institution for about 14 years.

- Taylor worked with literature searches. They have worked at their institution for about 5 years.

4.3   Interviews

This section describes the interview method, how the interviews were conducted and how the data, collected from the interviews, was analyzed. Lastly, reflections related to the interview-process are presented.

4.3.1 Semi-structured interviews

As the structure of qualitative interviews can vary greatly, Johannessen and colleagues (2016) propose a scale with four "degrees" of structures: (1) Unstructured interviews, (2) semi-structured interviews, (3) structured interviews, and (4) structured

interviews with answering options (p. 147). The interview guide in this study is based on semi-structured interviews. The benefit of this interview form is the fact that the researcher does not have to consistently follow it when conducting the interviews. This is exemplified by the fact that one can "jump" between the order of the questions (p. 148). At the same time, this assures that all of the intended questions are being asked. As different individuals are involved, one can assume that the conversations will flow differently, this means that flexibility is important.

The semi-structured interview guide (Appendix 1) consists of six sections. The interview guide starts with questions about the participant's background and work experience, this is the first section. The second section has questions about how the worker experienced the shift from working "physically" to working "digitally". The questions in the second section are also about the participant's communication channel usage. The third section is about the participant's experiences with knowledge sharing, while the fourth section is about video communication, as it is the digital communication channel that resembles face-to-face communication the most. The fifth section contains questions about the digital office post-pandemic. Lastly, the sixth section has finalizing questions.

4.3.2 Pilot interviews

Before conducting the interviews, two pilot interviews with two volunteers were held. The first pilot interview was held with a "regular" person, that is someone who is not employed full-time in an organization. The point of this interview was to gauge the participant's reaction to phrases such as "knowledge", "knowledge behavior" and "knowledge sharing". As there are several definitions and interpretations of these terms, it was important to gauge how they were perceived. The participant in the first pilot interview reacted *negatively* to terms related to the word "knowledge". When directly asked about knowledge sharing, the participant seemed anxious and was unable to answer.

The first pilot interview gave the impression that, when directly asked about the definition of terms such as "knowledge", participants may fear that they are perceived as "ignorant" if they are unable to provide a sufficient answer. This led to the revising of the interview guide, which meant that some of the questions were rephrased. For example, the question "how would you define the term knowledge?" was removed. The second interview guide did not have as many questions that directly asked the participant to define terms. The revised interview guide was used in the second pilot interview and led to much better results. Yet, the need for the participant to reflect over terms such as "knowledge" and "knowledge sharing" sharing still remained. Because the questions about the definitions of the terms were removed from the interview guide, the individual participating in the second pilot interview was told that the questions that were going to be asked were about topics such as "knowledge sharing" and "the digital office". This method worked well as it resulted in the participant reflecting on the aforementioned terms. It led to the participant themselves bringing up terms like "information" and "knowledge", something that made follow up questions about these topics easier to ask.

The results of the pilot interviews are not included in the analysis, they were only used as a measure to "test" the questions in the interview guide.

4.3.3 Conducting the interviews

Due to COVID-19 restrictions, the interviews were conducted through the video call software Zoom. After the participants were contacted through e-mail, the interviews were scheduled a few days to a week in advance. The first interview was conducted on January 13, and the last one on March 15. The interviews lasted between 35-75 minutes, the average time being about 52 minutes. In total, the recorded interview time was 526 minutes.

Before conducting the interviews, the participants were informed about the theme of the study, which at the time was "digital knowledge sharing". Several participants

asked if they should prepare for something, this created the opportunity to tell them to reflect over terms such as "knowledge sharing", "digital knowledge sharing". As with the second pilot interview, informing the members about this *before* the interview made things more practical.

Most interviews followed the interview guide. Interestingly, some of the more talkative participants naturally spoke about the four categories in the interview guide. Although they might have done it in a different order, they tended to talk, and "reply" to the questions before they were being asked. The interviews were very successful – the conversation flowed naturally and most of the questions were answered. The only question that was not sufficiently answered by several participants, was question asked about if there was a communication channel the participant did not prefer to use. The response to this question was that they were "unsure".

4.3.4 Analyzing the data

The data was transcribed quickly after the interviews were conducted. Every word the participant spoke was transcribed, but pauses were not included. After the transcription process was finished, the files were imported to NVivo – a computer-assisted qualitative data analysis software (CAQDAS). CAQDAS have been used since the 1990s and have advantages such as improving the efficiency of both the coding process and the handling of large amounts of data (Chandra & Shang, 2017, p. 95). NVivo was developed in the mid-1990, thus it is one of the oldest CAQDAS. Since its first release, the NVivo has gone through many updates (Tjora, 2017, p. 229). Consequently, the current version of the software (NVivo 12) has features that make the process of coding qualitative interviews organized.

Hsieh and Shannon (2005) present three approaches to qualitative content analysis; directed, summative, and conventional. A directed content analysis is characterized by the fact that pre-existing phenomenon, found when doing a literature review or examining previous research, lay the foundation for the coding (p. 1281). When

conducting a summative content analysis, the researcher looks for certain keywords and attempts to understand their usage (p. 1284-1285). In a conventional content analysis, the researcher forms the codes during the data analysis; this means that the codes are not premade. The fact that conventional content analysis is "often used with a study design whose aim is to describe a phenomenon" (p. 1279) makes the method appropriate for this study. This method can be described as *inductive*, as the categories are based on the data that was gathered during interviews. Unlike a deductive approach, where the codes are based on pre-existing theories or previous research (Thomas, 2006).

4.3.5 Reflections

While the interviews were successful in the sense that the conversation flowed naturally and the data that was collected was relevant to the research questions, there were aspects of the interviews that could have been better executed: At times, better follow-up questions could have been asked. Additionally, some of the questions during the first interviews were phrased in a way that may have made the participant feel uncomfortable as they were not able to answer them concretely. The way some of the questions were phrased was changed after the two pilot interviews, to avoid making the workers feel hesitant, or embarrassed about not being able to provide a sufficient answer. As this change seemed to make the participants more at ease, it is considered to have improved the quality of the interview with the participants.

Although every participant was given information about what the study was about, when asked if they wanted to participate, some participants asked if they should reflect over certain themes as a way to prepare for the interview. This provided the change to tell them to reflect over topics such as "digital knowledge sharing" and "digital communication channels". However, not every participant asked about this, and only 7 participants were told to reflect over certain topics. This is a limitation, as the participants got different information, some getting more than others. Although all participants provided sufficient answers to the questions that were asked, telling

all the participants to reflect over certain themes before the interviews would have been a much better solution.

The fact that the transcribed interviews were translated from Norwegian to English, may have affected the quality. When translating the interviews, the focus was on preserving the *meaning* of the participants answers, to ensure that the participants' points remained the same in English. However, there is a chance that the English translation differs from the original text, which is in Norwegian. It is likely that there are instances where the most accurate translation for a word is not used. As a measure to provide transparency, the transcribed interviews, in Norwegian, and their English translations are added as an attachment (Appendix 3).

4.4 Ethics

When stepping into the role of a researcher, one must be aware of possible ethical challenges that may occur. Ethical challenges related to in-depth interviews mainly focus on how the interviews are conducted and the ways in which the data is presented (Tjora, 2017, p. 175). Tjora (2017) states that, when conducting the interview, it is important to prevent the participant from being harmed (p. 175).

Getting "harmed" in this context refers to the notion of the participant feeling uncomfortable during the interview or having a negative reaction to the questions that are being asked. While this mainly applies to situations where the interview is about a sensitive subject matter, such as domestic abuse (Tjora, 2017), it is still important to take into consideration as the participants are interviewed about their workplace. Some participants may consider the workplace as a personal topic, as the questions that are being asked concern matters which stem from their everyday lives and are directly related to their careers. Although opinions about one's workplace would not necessarily be considered as "sensitive" information, it must be taken into consideration that, for some, it is considered a *personal matter*. If a participant

strongly criticizes their workplace and paints a poor picture of how things are run, they might be negatively affected if they are recognized.

To avoid recognition of the participants, Johannessen et al. (2016) suggest that factors such as name, age, and gender, are changed as a measure to ensure anonymity (p. 91). To avoid any recognition, the participants have been anonymized by following the suggestions of Johannessen and colleagues (2016). The participants are given a pseudonym and their age is not mentioned. As the workers' gender is not relevant to the study, androgynous names are used as pseudonyms and the participants are referred to with gender neutral "they" pronouns. This will further contribute to securing the participants' anonymity. As this study does not aim to make gender or age-based comparisons, this information is not detrimental to the research. Hence, these changes will not negatively affect the quality of the research.

To best adhere to ethical standards, NSD (Norwegian Centre for Research Data) approval was sought before conducting the interviews. This means that the interview process did not start before the NSD application was approved. Applying to NSD provided the opportunity to make a detailed plan about the handling and storing of data and making sure that data privacy and security laws were followed as closely as possible. Before each interview took place, the participants signed a slip which contained the contact information of the individuals that were in charge of this study, including the person conducting the interview. In addition to giving information about the study, the slip also stated that the participant could withdraw at any point. This was also verbally stated before the interviews.

5 ANALYSIS AND FINDINGS

In this chapter, central findings from the qualitative content analysis will be presented. The chapter is separated into three subchapters: Working full-time in the virtual office, channel usage, and factors affecting channel usage. The first subchapter gives a general overview of the participants' experience working digitally during the

COVID-19 pandemic, thus giving the channel usage a context by illustrating the situations it happened in. The second subchapter gives an insight into which channels the participants used. Lastly, the third subchapter gives an insight into the factors that affected the participants when choosing which channel to use when communicating with their colleagues, focusing on communication software.

5.1 Working full-time in the virtual office

The process of going from working at a physical office, to working from home happened quite quickly. When talking about their experience of mainly working in a virtual office space, the most prevalent themes the participants talked about are separated into two categories: contact with colleagues and the work environment, and digital meetings.

5.1.1 The work environment

The participants experienced the work environment during the COVID-19 pandemic as manageable and stated that they would like to work a couple of days from home post-pandemic. They preferred a combination of being both at the physical office and working remotely:

> Max: *Ideally, I would prefer to work from home two out of five days.*

While the participants mentioned that they would prefer to work 1-3 days a week from home, they did not say much else about the *physical work environment.* Some participants did, however, talk about the structure of their workday. August mentioned that they had the opportunity to complete their tasks undisturbed, when working from home, while Alex' workday had gone through big changes:

> Alex: *"Oh yes, it has become a completely new workday. I have never worked as much, and without breaks, than after corona. (...) I have experienced many*

positives related to the home office situation, I am able to be concentrated and fewer interruptions. It is both good and bad.

When talking about the work environment, Alex also pointed out that they often sat very still for long amounts of time when working from home:

Alex: *Like I said earlier, there are fewer breaks, it becomes more static, you are just sitting in front of the computer.*

The participants talked a lot about the psycho-social aspects of the work environment: A big difference between working at the psychical office, compared to working digitally, was the decrease in contact the participants had with their colleagues. When working in the digital office, participants expressed that the colleagues they saw most frequently, were the ones working in the same unit, or team(s), as them. Even though participants, when working at the physical office, saw[1] the individuals who worked in the same overall section of the organization as them, this was not the case when working digitally. The participants rarely communicated with workers from other parts of the organization, in fact, they barely saw them at all. The lack of regularly seeing coworkers outside of their unit made participants feel like they lacked knowledge about what went on in other parts of the organization:

Jo: *I do not know what is going on in the other sections [of the organization] as much anymore. Yeah, I mainly meet the same [coworkers].*

Max: *Our institution has had meetings where every employee is attending, right, but during those you are only able to see the administration, not everyone else. Outside those [meetings] I have only seen my own unit.*

When asked if the virtual office "bridged" the distance between the participants and their colleagues, the participants expressed that it helped. Nevertheless, they stated

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[1] "Seeing" others in this context refers to the act of literally seeing someone's face whether digitally or "in real life".

that there still was a noticeable distance when working virtually, compared to working at a physical office. This distance was not only physical, but also *emotional*. Some participants expressed that not knowing much about their coworkers' lives in general, negatively affected the work environment:

> Kim: *There is so much I do not know about my colleagues at the moment, that would have been natural for me to know about before [the pandemic]. About their work tasks, and private [lives]. And that impacts the work environment.*

However, not all participants felt this way about working digitally. Max stated that being able to see and talk with others were factors that made them feel closer to others when physically being far away:

> Max: *And it is the social aspect of meeting people, that I feel like you might not get when everything is digital. But I would not say that the differences between meeting someone digitally and physically are that big. (...) It is great that you are able to see people, right. But that you can talk with them, that is what is most important.*

Indeed, video calls helped participants feel closer to their coworkers:

> Kim: *There is absolutely a noticeable distance, but I think that is unavoidable. Being able to see other people does really help though, it is vital.*

River was clear about the fact that the pandemic had negatively affected the social environment at the workplace and stated that, as a measure, their division had started to develop a social plan to combat loneliness and make the employees more united:

> River: *We have talked about following up a social plan. That we shall become better at contacting each other digitally, even though we necessarily do not*

have an agenda. Because you do not need an agenda in order to talk with someone. It is to encourage the unplanned [conversations].

This indicates that social situations did not occur natural to the degree they used to occur when working at the physical office. As a result, social events had to be planned to a greater degree when working digitally.

5.1.2 Digital meetings

As the employees were working from their respective homes, formal digital meetings were a central part of their workday.

5.1.2.1 *Formal meetings:*

Throughout the pandemic, the way formal meetings were held varied. At the beginning (in March 2020) everything was held digitally. Then, after the summer break and during the fall, the participants had meetings that were either physical or digital – depending on the COVID-19 restrictions at the time.

> Blake: *But then the restrictions were implemented, and with them limitations on work-travel. (…) We were unable to keep it 50/50[2]. So, we moved onto fully digital meetings sometime last fall.*

Before the pandemic, hybrid meetings (that is meetings some of the participants are "physically" in a room, while some are participating digitally) were held. Commonly, hybrid meetings occurred when employees from branches outside of Oslo were involved and travel was not possible. While hybrid meetings provided the opportunity to include workers who were far away, they had issues. For example, there was only one microphone in the room that the "physical" participants sat in. This would lead to people talking over each other, which made the digital participants unable to hear

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[5] 50% of the meetings are digital and 50% of the meetings are "physical".

what was being said. Compared to hybrid meetings, August preferred fully digital meetings:

> August: *When they [employees outside of Oslo] joined in (...) us in Oslo would sit in a room, and the others would participate digitally. This works better when everyone is on Zoom, it kind of becomes more equal and things run smoother. Too often we had problems because the employees from other campuses did not hear what was said. This is way easier when everyone sits at their own place.*

While fully digital formal meetings were perceived positively by some, not all participants enjoyed them. Participants who had an aversion to digital formal meetings, often experienced digital meetings as more energy consuming. A reason for this was the fact that digital meetings tended to be held in several intervals. When asked about their thoughts on digital formal meetings, Blake said the following:

> Blake: *They are incredibly tiring! I think it is surprising to discover that I actually have been somewhat used to digital meetings – as I had them at my previous workplace. The head quarter was in Oslo while I was working in Western-Norway. We had a couple of meetings there, as we tried to hold them without having to travel and such. But I was totally unprepared when the entire meeting structure and all the work tasks are to be done digitally. The fact that it is very tiring, makes pauses between the meetings important. 50-minute-long digital meetings are like two hour long physical meetings – there is something about the concentration [when participating in digital meetings].*

Indeed, fatigue being a consequence of digital "meeting marathons" was an inconvenience. This was a clear difference from "physical" meetings: Although intensive meeting sessions was a phenomenon that occurred pre-pandemic, it was especially noticeable, and more common, when the meetings were fully digital:

> Tay: *I do notice that sometimes, especially when you have meetings the entire day on Zoom and spend a lot of time looking at the screen. In those situations, I notice that I feel tired. It is its own genre, or its own format – it requires a bit more energy, I think. Compared to participating in a physical meeting.*

"Disengaging", that is "zoning out" or not fully paying attention to the meeting, was also easier to do digitally:

> Blake: *The digital meetings have clearly affected the way I communicate; it is far easier to disengage. Like, you just sit there.*

On the other hand, some participants felt like digital meetings were alright. They experienced digital meetings and a solution that worked well and as a sufficient "replacement" for real-life meetings:

> Alex: *After the restrictions were implemented, we just moved the meetings to Zoom – it works excellently.*

It is, however, important to point out that the amount of time the participants spent on digital meetings seemed to depend on two factors: (1) the participant's work tasks and (2) the number of work groups they were a part of. Blake was a participant who spent a lot of time in digital meetings, compared to Alex who spent less time participating in meetings in general.

5.1.2.2   *Informal meetings:*

Before the pandemic, the participants would regularly partake in informal meetings at the physical workplace. May of the informal meetings were spontaneous and would often take place next to the coffee machine or in the hallway. Informal meetings were deemed as important, especially in relation to information sharing. August expressed that, when working remotely during the COVID-19 pandemic, there was an absence

of spontaneous informal meetings. The lack of informal meetings affected the ways in which they shared information with their colleagues:

> August: *These days you have to make plans concerning every person you want to talk with. When everyone is at the workplace, you get informal meetings; suddenly I am talking with someone. In these situations, you get a little bit of info that you might not need to share with everyone but is still good to know. I feel like my overview [of the workplace] used to be more comprehensive.*

Some participants pointed out that a big difference between working remotely, compared to working at the office, was the fact that they lost the opportunity to walk down the hallway and knock on a colleague's door if they had a question to ask. Additionally, the participants felt like they lost the opportunity to unexpectedly run into their coworkers in the hallway, and to have informal conversations next to the coffee machine:

> Jo: *For example, the fact that some people talk next to the coffee machine results in one getting the information, even though they are not a part of the conversation. We have lost a big part of those meetings. I am unsure about the things that go on in the other units.*

Digital informal meetings were less frequent than rea-life informal meetings. This decline affected the participants' knowledge about ongoings at the workplace, as work-related topics were often talked about during informal meetings:

> Kim: *What I mainly notice, is that the distance between coworkers grows. I miss the people I work together with. That, and the informal information flow; previously, I felt that I knew a little bit about everything. Now I have to be in meetings in order to be caught up. At the moment it is more common for me to spend more time than necessary with my colleagues on the phone: "Oh*

wow, was that how it was done, how exciting!". Things that might have been conveyed once a week previously are now conveyed once a month."

To "make up" for the lack of informal meetings, the organizations the participants worked for had implemented *digital informal meetings*. The digital informal meetings were scheduled, and held at the same time(s), Monday to Friday. A type of digital informal meeting that was commonly brought up by the participants, was "coffee meetings". Coffee meetings consisted of workers drinking coffee while having video calls with their colleagues. The participants experienced coffee meetings as a positive measure but stated that it was often the same people who would participate, and that the meetings sometimes conflicted with their schedules.

> <u>River:</u> *"And I, who am the boss of the division, you would assume that I was good at participating, but I have only participated three times this year – and we are currently in week 3 of the year. And this is because you usually have it pretty hectic and are busy with your work tasks. And it results in you coming by and say "hi", but that rarely happens digitally."*

Even though coffee meetings were informal in nature, work topics would occasionally be talked about:

> <u>Jo:</u> *I try to participate every morning; I believe it is important that we get kind of the same conversations that we have around the coffee machine. That we talk a bit about social topics, but at the same time there may be work related questions or things that have happened that are practical to talk about in plenum or inform others about.*

A core aspect of digital meetings is the fact that only one person can talk at a time, if the conversation is to be made sense of. Multiple individuals talking at the same time, creates audio issues. This aspect became very evident in informal meetings, as it prevented the conversation from flowing naturally:

> Tay: *Sometimes, I feel like it [the conversation] becomes a bit stiff. That it is not as free flowing as when you stand next to the coffee machine and talk. [Digitally] you have to wait for your turn (…) and an awkward silence may occur, which I do not find difficult when holding a conversation physically.*

However, informal digital meetings were not seen as necessary in a situation where the participants worked both at the physical office combined with partly working from home:

> Kim: *I mean, if things remain the same – that you mainly sit at the home office, I would like to keep them [digital informal meetings], but if it is only working from home one day at a week and being at work, with others, for the remaining four days (…) I would not have felt the need for it.*

Even though the participants had experience participating in a virtual informal meeting, it was clear that they were vastly different from physical informal meetings. This is due to three factors: (1) the need for planning (2) the frequency of the meetings (3) and the way the conversation flowed.

Summary

When talking about their experience working full-time in a virtual office, the participants mainly talked about the *social* aspect. They were able to conduct all necessary work tasks from home and had a positive attitude about possibly working 1-3 days out of 5 from home, post-pandemic. The negative aspects of working virtually were mainly related to having both a large amount of formal digital meetings, and not feeling like the informal digital meetings sufficiently filled the gap that was created by the lack of informal meetings in general. Additionally, digital informal meetings were unable to successfully replicate "real life" informal meetings.

5.2 Communication channel usage

Communication is a core part of information sharing. This chapter looks at two forms of communication channel usage: Balanced channel usage, and imbalanced channel usage.

5.2.1 Balanced channel usage

The act of two, or more, workers using the *same channel* to communicate will be referred to as *balanced channel usage*. Balanced channel usage entails that everyone participating in the communication process are using channels with the same amount of richness. All the participants that were interviewed used every communication channel that is represented in my revised MRT model (Figure 2, p. 19): Video call, voice call, instant message (IM), and enterprise social media (ESM).

E-mail was mainly used when employees were communicating with individuals outside their section. "Outsiders" is used as an umbrella term for two groups of people: (1) individuals who are working in the organization, but in different branches and (2) individuals who are not a part of the organization. The fact that e-mail was the channel used to communicate with outsiders is be explained by the fact that the individuals in this group do not have access to channels that are used for intra-organizational communication, such as ESM and IMs.

Max and Taylor stated that a positive aspect of e-mails was the fact that you had the opportunity to add attachments, and that you could forward one e-mail to multiple individuals. They also brought up the fact that file sharing (sending attachments) was a frequently used e-mail feature:

> Max: *E-mail is used with external [individuals]. It is preferred because you send an e-mail to an external supplier and in that situation, you are able to forward the files and such to a third person.*

> Taylor: *Through text it kind of depends on what kind of text it is. If it is something that is a bit longer, or something that could be relevant to retrieve, then I send an e-mail.*

August stated that e-mails were practical because they held information that could be "kept" and easily looked up at a future point in time. This was practical if it was likely that the information was going to be used as a reference, or as the basis for an argument in the future:

> August: *Maybe so I can have something that I am able to keep and retrieve later, if something needs to be checked or confirmed. Maybe, if I ask my boss "can we do this or this" (...) it is alright to have [e-mails] as a reference.*

Nevertheless, participants were aware of the fact that e-mails were not intended for archiving, and that the channel's retrieval system did not work seamlessly. The decision to save e-mails resulted in some participants having a multitude of e-mails in their inbox:

> Jo: *I am very bad at deleting e-mails, I have 8000 of them in my inbox.*

Kim stated that the pandemic had changed the way they wrote e-mails, compared to pre-pandemic. This was related to the fact that they did not have the opportunity to walk down the hallway and have a short conversation with their coworker. This happened instead through e-mails under the pandemic, and as a result the e-mails shrunk in size and became shorter:

> Kim: *It is actually quite interesting because my e-mails have become shorter. Maybe it is because questions that would have taken a two second walk down the hallway to answer, now take two seconds and a smiley face [to answer]. (...) It feels kind of weird, because I feel like e-mail is a format where you usually can elaborate, as you say. That, maybe, you have more "meat on the bone" when you send an e-mail.*

Kim further explained their choice of sending short messages through e-mail by stating that "it is not natural for me to send a chat message to certain people".

Although e-mails were used for short(er) messages by Kim, Tay used IMs for this purpose:

> Taylor: *They [IMs] are very useful for short and quick messages, if you need a fast response.*

Indeed, participants felt that, compared to e-mails, IMs were replied to quicker. As a result, they were practical to use when wanting a fast reply:

> Max: *Because people necessarily do not look at e-mails instantly when they receive them. (...) If you do not have that window open, and are concentrating on something else, it is not guaranteed that you see the message later during the day. So, it depends on the importance, how fast I want a response and how complicated things are.*

Some participants used IMs both for personal information sharing *and* work-related information sharing. IMs were used to share work-related information, often throughout video meetings. Blake stated that it was a good channel to use if one had missed points that were made during a meeting. By asking in the text chat in the video communication software, one did not "disturb" the person who was talking during the meeting:

> Blake: *I use the chats, particularly one-to-one chats. You send a chat to someone during the meeting to comment a concrete point that was made or to follow up something that was said. And there is a "danger" in that, because if you use it one-to-one it [the message] is solely reserved for the person who receives it, right. But I do see that, when we have large meetings, the chat is used. Because for a lot of people "taking the word" is very challenging, especially in a digital setting. And then you have the ability to use the chat.*

> Tay: *Or you are like "what was it that really that happened here?". If someone said something [about a specific topic or issue], another person could share a link about that topic.*

IMs were also be used when sharing personal information. The sharing of personal information is represented by employees talking about topics that are not directly related to work, usually about their personal lives. Informal chats also have a lighter tone and more "joking", compared to formal information sharing. This illustrates how IMs are a text channel that allow participants to have spontaneous informal conversations. It is possible to use IMs during video calls, which allows two (or more) people in a group have their own conversation. As stated by Tay, this conversation might be unrelated to the meeting:

> Tay: *You can actually chat one-to-one even if you are in another meeting. I have to admit that this is something we do sometimes. Occasionally you "fade out" a bit, to be honest. In those situations, you "gossip" a little about something else.*

Availability was a factor that played a role when choosing a channel, as some participants assumed that their coworkers might be busy and not respond to their message immediately. Seeing whether your coworkers are online seemed to be a central aspect: IMs often allow individuals to see whether someone is online or not, by setting their status, e.g., if a person is "red" that means they are busy, if they are "yellow" they are somewhat busy and if they are green, they are available[3]:

> Taylor: *When people are green, it is easy to see whether they are available.*

ESM was the channel that was most recently introduced, as the organizations implemented it between 2018 – 2021. When the COVID-19 pandemic restrictions

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[3] This feature is also implemented in other channels, such as e-mails, but the participants only talked about this feature in relation to IMs.

were first implemented, ESM felt like a "safety-net" for some participants. It was a channel where participants had groups in which they asked questions about, and shared, work-related content:

> Max: *Four of us had a chat group where we could say "Here I am! Good morning!", which was really nice! And we could ask questions that we received during the shift. And if we were in doubt about what the right answer was, we consulted each other on the chat feature and responded: "I have answered in this way in relation to those questions, or do you know who I should contact to get a response to this question?". It was really great to have this small group that one could ask.*

Voice calls were frequently used as a tool in situations that centered on problem solving. A big part of this was because one's tone of voice is a good indicator of whether they understand what you are telling them, in addition to providing the ability to ask follow-up questions:

> Max: *It is probably by listening to the tone of someone's voice that you hear "hmm maybe that wasn't exactly what I was after" or "mhm yes". It is something about having to interpret it a bit, how it is conveyed - the vocal conversation. You have to be aware of that, and then maybe ask some control-questions, in a nice way. Like "was this exactly what you looked for?" or "were there perhaps other aspects you were interested in?".*

Jo stated that they used voice calls because it was their preferred form of communication. Additionally, they had started becoming "tired" of using textual channels such as e-mail and IMs. Jo explained that they sometimes called coworkers even though sending an IM or e-mail would be more appropriate:

> Jo: *Lately, I have been so tired, I have been so sick and tired of writing e-mails that I have started to call people instead.*

Another reason for using voice calls differently during the pandemic, compared to pre-pandemic, was the fact that instructions from the administration encouraged frequent phone call usage:

> Blake: *I used it very rarely [pre-pandemic] because I experience it as distracting, but we have received very clear encouragements from the administration to call people. Not just sending colleagues e-mails, because there is such a big "hunger" when it comes to personal contact. (...) So, phone calls are often used to call someone and to hear if something is going on, or if someone is sick. You just call someone to hear how it is going. But it is more of a private and social thing.*

Both Blake and Jo stated that they would call colleagues they were somewhat close to. Voice calls did not seem to be used when the participants were to share specific information about something work related.

Voice calls were, however, used in situations where the participant initially had been contacted through another channel, for example e-mail, but they found it more convenient to respond through a different channel. It seemed as if solving something through voice call was perceived as much faster and more effective than solving something through text:

> Max: *I would say that if it is things that are important, that must progress quickly, I rather take a phone call.*

> Alex: *If it is something you can solve quickly, then I try that at first. Especially because it is easier to call someone, rather than e-mail them and set up a time for later. You avoid a thousand e-mails about scheduling a time. But it is okay to call. (...) Most things can be solved over the phone, you just need a two-second-long conversation.*

Kim was conscious of the factors that affected their choice when deciding which channel to use and articulate when describing them:

> Kim: *It depends on the context of the work situation. And who I am talking to. One topic I typically call people for, is if it is system related. (...) If I am going to write "oh I cannot do this and this" and add screenshots of what I am doing and such, it gets incredibly messy. So, the people I work with in relation to systems, I think more of us call [each other] because it is easier to explain [things] and it is quick. And it depends on the person. It absolutely depends on the person.*

By stating that one could solve problems quicker by a short voice call, than back and forth textual mails or instant messages, the participant indicates that voice calls are richer than the aforementioned textual channels. While they acknowledge this, there were instances of participants stating that they would use video calls instead. This is similar to participants preferring to have a voice call in situations where an issue could be solved simply over messages, as mentioned previously:

> Alex: *Yes, that we have the possibility to see each other. It is clear that people feel like it is natural, even if we would have conducted the meeting as a phone conversation before [the pandemic].*

As with voice calls, some participants had started contacting each other through video calls in situations where it was not strictly necessarily. The reason for this was the fact that they had grown tired of *writing* messages:

> Jo: *I call people frequently, so that is kind of what I have done the last weeks. If I kind of know that they [the respondent] do not need a file or they do not need things in text, if I can stick to only talking, I cannot be bothered to take the discussion through e-mail or something.*

When talking about video calls, participants found it similar to face-to-face conversations in real life. But three aspects of video calls stood out, when compared to face-to-face communication in real life: (1) delays and (2) eye contact and (3) body language.

When communicating with someone through a video call, there is always a small delay – how long this delay is, might depend on the software, but there is a delay that lasts a second or two, if not only a couple of nanoseconds. However, this short delay was noticeable enough to affect communication negatively according to some participants:

> Blake: *Quite early on I read an article (...) about how our brain experiences physical meetings differently from digital meetings. When I say something and you respond, there is a short delay. Our brains experience this delay as someone disagreeing with us. It takes a long time to get used to this, or to deprogram your brain to understand that we are currently in a different medium.*

> River: *The fact that you cannot see hands, for example, and not see how they talk with other people, how they carry themselves. When the sound is sent from me to you, there is always a short delay. And this delay can sometimes be bothersome. (...) I feel like this part of communication has become more difficult when it is done digitally.*

The lack of eye contact was also something participants felt separated digital face-to-face conversations from face-to-face conversations in the "physical" world:

> Tay: *It is not exactly the same, for example, you never look into someone's eyes.*

> Kim: *But it is when you are sitting on a pc, that you have no idea whether people are looking at you or not.*

Additionally, video calls were experienced as challenging to use when several people were talking. In a big meeting, conversation flowed unnaturally at times and people would often talk over each other:

> Taylor: *[In real life] you may sit and talk a bit with those people on the side, then someone talks with someone else on the side. But in a situation like this [video call], when you are 6-7 people, you sit and wait for your turn [to speak].*

> River: *One has to wait for the other person to finish, before one can speak up.*

Video conferences with 5+ participants seem to be a reoccurring "issue": When it comes to body language, the issue with video communication is the fact that you are rarely able to see someone's entire body. You only see a limited part of it, usually the face and the upper body. While this is enough to give cues, it is still different from real life cues when you can see someone's entire body. This aspect was brought up by River, Max, and Tay. Tay stated that it is challenging to read the body language of numerous people in a meeting, mainly because their icons are small. The icon size is significant as small icons prevents you from taking a proper look at everyone's body language. Whether you are able to successfully read the body language of the individuals participating in a meeting, depends on the number of attendees:

> Tay: *It depends on how many are participating. Because if you are in a [physical] room with like 10 people, it is easy to read the body language of those 10 people. But to be looking at 10 tiny heads on a screen, it is not the same. So, it depends on the amount of people, I believe.*

> River: *I mean, it cannot be compared. It is two different things, and I mean that there are some dimensions missing from the digital room. For example, the people move, the way people sit, the way they maintain eye contact – many of these things are difficult to see partly when they are digital.*

It is relevant to point out that delays, eye contact, and body language, were aspects that occurred at the same time. This fact made the differences between face-to-face conversations and video calls very different.

5.2.2   Imbalanced channel usage

A common experience participants had, was sharing information with one, or more, individuals who used a different channel than them. This is what I will refer to as *imbalanced channel usage* - as two people communicating, but using different channels, will create an imbalance in richness.

Imbalanced channel usage manifested in what several of the participants referred to as "black screens". A black screen situation is a situation in which two or more people are in a video call, and several of them have the cameras turned off. This is especially prevalent in situations where one person was sharing information to others. Black screens would most commonly occur when employees were teaching students something, even though the employee had the camera on students would have it off. This was the case when teaching small groups and large groups but was more widespread when it came to situations where one person was conveying something to a large group of people. Employees' thoughts about black screens varied, while some felt like it affected their motivation, other participants were unaffected.

The participants who were negatively affected by black screens stated that, when communicating, seeing the other person's body language was important. One employee, Alex, felt like black screens could interfere with learning and negatively affect it. They compared black screens to the Niqab debate[4] by saying the following:

> Alex: *I remember there was a very big debate, about ten years ago. There was a debate about Muslim students in high school who chose to wear a niqab. It*

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[4] The *Niqab debate* was a debate in Norway in the early 2010s about whether female high school students had the right to wear Niqabs during class.

turned in to a national debate, right. Because to be able to teach someone

something, you have to be able to see how they are responding. [Not being

able to see this] hurts the relation between teacher and pupil. And in the end,

it was decided that one could not cover their face during class, but it was

allowed during recess. (...) I think it is kind of similar when it comes to the black

screens, it might actually be even worse.

Kim experienced someone abruptly *turning off* the camera as a challenging. It was a sudden action that led to them being confused:

Kim: *"And sometimes people simply turn the camera off, and that is*

completely messed up. (...) It is alright when someone answers a phone call,

but to not be able to see the person you have a meeting with – that makes me

very confused and makes me feel like I am not sure exactly what I am doing

anymore.

However, the opinions about imbalanced channel usage differed. While some participants, such as Alex, experienced black screens as having a profound effect on their work tasks (such as teaching), others described the phenomenon as "weird":

Tay: *Yeah, actually, I have always thought "hmm that [turning off the camera] is*

a bit weird". I do feel that. But at the same time, I believe you can compare it to

a phone conversation.

Notably, the participants who were neutral to black screens had a tendency to bring up other channels (for example phone calls), this illustrates that, when shutting off the camera, individuals "transform" the channel

In addition to voice calls, screen sharing was also an aspect that was brought up when talking about black screens. Some participants stated that they were not as affected by black screens, as when guiding someone in real life, the focus was on the

screen. This meant that they did not spend much time directly looking at the student's face.

> Max: *I feel that if I was guiding someone in real life, for example if the student was sitting right next to me, they would receive the same guidance as I am giving them right now digitally. And I would have said the exact same things.*

Indeed, screen sharing was experienced positively by participants who spent much time on teaching and guiding others:

> Tay: *Screen sharing is one of the benefits when it comes to guidance. I find it much easier to show things and ask someone "can you show me your screen so I can tell you where you should click". It is much easier, I think, than hovering over someone's screen. Or having them hover over my screen when I have physical guidance sessions.*

While the participants I interviewed seemed to view screen sharing as an aspect of video calls, it can be argued that in the same way video is a combination of moving pictures and audio, screen sharing is a combination of audio and the moving picture of one's screen. By this definition, screen sharing is considered a communication channel. Because the participants who used this channel mainly did so in an imbalanced context, the richness of screen sharing, as a balanced channel, is difficult to pinpoint. But screensharing, even as an imbalanced channel, seems to be rather rich. Being able to see the recipients screen adds a lot of richness and was described by better than real life interactions where you must lean over one's shoulder to be able to properly take a look at their screen.

The channel usage is represented by the following table:

Richness	Channel	Context	Recipient

High	Video call	Formal meetings, informal meetings, teaching	Colleagues, students
Medium/High	Voice call	Conversations, solving something	Colleagues
Medium	Screen sharing	Teaching	Students
Medium	Instant message	Casual conversations	Colleagues
Medium/Low	E-mail	File sharing	Colleagues, students, outsiders
Low	Enterprise social media	File sharing	Colleagues

Table 1: Channel usage

5.2.3 Communication software usage

The participants I interviewed mainly used the following software: Skye for Business (Skype), Zoom, Microsoft Teams (Teams), Workplace by Facebook (Workplace). The table below (Figure 4) illustrates the features the different communication software has:

Software	Features	Type

Workplace by Facebook	IMs, posts, groups, voice calls, one-to-one video calls	Enterprise social media
Microsoft Teams	IMs, video calls, voice calls, screen sharing, file sharing, posts	Enterprise social media
Zoom	IMs, video calls, voice calls, screen sharing	Communication tool
Skype for Business	IMs, video calls, voice calls	Communication tool

Table 2: Communication software

Skype was the oldest software, while Workplace was the second oldest, and Zoom and Teams were the newest. Some participants experienced the two latter software being implemented during the COVID-19 pandemic. The relationship between Microsoft Teams, Zoom, and Workplace should be noted as they have similar, if not the same, features.

Tay stated that one of Teams' positive, and useful, aspects was its file sharing features. Compared to e-mail, Teams was far easier to use as it reduced the "file noise":

> Tay: *And that we, instead of sending an e-mail to only one person and have to add [person] number two and number three, Teams, where most of the files are stored, has a chat function that allows you to add on the other person. Which lessens the amount of noise, if you get what I mean.*

Indeed, there was satisfaction related to Teams' file sharing features:

> Max: *I do see more and more of us going over on Teams, because it is quite alright to work with files there.*

Although, in general, Skype was in the process of being phased out, it was still used to some context in some organizations. Blake, who belonged to an organization where Skype was still somewhat in use stated that the software "*is being used less frequently, many seem to experience the meeting quality in Skype as very poor, and I believe they are right about that*".

A negative aspect of implementing new software, was the fact that the process of phasing out "older" software was not always successful. The process of phasing out outdated software was experienced as time consuming and, at times, difficult to keep track of. This led to organizations having a sizable amount of software, often with similar features, that were used at the same time. This was difficult to relate to:

> August: *I am not against new things, but what I am against, and feel like is the most problematic thing, is that you never get rid of any of the old. That there are so many platforms you have to relate to.*

Having multiple communicating software, each of them containing an IM-feature, was another disadvantage as it led to conversations becoming facetted. August exemplified this by stating that, even though Skype was supposed to be phased out, there were still "probably many who still use it to chat". Additionally, both Workplace and Teams had chat functions that were used:

> August: *So, there are some people using the chat on Workplace chat and some people using the chat on Teams, it differs a bit.*

> Tay: *And when it comes to the chat, we previously used Skype. And then we used Workplace when it was introduced, but at the moment the Teams chat is almost the only chat that we are using.*

Additionally, the implementation of multiple communication software with similar features seemed to create redundancy. Some of the participants wondered why they had certain communication software and if the software even had a purpose:

> Jo: *Recently a lot of the chats have moved over to Teams, instead of Workplace. I have started wondering why it is that we have Workplace too. Yeah, it gets a bit much.*

> Blake: *What I find silly, is the fact that we have three different channels, right. Because you do not learn to take advantage of the possibilities that lie in each of them, equally.*

This was especially evident when it came to software that had an IM feature, or a video call feature.

Summary

The participants used multiple channels, and multiple software, when working virtually. Some of the channels were even used at the same time. Imbalanced channel usage had a negative effect on some participants, who stated that seeing someone's face was important – especially in situations where they were taught something or provided guidance. However, others did not mind a black screen if they had the ability to share screens. Screen sharing emerges as a new channel with medium richness. The struggles related to channel choice, were the most profound on the software-level as many of the software used at the participants' workplaces had the same features

5.3 Factors affecting channel choice

The factors that affected the participants' choice of communication channel are separated into two categories: *Organizational factors* and *individual factors*. When talking about choosing one channel over another, my participants mainly talked

about *communication software*. As a result, this chapter will mainly present findings related to communication software.

5.3.1 Organizational factors

Factors directly related to the organizations the participants worked in, clearly affected the choice of their channel to some extent. For example, participants expressed that the administration in their organization wanted the employees to use X software for Y purposes. The administration also stated that X topic was supposed to be talked about in Y software, and that software A was to be preferred over software B. This seemed to only occur on the software level as none of the participants mentioned the *media* level when talking about organizational factors.

The table below gives an overview of the communication software that was most frequently used in the organizations the participants worked in, and how the *organization* intended for the communication software to be used:

Software	Features	Intended usage
Workplace by Facebook	IMs, posts, groups, voice calls, one-to-one video calls	Informal conversations, receiving information from the administration
Microsoft Teams	IMs, video calls, voice calls, screen sharing, file sharing, posts	File sharing, hosting meetings, formal conversations
Zoom	IMs, video calls, voice calls, screen sharing	Hosting meetings, communicating with outsiders

Skype for Business	IMs, video calls, voice calls	Voice calls, no intended usage – phased out

Table 3:Intended usage of communication software, according to the organizations

The organizations the participants worked for had informal "guidelines" for what kind of communication software their employees should use for certain purposes. This was especially prominent when a new software was implemented. For example: Skype was originally used for voice calls and IMs, but eventually this software was replaced by Workplace and Teams. Workplace and Teams are both ESM, but clearly have different purposes:

> August: *We have been told that we are supposed to use Workplace to more social chats and Teams for work related chats.*

> Dakota: *And Workplace is supposed to be a bit more centered on social communication amongst us [employees], while Teams is supposed to be used for everything that concerns topics that kind of are work-related.*

Although Workplace was presented as a replacement for Skype in some organizations, the participant and their coworkers got a message from the administration in their organization to use Teams for "more formal" communication that was related to their work tasks. This is a contrast to Skype, that would be a platform for both work-related and personal conversation of topics. The usage of Teams in certain situations, or for certain purposes, was even discussed in meetings:

> Max: *We have been told that we are to use Teams now, which we talked about during the previous section meeting. So, I am trying to adhere to that now.*

In one organization, Teams was brought in as a measure to reduce e-mails and move that kind of information sharing (e.g., sharing files) to one place so that it would be easier to keep track of:

> Jo: *When we got Workplace, they said that it was to cut down on e-mails, in addition it was going to be a place where we were supposed to get all information from the administration, that kind of thing. Then the last two years, year and a half, I don't remember, it was to cut down the number of e-mails. You can get a more wall-like [interface], so you can see what others answer, it is organized.*

According to Tay, the implementation of Teams was a measure that successfully decreased the number of e-mails:

> Tay: *But now, after we got Teams after New Year's, there is even less e-mail.*

Indeed, Teams stood out as the preferred software from the organization's point of view. While Teams was presented as a replacement for Skype, organizations encouraged their workers to use it instead of Zoom. This is notable, as Zoom was not being phased out. Unlike Skype, Zoom is a new software – this is exemplified by the fact that it was implemented during the pandemic. Yet, it was not a preferred channel:

> Blake: *Skype is being phased out, but Skype and Zoom are not to be preferred channels.*

As stated by Dakota and August, Workplace was ideally meant to be used solely as a "social" platform. Nevertheless, talking about work-related content in a social setting came naturally to some people, which resulted in a combination of work-related conversation topics and purely social conversation topics. Using Workplace as a solely social platform did seem challenging. Additionally, there did not seem to be clear categorizations of what was to be considered as "social" and what was to be considered as "work-related".

Jo pointed out that there has indeed been changes in how they are supposed to communicate with their coworkers on particular channels:

> Jo: *For a while, there has been a change in how we are supposed to communicate. Firstly, with Workplace, and now with Teams – where they are kind of trying to relaunch it. At times, there have been a lot of communication platforms.*

For workers, having multiple software was experienced as challenging, as it meant that they had to learn how to use various technologies and navigate different interfaces. An issue Blake had, was the fact that their institution had not provided sufficient resources when teaching the employees how to use Teams. Not getting the opportunity to "properly" learn how to use each software, resulted some of the participants choosing the software they were good at:

> Blake: *There are a lot of those things [issues], what we did not have the opportunity to learn in the beginning [of the lockdown] was how to use the tools. Let me tell you, learning the tools – that is a road that is paved as one is walking. I am very disappointed in the instructions we have gotten, and the introduction we have gotten to the new tools.*

5.3.2 Individual and social factors

"Individual and social factors" is an umbrella term for factors that are related to the individuals communicating with each other. This includes the recipient and the conversation topic. The recipient often determined the topic the participants would talk about: If the participants talked with a close colleague, it was more likely that they talked about an informal topic. However, if they talked with their boss, it was more likely that they talked about a formal topic. Seeing these factors in relation to each other is relevant as it is able to give a deeper insight into their channel choice.

An example of this is Dakota, who would prefer to use Teams to talk with their boss no matter what the topic was. On the other hand, they would use Workplace when communicating with a close colleague. However, while Dakota would share solely

work-related information with their boss on Teams, they would share a combination of work related- and personal information on Workplace:

> Dakota: *If I am going to talk with my boss, I tend to use the Teams-chat for that. But yeah, me and my colleague, we have used the Workplace-chat a lot, or we still use it a lot. But it is a combination of social and work-related topics, separating them [the topics] is not possible.*

When it comes to individual factors, there was a clear divide between how *communication media* and *communication software* were used. Communication media had clearer purposes, which made it "easier" for the participants to stick to one, for example: it made more sense to host meetings through video, than through text. However, as communication software had a lot of similarities, the choice was in large parts affected by their individual thoughts and feelings about the software.

When talking about choosing between Skype and Zoom, Taylor clearly had separate associations to each software. Skype was primarily used for voice calls and IMs, while Zoom was used for video calls:

> Taylor: *I only use Skype in instances where we necessarily do not need to see each other. It is a quick way to just say something or to have a regular phone conversation. Considering we do not have a "normal" phone at work, we go to Skype. And it might be even more used as one gets familiar with it. But it would not be natural to have a Zoom-conversation without having the camera on. So, if you are going to have a phone call and you do not know the respondent, you rather do a Skype call than sending them a Zoom-request.*

When asked which factors made them decide what software to use, Blake was very candid:

> Blake: *What we like the most! I use Skype because it is the first [tool} that I learned. People moan and ask me "can you not stop using Skype?" No! "I know Skype", I tell them.*

Blake stated that the fact that Skype was the first software they learned how to master was "completely random". By this, they mean that they would most likely have preferred to use whatever software it was that they learned "at first", as the experience with the software was a key factor when it came to what channel they chose:

> Blake: *And then there are some who prefer Skype, some who prefer Zoom and some who prefer Teams - because that is what they know the best."*

The participants were also aware of the fac that their coworkers tended to choose the communication software they "liked" the most:

> Jo: *But it varies from colleague to colleague, what they do and what they like to do. Whenever I have shifts with [coworker], I still do not know how to communicate with them in the quickest way (...), because they never see what I send them. But we are very different though.*

When asked why they chose one software over another, participants would often reply because they *felt* like it. This indicates that their choice of communication software was both intuitive and instinctive; it was not something they spent time pondering, they simply chose what "felt right".

Several of the participants found Teams challenging and found that the software's considerable number of features made it complex. Kim used Teams frequently when working with colleagues in one specific work group that had a high knowledge of using digital software. They wondered if the fact that they were familiar with technology made Teams easier to use and was one of the reasons for why the group frequently used it:

> Kim: *We, in the communication team, have used Teams the most. And I believe it is the most successful group in Teams. And that might be related to the fact that we, regardless [of the pandemic] work a lot digitally, with text, and that the median age in the group is relatively young. I do not know if that plays a role.*

Although the participants got instructions to, for example, use Workplace when talking about social, not-work-related topics, by their organization, this was not always the case. Dakota stated that they used a different software depending on who the respondent was, if they talked with their boss, they used Microsoft Teams, but if they were to chat with a close colleague, they used Workplace:

> Dakota: *Having some of it on Teams, and some of it on Workplace becomes artificial. Because we are in contact with each other all the time.*

This is an example of individual factors "overriding" organizational factors.

5.3.3 Summary

The *intended use* of communication software, as expressed by the organization's administration, and how the participants' *actual usage* of communication software was different. This is illustrated in the table below:

Software	Intended usage	Actual usage
Workplace by Facebook	Informal conversations, receiving information from the administration	Informal conversations, formal conversations with close colleagues

Microsoft Teams	File sharing, hosting meetings, formal conversations	File sharing, formal conversations, hosting and participating in meetings
Zoom	Hosting meetings with outsiders	Hosting meetings with coworkers, hosting meetings with outsiders
Skype for Business	Informal conversations, work related conversations, no intended usage – phased out	Informal conversations

Table 4:Intended usage compared to actual usage of communication software

The factors creating the differences in usage, can be separated into two categories: organizational factors and individual and social factors. The individual and social factors, that were directly related to the informants, had a tendency of overriding the organizational factors. This is exemplified by the fact that several informants chose to still use Skype, which was to be phased out – even though they were aware of the fact that the administration wanted them to use Teams.

6 Discussion

This study aims to explore the ways in which employees have experienced working remotely by assessing their communication channel usage and information exchange practices. This is illustrated by the problem statement and research questions, which are as follow:

How do employees experience and navigate among multiple digital communication channels at the workplace, in particular during the COVID-19 pandemic?

RQ1: *What characterizes the employees' experiences of multiple communication channels in a mainly digital work environment?*

RQ2: *What are main reasons for selecting a channel when exchanging information digitally?*

RQ3: *What kind of information exchanges are associated to each channel?*

As the method used in this study is qualitative, the intention is not to make generalizations, but rather provide an insight. Although the data gathered through interviews led to interesting findings, this only provides only a small insight into the themes that are explored in this study.

To further explore prominent findings, they are discussed and seen in the context of previous research.

6.1 Communication channel and software usage

An interesting finding of this study, is that there are differences between the ways *communication channels* and *communication* software were used at the workplace. The organizations the participants worked at had given their employees clear instructions about what tasks X software was to be used for. However, this was not the case for communication channels. A reason for this, may be the fact that communication channels have distinctive features, unlike communication software.

For instance, Skype, Zoom, and Teams, are all communication software that have a video call feature and an instant message feature. The aforementioned

software was used for the same purposes and there were instances of them being used at the workplace at the same time. Although the participants did not experience redundancy as a consequence of multiple communication *media,* they experienced hat having similar communication *software* created redundancy. This is in line with research conducted by Forsgren and Byström (2017), who found that multiple social media at the workplace created redundancy. Although their findings center around a *media*, enterprise social media is similar to communication software in the sense that it has many communication features.

Results from the analysis indicate that the pandemic affected the way communication channels were used. An example of this is how participants would call others because they were tired of writing e-mails, while the organization also would encourage participants to call each other more frequently on the phone. The fact that voice calls were referred to as "a social and personal thing" may indicate that they were used to make up for the general lack of social interaction in society during the COVID-19 pandemic (Wang et al., 2021). In that case, this aligns with research that stated that remote workers were able to use phones to stay connected with each other (Lal & Dwivedi, 2009).

MRT and modern communication channels

A key result that emerged, was screen sharing as a communication channel. Screen sharing is rated as having medium richness and described by the participants as a channel which was useful when conducting guidance sessions with students. The channel was preferred to the point where it made digital guidance preferable to real life guidance. This indicates that seeing someone's screen, while talking with them, greatly decreases the equivocality. Does screen

sharing being categorized as a channel with "medium level richness"
challenges the MRT framework? MRT rates communication channels where
one can *see* the recipient as higher (Daft & Lengel, 1986). Other than hearing
the voice of the person you are conversing with; screen sharing does not offer
any social cues. On one hand, the fact that one is able to place screen sharing
in the MRT framework illustrates that the scale can be adjusted to include new
media. On the other hand, MRT does not necessarily fully explain *why* screen
sharing has a medium level of richness, as there is no body language, or an
aspect of urgency involved.

An interesting finding is how different video calls are perceived compared to
face-to-face communication. Firstly, eye contact is indeed detrimental to
communication, and it is something the participants noticed in video calls.
Secondly, even if technology makes it possible to implement eye contact in
video calls in the future, there is still a small delay that makes enough of a
difference to separate video calls from "real life" communication. In the context
of information communication technologies (ICTs), video calls are ranked as
the richest medium. However, research indicates that the lack of eye contact in
video calls leads to it being perceived as less rich than face-to-face
communication (Solina & Ravnik, 2011; Bohannon et al., 2013; Bekkering &
Shim, 2007).

Additionally, the *gap* of richness between face-to-face communication and
video calls may be larger than expected. In addition to pointing out the
differences between face-to-face communication and video calls, participants
highlighted the fact that having many video calls was tiresome. This
exemplifies Zoom fatigue (Nadler, 2020; Fosslien & Duffy, 2020; Wiederhold, 2021).
Perhaps, the number of meetings some participants were involved in, point to

the fact that their organization did not realize exactly how different video calls are from face-to-face conversations?

Additionally, participants in this study would state that they used emoticons in e-mails. According to research on instant messages, e-mails are seen as formal. Instant messaging, on the other hand, is seen as informal (Nardi et al., 2002). One of the reasoning for this being that it is socially acceptable to send emoticons when using instant messages. This is one of the factors that resulted in instant messaging being ranked higher than e-mails in the MRT seen in context of ICTs scaler. Perhaps this illustrated how communication has evolved, and how the lines between how one acts in a certain channel blur. However, it must be pointed out that this may be cultural as the participants were Norwegian. Using emoticons when writing e-mails may be a cultural thing. Additionally, during the pandemic the participants had started to write shorter e-mails, stating that their e-mails were more "fleshed out" pre-pandemic. Perhaps this is another indication of the fact that not only has time changed the way media such as e-mails are used, but the pandemic has added to this.

MRT (Daft & Lengel, 1986) is difficult to apply to software, as most software contain a combination of various communication channels. However, is this not also the case for enterprise social media too? As illustrated in this study, enterprise social media have features such as instant messages, and video calls. However, the ranking of enterprise social media in the MRT scale is based on its *intended* features, mainly based on research conducted by Leonardi et al. (2013). Maybe this indicates that Leonardi and colleagues' (2013) research does not reflect current enterprise social media, and that they instead reflect the enterprise social media of the past, which are a far less advanced channel compared with the enterprise social media of today.

6.2 Perceptions of channel richness

An interesting finding is that participants stated that hearing the recipient's voice was "enough" in instances of imbalanced channel usage. On one hand, this can be attributed to the fact that the participant had experience using voice calls. This makes it possible that they perceived the channel as rich, maybe even richer than video calls. On the other hand, voice calls are rated after video calls on the media richness scale (Daft & Lengel, 1986), and already regarded as a rather rich channel.

In the analysis, screen sharing emerged as a communication channel that was frequently used in situations of imbalanced channel usage. Screen sharing does not provide any cues about the participant's body language, although you can hear one's tone of voice. Yet, it was perceived as rich by the participants – even to the point where they would prefer to use screen sharing rather than "real life" guidance post-pandemic. This may be attributed that the participants used screen sharing in situations where they were guiding someone, thus they were using screen sharing when talking about a topic they were experienced with. In that case, this exemplifies how the experience with the topic (Carlson & Zmud, 1999) can make a channel appear richer.

Although screen sharing can show how experiences play a role when it comes to perception of richness, this was better illustrated on a *software* level. When participants chose a communication software, their choice was in large determined by their experience with either the software or the participant. It was especially prevalent that it was the participants experience with the software that made them choose it. This indicates that *channel experience* is a key factor when choosing a software (Carlson & Zmud, 1999). It is particularly

interesting that participants were aware of the fact that Skype was not the best software to use for video meetings, yet their *experience* with it made them choose it anyway. It becomes even more interesting when their organization urged them to use newer software, such as Teams, and they still used Skype.

This exemplifies how much of a pull channel experience has, when it comes to how one perceives the richness of a software. Perhaps, if the organizations had put more time into instructing the workers how to use Teams, it would have increased the usage of it? And perhaps this is not only a case of *experience*, but also *inexperience*. If an employee has not had sufficient training in a software, it makes sense that they choose a more familiar software which they feel they can master, even if it is outdated in certain aspects.

In addition to channel experience, participants underlined that it was the recipient of their message that affected the software they chose. However, the experience with the participant did not affect channel choice. Participants would exchange information with their boss on the instant message feature on Teams, an enterprise social media – both are channels which can be considered informal, especially the former. Maybe this finding indicates that it is not the *channel,* which is seen as informal, but the *software*?

6.3 Key aspects of information exchange

The results of this study show that e-mail is used for a multitude of reasons, one being file transfer. E-mail was also used as an archive, mainly in situations where it was a possibility that the information contained in the e-mail could be used at a later point in time. Furthermore, participants showed a slight reluctance at deleting e-mails, as they had thousands in their inbox. Does this echo findings from research on e-mail overload? The number of e-mails one

has in their inbox does not necessarily represent e-mail overload, as it did not seem like there was much time spent on sorting through the number of e-mails in one's inbox – even if it was large. A reason for e-mail overload not being a significant finding in this study may be because channels, such as enterprise social media, were used for the same purposes as e-mail. For example, information exchange in the form of file sharing.

The fact that e—mails were used for multiple reasons, aligns with research (Ingham, 2003) so does the fact that there was a reluctance to delete e-mails (Bellotti et al., 2005). As mentioned, e-mail overload did not seem to be a problem even though large amounts of e-mails were saved in one's inbox. The research conducted on e-mail overload (MacKay, 1998; Ingham, 2003) is from the 1990s and the 2000s, a time before enterprise social media were implemented at the workplace. Perhaps this can explain why e-mail overload was not a thing, as other channels were used to conduct things that were previously conducted over e-mail. For instance, file sharing. In that case, maybe this indicates that enterprise social media helped prevent e-mail overload?

Teams and Workplace are both considered enterprise social media, but the former emerged as the formal channel in which work-related information was to be exchanged. While Workplace was mainly an outlet for more informal information. However, findings show that there were instances where formal information was exchanged on Workplace, depending on the recipient. As a participant pointed out, when exchanging information with a close colleague on Workplace, they would talk about both work-related topics and personal topics. While this finding is a contrast to (Nardi et al., 2000), it does align with the research of Isaacs et al. (2004), which states that workers mainly use instant messages for work related discussions.

7 Conclusion

This study aimed to explore the ways in which employees use multiple digital communication channels at the workplace. Based on qualitative interviews with 10 participants, it can be concluded that the usage of communication channels, and communication software, was a consequence of three main factors: COVID-19, organizational guidelines, and individual and social factors. The individual and social factors were affected by experiences workers had with the topic they conversed about on the channel, their recipient of their message, and their experience with the channel. Although all these three experiences played a role, it was the experience workers had with a particular software that had the biggest effect on their channel choice.

The factors that affected channel choice are linked with one another. The COVID-19 directly affects channel choice, but also influences organizational guidelines. Organizational guidelines affect channel choice, and so do individual and social factors – which are affected by the experiences from channel expansion theory.
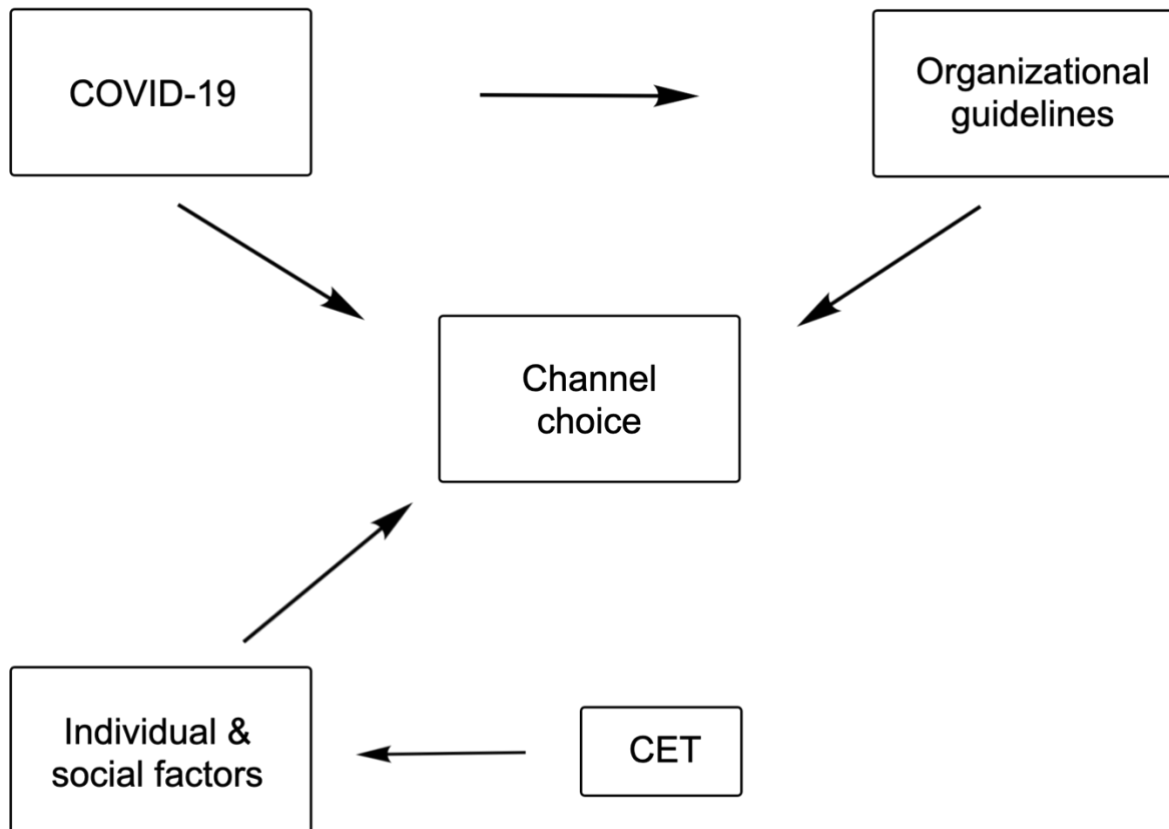
Figure 3: Factors affecting channel choice

The kind of information that was exchanged in each channel depended on the experience the worker had with said channel, or software, and who they were conversing with. Even when the organization wanted formal information the be exchanged on certain software, it was an employee's experiences that ultimately determined the channel choice. Employees did not have problems with multiple *communication media*; they did, however, perceive multiple *communication software* as redundant and time consuming.

7.1 Suggestions for further research

To better understand channel usage and information change at the workplace under the COVID-19 pandemic, a future study should select a quantitative approach and see if any of the phenomena addressed in this study are identifiable on a larger scale. It is also possible to conduct a study on how workers in other countries have

experienced working home. It would be especially interesting to see how powerful experiences are on channel perception, and choice, in countries with a more authoritative leadership culture.

A suggestion directed towards organizations is conducting a survey on the employees' perceptions of communication channels that are used at the workplace. This could be beneficial when implementing new software. Organizations could also conduct a smaller-scale qualitative study to learn more about experiences, or other subjective or individual factors, that may affect their choice when deciding between multiple communication channels – especially if these are similar. Screen sharing and imbalanced channel usage at the workplace are topic that emerged in this study and would be relevant to research as they are relevant to digital communication channels, especially as remote work seems to be a core aspect of the future office.

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APPENDIX 1

Interview guide in Norwegian

1. **Innledende:**

   1.1 Kan du fortelle meg om bakgrunnen din?

   1.2 Hvor lenge har du jobbet som bibliotekar?

   - Hvilke arbeidsoppgaver har du?
   - Hvor lenge har du hatt hjemmekontor?
   - Hvem er det du arbeider med (hvilken avdeling/hvor mange kollegaer)?

2. **Å gå fra et fysisk kontor til et digitalt kontor:**

2.1 Hvordan vil du beskrive dine kunnskapsdelingspraksiser *før* pandemien –
altså hva kjennetegner måtene du delte kunnskap på da du var på den
«fysiske» arbeidsplassen?
- Hvilke fysiske/digitale kanaler brukte du?

2.2 Hvordan vil du beskrive dine nåværende kunnskapsdelingspraksiser?
- Hvilke kanaler har du brukt den siste tiden (f.eks. den siste måneden)?

2.3 Hva vil du si er de største forskjellene mellom hvordan du deler kunnskap
nå, sammenliknet med før pandemien?
- Bruker du de samme kanalene?
- Har du blitt introdusert til nye kanaler?
    - Hvis ja: Hvordan har du opplevd å bruke disse kanalene? Tok det
    lang tid å vende seg til kanalene?

2.4 Kan du fortelle hvordan du opplevde det å gå fra å arbeide i et fysisk
kontor til å arbeide i et digitalt kontor?
- Vil du si du føler deg sikker på å bruke det digitale kontoret?

2.5 Hva vil du si er de største forskjellene ved å dele kunnskap i et fysisk kontor
sammenliknet med å dele kunnskap digitalt?

3. **Erfaringer med digital kunnskapsdeling:**

3.1 Føler du at typen kunnskap du skal dele påvirker, eller bestemmer, hvilken
kanal du benytter deg av?
- Kan du gi eksempler på dette?
- Vil du si det er enkelte kanaler du bruker hyppigere enn andre? Hvilke?
Hva er grunnen til dette?
- Er det eventuelt andre faktorer som påvirker valg av kanal?

3.2 Er du mer komfortabel med å bruke enkelte digitale kanaler enn andre?
- Er dette kanaler du hadde erfaring med å bruke *før* pandemien?

3.3 Tenker du at noen former for kunnskap kan være mer komplisert å dele
digitalt enn andre?

3.4 Har du vært i situasjoner hvor du har opplevd digital kunnskapsdeling som

utfordrende?

- Kan du fortelle meg om dette?

3.5 Har du opplevd situasjoner der du har måttet ha opplæring digitalt?

- Hvordan gikk dette?

3.6 Hvordan føler du at det sosiale arbeidsmiljøet har blitt påvirket av

pandemien/digitalt hjemmekontor?

3.7 Hvordan opplever du den fysiske distansen mellom deg og kollegaene
dine?

- Føler du at det digitale kontoret fungerer som en «bro» som bringer

deg og medarbeiderne dine sammen?

- Har du vært i kontakt med arbeidere fra ulike avdelinger eller andre enn

dine nære kolleger?

4. **Videosamtaler er den digitale kommunikasjonsformen som er nærmest**

ansikttil-ansikt kommunikasjon slik det forekommer i «virkeligheten»:

4.1 Hadde du erfaring med å bruke videosamtaler i en jobbkontekst før
pandemien?

4.2 I hvilke jobbkontekster brukes videosamtaler på din arbeidsplass [for
øyeblikket]?

4.3 Hvordan er kunnskapsdeling ansikt-til-ansikt sammenliknet med

kunnskapsdeling gjennom en videosamtale?

4.4 Føler du at sosiale signaler/koder (for eksempel kroppsspråk) kommer godt

fram når man benytter seg av videosamtaler?

4.5 Har du brukt videosamtaler for å snakke med dine medarbeidere om tema

som ikke er direkte knyttet til arbeidsoppgavene deres?

- Hvordan er det med lunsj og slikt?
- Har dere hatt sosiale sammenkomster?
  - o Hvis ja: hvordan er deltakelsen på disse møtene?
  - o Hvis nei: savner du slike sammenkomster?

5. **Bruk av det digitale kontoret i framtiden:**

5.1 Hvor sannsynlig tror du det er at din arbeidsplass kommer til å bruke det digitale kontoret hyppigere [enn før] etter pandemien?

5.2 Hva er dine tanker om hyppigere bruk etter pandemien?

- Hvilke kanaler vil du foretrekke å bruke?
- Er det enkelte kanaler du *ikke* ønsker å bruke? Hvorfor?

5.3 Dersom det digitale kontoret kommer til å bli hyppigere brukt, er det noen praksiser du ønsker skulle bli endret på?

6. **Avsluttende:**

6.1 Alt i alt, hvordan har din overordnede opplevelse av å bruke det digitale kontoret vært?

6.2 Er det enkelte aspekter [ved digital kunnskapsdeling] som du har opplevd som *over gjennomsnittet bra* eller *over gjennomsnittet dårlig*?

6.3 Har det vært situasjoner [under perioden du har hatt digitalt kontor] som har skilt seg ut?

6.4 Jeg har nå stilt alle mine planlagte spørsmål. Er det noe du ønsker å tilføye eller utdype?

APPENDIX 2

Interview guide in English

1. **Introductory:**

   1.1 Can you tell me about your background?

   1.2 How long have you worked at your current workplace?

   - Which work tasks do you have?

   - How long have you had home office?

   - Who are your colleagues (which section/how many colleagues)?

2. **Going from a physical office to a digital office:**

2.1 How would you describe your knowledge sharing practices *before* the

pandemic – in which ways did you share knowledge at the «physical»

workplace?

- Which physical/digitals channels did you use?

2.2 How would you describe your current knowledge sharing practices?

- Which channels have used lately (e.g. the last month)

2.3 What would you say are the biggest differences between how you share

knowledge now, compared to how you shared knowledge pre-pandemic?

- Do you use the same channels?
- Have you been introduced to new channels?
  - If yes: How have you experienced the usage of these channels? Did
    it take a long time to get used to them?

2.4 Can you tell me about how you experienced the shift from working in a

physical office, to working in a digital office?

- Would you say that you feel secure using the digital office?

2.5 What would you say are the biggest differences between sharing

knowledge in a physical office compared to sharing knowledge digitally?

3. **Experiences with digital knowledge sharing:**

3.1 Do you feel like the knowledge you share impacts, or decides, which

channel you are using?

- Can you give examples?
- Would you say you use some channels more than others? What is the
  reason for this?
- Are there other factors that affect your choice of channel?

3.2 Are you more comfortable using some channels compared to others?

- Are these channels that you had experience using before the *pandemic*?

3.3 Do you think some forms of knowledge are more complicated to share

than others?

3.4 Have you been in a situation where you have experienced digital knowledge sharing as challenging?

- Can you elaborate/tell me more about this?

3.5 Have you experienced situations where you have had to have training digitally?

- How did it go?

3.6 How do you feel the social work environment has been affected by the pandemic/digital home office?

3.7 How do you experience the physical distance between yourself and your colleague?

- Do you feel as if the digital office works as a «bridge» that brings you and your colleagues closer?

- Have you been in contact with workers from other branches of the organization, or people other than your close colleagues?

4. **Video calls is the digital communication channel that is closest to face-to-face conversation in "real life":**

4.1 Did you have experience using video call software in a work context pre-pandemic?

4.2 In which work contexts are video calls used at your workplace [at the moment]?

4.3 How is knowledge sharing face-to-face compared to knowledge sharing through a video call?

4.4 Do you feel like social signals/codes (for example body language) is prevalent during video calls?

4.5 Have you used video calls to talk with your coworkers about topics that are not directly related to work tasks?

- How are lunches and such conducted?
  - o Have you had social gatherings?
  - o If yes: how is the participation in these meetings?

- o If no: do you miss social gatherings?

5. **Usage of the digital office space in the future:**

5.1 How likely do you think it is that your workplace uses the digital office more often after the pandemic?

5.2 What are your thoughts about more usage [of the digital office] after the pandemic?

- Which channels do you prefer to use?
- Are there some channels you do *not* prefer to use? Why?

5.3 If the digital office is going to be used more often, are there some practices you wish could be changed?

6. **Concluding questions:**

6.1 Overall, how has your general experience of the digital office been?

6.2 Are there some aspects of [digital knowledge sharing] that you have experienced as *above average* or *below average*?

6.3 Have there been situations [during the pandemic] that have stood out?

6.4 I have now asked all my planned questions. Do you have anything to add? Or perhaps something you would like to elaborate??

APPENDIX 3

Translated quotes, in chronological order, as they are presented in the analysis.

<u>Max:</u> Ideally, I would prefer to work from home two out of five days.

<u>Max:</u> Ideelt ville jeg foretrekke å jobbe hjemme to av fem dager.

<u>Alex:</u> Oh yes, it has become a completely new workday. I have never worked as much, and without breaks, than after corona. (...) I have experienced many positives related to the home office situation, I am able to be concentrated and fewer interruptions. It is both good and bad.

Alex: Ja, åh det har jo blitt en helt ny arbeidshverdag. Og jeg har aldri jobbet så mye uten pauser og så lange dager som etter korona. (...) Jeg har opplevd at det er mye positivt med hjemmekontorsituasjonen, jeg får jo veldig den konsentrasjonen da og færre avbrytelser. Og det er både bra og dårlig.

Alex: Like I said earlier, there are fewer breaks, it becomes more static, you are just sitting in front of the computer.
Alex: Som jeg sa tidligere, det blir færre pauser, det blir mer statisk fordi du sitter bare foran en skjerm.

Jo: I do not know what is going on in the other sections [of the organization] as much anymore. Yeah, I mainly meet the same [coworkers].
Jo: Jeg vet ikke hva som foregår så mye I de andre avdelingene nå lenger. Ja, jeg møter de same kolleagene.

Max: Our institution has had meetings where every employee is attending, right, but during those you are only able to see the administration, not everyone else. Outside those [meetings] I have only seen my own unit.
Max: [Navn på institusjon] har jo møter hvor alle sammen er med, sant, men på de møtene ser du bare administrasjonen, ikke resten. Bortsett fra det har jeg bare sett min egen avdeling, ja.

Kim: There is so much I do not know about my colleagues at the moment, that would have been natural for me to know about before [the pandemic]. About their work tasks, and private [lives]. And that impacts the work environment.
Kim: Det er så utrolig mye jeg ikke vet om medarbeiderne mine for øyeblikket, som jeg hadde visst ellers. Om arbeidsoppgavene deres og om privaten, og det påvirker jo arbeidsmiljøet.

Max: And it is the social aspect of meeting people, that I feel like you might not get when everything is digital. But I would not say that the differences

between meeting someone digitally and physically are that big. (...) It is great that you are able to see people, right. But that you can talk with them, that is what is most important.

Max Og det er jo det sosiale ved å treffe folk, jeg tenker på at man ikke får kanskje ved å ha det digitalt. Men jeg vil si det er ikke veldig stor forskjell mellom å treffe en person digitalt fremfor fysisk liksom. Du får jo, igjen jo altså. Da er det jo dette her veldig hyggelig at du kan se folk, ikke sant. Men det at du kan prate med dem, det er jo det viktigste. At du hører dem.

Kim: There is absolutely a noticeable distance, but I think that is unavoidable. Being able to see other people does really help though, it is vital.

Kim: Det er definitivt en merkbar avstand, men jeg tror det ikke kan unngås. Å se andre hjelper, det har mye å si.

River: We have talked about following up a social plan. That we shall become better at contacting each other digitally, even though we necessarily do not have an agenda. Because you do not need an agenda in order to talk with someone. It is to encourage the unplanned [conversations].

River: Så det har vi også snakka om som en sånn oppfølging av en sosial plan, at vi skal være flinkere til å ta kontakt digitalt selv om vi ikke har en agenda. Man må ikke ha en agenda selv for å snakke litt sammen, for å nettopp oppmuntre til den dere ikke-planlagte.

Blake: But then the restrictions were implemented, and with them limitations on work-travel. (...) We were unable to keep it 50/50. So, we moved onto fully digital meetings sometime last fall.

Blake: Men så kom jo innstramningene og begrensninger med reiser til arbeidsplassene. (...) Vi klarte ikke å ha det sånn 50/50 fysiske og digitale møter. Så da ble det kun digitale møter, så vi har gått heldigitalt fra en eller annen gang i høst.

August: When they [employees outside of Oslo] joined in (...) us in Oslo would sit in a room, and the others would participate digitally. This works better when everyone is on Zoom, it kind of becomes more equal and things run smoother. Too often we had problems because the employees from other campuses did not hear what was said. This is way easier when everyone sits at their own place.

August: De var med på (...) Så satt vi andre på campus Oslo i et rom, så var de på nett da. Så akkurat det fungerer nok bedre når alle er på zoom, på en måte at det blir mer likeverd og ting går litt mer smoothere. For ofte var det sånn litt problematisk at de på studiestedene ikke hørte hva man sa, men det er jo mye enklere når alle sitter på hvert sitt sted da.

Blake: They are incredibly tiring! I think it is surprising to discover that I actually have been somewhat used to digital meetings – as I had them at my previous workplace. The head quarter was in Oslo while I was working in Western-Norway. We had a couple of meetings there, as we tried to hold them without having to travel and such. But I was totally unprepared when the entire meeting structure and all the work tasks are to be done digitally. The fact that it is very tiring, makes pauses between the meetings important. 50-minute-long digital meetings are like two hour long physical meetings – there is something about the concentration [when participating in digital meetings].

Blake: Forferdelig slitsomme! Jeg synes det er utrolig overraskende å oppdage at jeg har jo vært vant til digitale møter egentlig ganske lenge når jeg jobbet på [navn på gammelt arbeidssted], altså hovedkontoret lå i Oslo og jeg var på Vestlandet. Så vi hadde en del etter hvert som vi forsøkte å få ut til uten reiser og slike ting, men jeg var jo totalt uforberedt når hele møtestrukturen og hele arbeidsoppgavedagen skal gå digitalt. At det er så slitsomt og at det er så viktig med pauser mellom de digitale møtene. Og at 50 minutters digitale møter er som to timer fysisk altså, for det er noe med konsentrasjonen.

Tay: I do notice that sometimes, especially when you have meetings the entire day on Zoom and spend a lot of time looking at the screen. In those situations, I notice that I feel tired. It is its own genre, or its own format – it requires a bit more energy, I think. Compared to participating in a physical meeting.

Tay: Så merker jeg jo, innimellom, hvertfall, når man har møter hele dagen lang og sitter på Zoom og sitter på skjerm og sånn. Da kjenner jeg at jeg blir sliten av det. Det er egen form, eller et eget format med- det krever litt mer energi, synes jeg, enn å sitte i et fysisk møte. Ja. Det synes jeg.

Blake: The digital meetings have clearly affected the way I communicate; it is far easier to disengage. Like, you just sit there.

Blake: De digitale møter har til de grader påvirket måten jeg kommuniserer på, det er mye lettere å melde seg ut og liksom. Du bare sitter der.

Alex: After the restrictions were implemented, we just moved the meetings to Zoom – it works excellently.

Alex: Etter restriksjonene ble implementer flyttet vi bare møtene til Zoom – det fungerer ypperlig.

August: These days you have to make plans concerning every person you want to talk with. When everyone is at the workplace, you get informal meetings; suddenly I am talking with someone. In these situations, you get a little bit of info that you might not need to share with everyone but is still good to know. I feel like my overview [of the workplace] used to be more comprehensive.

August: For nå må du planlegge alle du skal snake med, når alle er på jobb får du litt de uformelle møtene. Plutselig prater jeg med én, da fikk du liksom tilfeldigvis litt info som man kanskje ikke tenker at man må dele med alle, men som kanskje er greit å vite likevel. Jeg følte jeg hadde mer helhetlig oversikt.

Jo: For example, the fact that some people talk next to the coffee machine results in one getting the information, even though they are not a part of the

conversation. We have lost a big part of those meetings. I am unsure about the things that go on in the other units.

Jo: For eksempel det at noen prater ved kaffemaskinen så får man det med seg selv den tiltenkte kollegaen man skal prate med det er liksom mer vi har mistet mye ut av den praten. Jeg vet ikke hva som foregår i den andre avdelingen så mye.

Kim: What I mainly notice, is that the distance between coworkers grows. I miss the people I work together with. That, and the informal information flow; previously, I felt that I knew a little bit about everything. Now I have to be in meetings in order to be caught up. At the moment it is more common for me to spend more time than necessary with my colleagues on the phone: "Oh wow, was that how it was done, how exciting!" Things that might have been conveyed once a week previously are now conveyed once a month.

Kim: Det jeg merker mest er jo at det blir større avstand mellom kollegaene på en måte. Jeg savner de folke jeg jobber med da. Det er på en måte det, og den uhøytidelige informasjonsflyten at man før følte at jeg visste litt om alt – nå er jeg så prisgitt at det kommer frem i møter for at man skal få det med seg. Så det er oftere nå at jeg blir sittende litt lenge å snakke på telefonen med kollegaer så baller det på seg «ja, jøss var det sånn man gjorde det så spennende»! Så kan det jo dukke opp da ting som man kanskje ville ha fått formidlet en gang i uka før kommer nå en gang i måneden.

River: And I, who am the boss of the division, you would assume that I was good at participating, but I have only participated three times this year – and we are currently in week 3 of the year. And this is because you usually have it pretty hectic and are busy with your work tasks. And it results in you coming by and say hi, but that rarely happens digitally.

River: Og for meg som er seksjonssjef, så skulle man kanskje tro at jeg var veldig flink til å være der, men jeg har kun vært der tre ganger i år - til tross for

at vi er i uke tre nå. Og det skyldes jo at folk har det ganske hektisk og travelt da med arbeidsoppgavene sine også. Og det gjør at de der at du slenger forbi og sier hei, det gjør vi jo ikke digitalt liksom.

Jo: I try to participate every morning; I believe it is important that we get kind of the same conversations that we have around the coffee machine. That we talk a bit about social topics, but at the same time there may be work related questions or things that have happened that are practical to talk about in plenum or inform others about.

Jo: Jeg prøver å delta hver morgen fordi jeg synes det er viktig at vi får til den samme samtalen som vi hadde rundt kaffemaskinen, at vi snakker litt om det sosiale og at det samtidig kanskje er jobbrelaterte spørsmål. Eller ting som har skjedd og som det er greit å ta i plenum eller informere andre om.

Kim: I mean, if things remain the same – that you mainly sit at the home office, I would like to keep them [digital informal meetings], but if it is only working from home one day a week and being at work, with others, for the remaining four days (…) I would not have felt the need for it.

Kim: Altså, hvis det hadde vært sånn som nå. At man sitter i hovedsak på hjemmekontor hadde jeg villet hatt det [uformelle digitale møter], men hvis det bare er snakk om å være på hjemmekontor en dag i uka og være på jobb resten av de fire dagene (…) da ville jeg ikke ha sett behovet for det

Max: E-mail is used with external [individuals]. It is preferred because you send an e-mail to an external supplier and in that situation, you are able to forward the files and such to a third person.

Max: E-post synes jeg det er jo hvis man skal ha spesiell utad altså sånn ut mot eksterne er jo epost foretrukket fordi da sender du en -epost med en henvendelse til en ekstern leverandør, og i forbindelse med at ja hvis du har

ting som har noen vedlegg og sånt at du da kan videresende disse til en tredje person.

Taylor: Through text it kind of depends on what kind of text it is. If it is something that is a bit longer, or something that could be relevant to retrieve, then I send an e-mail.

Taylor: Via tekst er det litt avhengig av hva slags type tekst, hvis det er noe litt lengre eller noe som man tenker det er greit å gjenfinne eller noe så sender jeg en e-post.

August: Maybe so I can have something that I am able to keep and retrieve later, if something needs to be checked or confirmed. Maybe, if I ask my boss can we do this or this (…) it is alright to have [e-mails] as a reference.

August: At jeg kanskje vil ha noe som jeg kan ta vare på. Sånn jeg kan slå opp i senere igjen og sjekke eller at det liksom vil ha det bekrefta. Kanskje hvis jeg spør sjefen om noe kan vi gjøre det sånn eller sånn (…) som jeg da vil ha som bevis i gåseøyne.

Jo: I am very bad at deleting e-mails, I have 8000 of them in my inbox.

Jo: Jeg er veldig dårlig på å slette e-poster, jeg har 8000 i innboksen min.

Kim: It is actually quite interesting because my e-mails have become shorter. Maybe it is because questions that would have taken a two second walk down the hallway to answer, now take two seconds and a smiley face [to answer]. (…) It feels kind of weird, because I feel like e-mail is a format where you usually can elaborate, as you say. That, maybe, you have more meat on the bone when you send an e-mail.

Kim: Ja, ja det var jo faktisk litt interessant. For e-postene mine har blitt litt kortere, sikkert fordi de spørsmålene som tar to sekunder og et smilefjes ville ha tatt to sekunder å gå i gangen. (…) Det føles litt sånn … så det sitter igjen og er nesten litt rart. Fordi før så ville man jo, eller jeg føler at e-poster er jo gjerne

et format hvor man gjerne utbroderer litt som man sier. At man har kanskje litt mer kjøtt på beinet når man sender en e-post.

Taylor: They [IMs] are very useful for short and quick messages, if you need a fast response.

Taylor: Så den [IMs] er jo veldig sånn nyttig for korte og raske beskjeder hvis du trenger raskt svar.

Max: Because people necessarily do not look at e-mails instantly when they receive them. (...) If you do not have that window open, and are concentrating on something else, it is not guaranteed that you see the message later during the day. So, it depends on the importance, how fast I want a response and how complicated things are.

Max: Fordi folk ser nødvendigvis ikke på e-poster med en gang. (...) Men hvis du ikke har det vinduet åpent, sitter konsentrert med noe annet så er det ikke sikkert at du ser den meldingen senere på dagen. Så det kommer an på viktighet, hvor fort jeg gjerne vil ha svar og hvor komplisert jeg må forklare ting

Blake: I use the chats, particularly one-to-one chats. You send a chat to someone during the meeting to comment a concrete point that was made or to follow up something that was said. And there is a danger in that, because if you use it one-to-one it [the message] is solely reserved for the person who receives it, right. But I do see that, when we have large meetings, the chat is used. Because for a lot of people taking the word is very challenging, especially in a digital setting. And then you have the ability to use the chat.

Blake: Chattene blir veldig, jeg sitter og bruker chattene, og delvis også da bruker vi jo den sånn en-til-en, ikke sant, at du sender en chat til en eller annen i møtet underveis, ikke sant, for å kommentere på et konkret innspill eller følge opp en ting. Og det er jo en fare i det for at hvis du bruker det en til en blir det

bare reservert for den som er mottakeren av det, ikke sant. Men jeg ser jo at vi har en del store møter, og der ser jeg chatten blir brukt. For veldig mang e er det å ta ordet i en stor, kanskje særlig digital setting, veldig krevende. Og da kan man bruke chatten.

Tay: Or you are like what was it that really that happened here? If someone said something [about a specific topic or issue], another person could share a link about that topic.

Tay: Eller at man var hva var det egentlig som skjedde her, eller ja. Så hvis noen har sagt noe kan noen dele en lenke til det.

Tay: You can actually chat one-to-one even if you are in another meeting. I have to admit that this is something we do sometimes. Occasionally you fade out a bit, to be honest. In those situations, you gossip a little about something else.

Tay: Man faktisk chatte en-til-en selv om man er i et annet møte, og det må jeg innrømme at vi noen ganger gjør da. Kanskje noen ganger hvis man fader litt ut, for å være helt ærlig. Nei, men at man innimellom kan bli litt sånn der man kan sladre om litt andre ting

Taylor: When people are green, it is easy to see whether they are available.

Taylor: Når folk er grønne, det er så lett å se om folk er ledige.

Max: Four of us had a chat group where we could say Here I am! Good morning!, which was really nice! And we could ask questions that we received during the shift. And if we were in doubt about what the right answer was, we consulted each other on the chat feature and responded: I have answered in this way in relation to those questions, or do you know who I should contact to get a response to this question?. It was really great to have this small group that one could ask.

Max: Og vi fire oss imellom hadde sånn en chat-gruppe hvor vi kunne si god

morgen, her er jeg, veldig hyggelig! Også kunne vi dele spørsmål som vi fikk underveis og hvis vi var litt i tvil hva svarer vi her så var vi liksom på den chat-funksjonen og svare jeg har svart sånn og sånn i forbindelse med de spørsmålene eller vet dere hvem jeg skal henvende meg til for å få svar på akkurat dette. Så det var kjempefint å kunne ha denne lille gruppen som man kunne spørre.

Max: It is probably by listening to the tone of someone's voice that you hear hmm maybe that wasn't exactly what I was after or mhm yes. It is something about having to interpret it a bit, how it is conveyed - the vocal conversation. You have to be aware of that, and then maybe ask some control-questions, in a nice way. Like was this exactly what you looked for? or were there perhaps other aspects you were interested in?.

Max: Da er det kanskje på tonefallet du kanskje hører njaa det var kanskje ikke det jeg var ute etter, eller mhm, ja. Det er noe med å tolke litte granne hva er det, hvordan det blir formidlet da – den muntlige samtalen. Man må være litt var på det, også heller stille noen kontrollspørsmål sånn hyggelig var dette her midt i blinken eller var det kanskje noen andre aspekter du var interessert i?

Max: I would say that if it is things that are important, that must progress quickly, I rather take a phone call.

Max: Så jeg vil nok si at hvis det er ting som er viktige som jeg må ha litt fortgang i så tar jeg heller en telefon.

Alex: If it is something you can solve quickly, then I try that at first. Especially because it is easier to call someone, rather than e-mail them and set up a time for later. You avoid a thousand e-mails about scheduling a time. But it is okay to call. (...) Most things can be solved over the phone, you just need a two-second-long conversation.

Alex: Men noe kan man bare avklare kjapt. Da prøver jeg jo det først, ikke

minst fordi det er lettere å ringe noen enn å maile noe og avtale tidspunkt senere – da slipper man tusen e-poster for å avtale tidspunkt. Men da er det greit å ringe. (…) Det meste kan løse seg over telefon, man kan prate to sekunder sammen.

Kim: It depends on the context of the work situation. And who I am talking to. One topic I typically call people for, is if it is system related. (…) If I am going to write 'oh I cannot do this and this and add screenshots of what I am doing and such, it gets incredibly messy. So, the people I work with in relation to systems, I think more of us call [each other] because it is easier to explain [things] and it is quick. And it depends on the person. It absolutely depends on the person.

Alex: Yes, that we have the possibility to see each other. It is clear that people feel like it is natural, even if we would have conducted the meeting as a phone conversation before [the pandemic].
Alex: Alex: Ja, at vi har muligheten til å se hverandre, at det er tydelig at folk synes det er naturlig selv om kanskje noen av de møtene hadde vi tatt som en telefonsamtale før.

Jo: I call people frequently, so that is kind of what I have done the last weeks. If I kind of know that they [the respondent] do not need a file or they do not need things in text, if I can stick to only talking, I cannot be bothered to take the discussion through e-mail or something.
Jo: Jeg ringer folk i hytt og gevær så det er liksom det jeg har gjort nå de siste ukene. Hvis ting er på en måte at jeg vet de ikke trenger en fil eller de ikke trenger ting skriftlig, hvis jeg bare kan prate gidder jeg ikke ta diskusjonen på e-post eller noe sånt lenger.

Blake: Quite early on I read an article (…) about how our brain experiences physical meetings differently from digital meetings. When I say something and you respond, there is a short delay. Our brains experience this delay as

someone disagreeing with us. It takes a long time to get used to this, or to deprogram your brain to understand that we are currently in a different medium.

Blake: Altså, ganske tidlig så leste jeg en artikkel (...)om hvorfor biologisk, eller hjernen oppfatter fysiske møter annerledes enn digitale møter. Nemlig det at selv om det er kort tidsforsinkelse til at jeg sier noe og du responderer - er det en liten tidsforsinkelse. Og hjernen vår er laget sånn at den oppfatter tidsforskjeller så vedkommende, altså hvis jeg sier noe og du venter med å svare er det fordi du nekter eller er uenig. Det tar det veldig lang tid til å venne seg til, eller omprogrammere hjernen til å skjønne at her er vi i et annet type medium.

River: The fact that you cannot see hands, for example, and not see how they talk with other people, how they carry themselves. When the sound is sent from me to you, there is always a short delay. And this delay can sometimes be bothersome. (...) I feel like this part of communication has become more difficult when it is done digitally.

River: Samtidig så er det det med å ikke se hender for eksempel, og ikke se hvordan, ja, de du snakker med hvordan de ter seg. Når lyden her går til deg, er det bestandig en liten forsinkelse. Og den lille forsinkelsen kan av og til virke litt sånn forstyrende. (...) Jeg synes den delen i kommunikasjonen er blitt litt sånn vanskeligere når den går digitalt.

Tay: It is not exactly the same, for example, you never look into someone's eyes.

Tay: Det er jo ikke helt det same, du ser jo for eksempel aldri inn i øynene til noen.

Kim: But it is when you are sitting on a pc, that you have no idea whether people are looking at you or not.

Kim: Men det er når du sitter forran en PC at du ikke aner om folk ser på deg eller ikke.

Taylor: [In real life] you may sit and talk a bit with those people on the side, then someone talks with someone else on the side. But in a situation like this [video call], when you are 6-7 people, you sit and wait for your turn [to speak].
Taylor: Du sitter og snakker litt med den på siden, så snakker noen andre med noen andre [i virkeligheten]. Men i en situasjon som dette når du sitter 6-7 stykker sitter du og venter på tur

River: One has to wait for the other person to finish, before one can speak up.
River: Altså man må vente at den andre avslutter før den andre kan ta ordet.

Tay: It depends on how many are participating. Because if you are in a [physical] room with like 10 people, it is easy to read the body language of those 10 people. But to be looking at 10 tiny heads on a screen, it is not the same. So, it depends on the amount of people, I believe.
Tay: Ja, det spørs jo hvor mange det er da. Fordi at hvis man er i et sitter i et rom og er sånn 10 stykker så er det lett å på en måte lese kroppsspråket til ti stykker samtidig, men når det er ti sånne bittesmå hoder som er på skjermen så er det ikke det samme. Så det kommer litt an på hvor mange det er tenker jeg..

River: I mean, it cannot be compared. It is two different things, and I mean that there are some dimensions missing from the digital room. For example, the people move, the way people sit, the way they maintain eye contact – many of these things are difficult to see partly when they are digital.
River: Jeg mener, det kan ikke sammenliknes. Det er to forskjellige ting, og da mener jeg at den her, det mangler noen dimensjoner i det digitale rommet. F.eks. måten folk går på, måten folk setter seg, måten de holder blikket – mange av de tingene er jo vanskelig å se delvis når det er digitalt.

Alex: I remember there was a very big debate, about ten years ago. There was a debate about Muslim students in high school who chose to wear a niqab. It turned in to a national debate, right. Because to be able to teach someone something, you have to be able to see how they are responding. [Not being able to see this] hurts the relation between teacher and pupil. And in the end, it was decided that one could not cover their face during class, but it was allowed during recess. (...) I think it is kind of similar when it comes to the black screens, it might actually be even worse.

Alex: Jeg husker der var en veldig stor diskusjon, for ti år siden nå. Da var det en veldig stor diskusjon fordi det var en del muslimske elever i videregående, dette gjaldt jo ikke de yngste elevene, men særlig de videregående det var en del som valgte å gå med niqab. Et ble jo nasjonal debatt om det. For å lære bort noe må man også kunne se hvordan respondere de vi prøver å lære noe. Det hemmer den relasjonen med læringen mellom underviser og elev. Og det ble til slutt vedtatt at man ikke kunne dekke hele ansiktet i undervisningen, men i friminuttet var det lov. (...) Jeg tenker det er det litt samme med svart skjerm, det er jo enda verre kanskje.

Kim: And sometimes people simply turn the camera off, and that is completely messed up. (...) It is alright when someone answers a phone call, but to not be able to see the person you have a meeting with – that makes me very confused and makes me feel like I am not sure exactly what I am doing anymore.

Kim: Og noen ganger skrur jo folk rett og slett kamera av og det er jo helt jævlig. Jeg måtte til og med si til deg at når du inviterte kan vi vær så snille ha på kamera for det er så mange, det er greit når folk tar en telefon, men å ikke se den personen du har et møte med – nei da blir jeg veldig forvirra og vet ikke helt hva jeg driver med.

Tay: Yeah, actually, I have always thought hmm that [turning off the camera] is a bit weird. I do feel that. But at the same time, I believe you can compare it to a phone conversation.

Tay: Ja, ja. Jeg har egentlig, jeg har alltid tenkt sånn der «hm, det er jo litt merkelig liksom. Jeg synes på en måte det, men så tenker jeg da kan man jo på en måte sammenlikne det med en telefonsamtale da.

Max: I feel that if I was guiding someone in real life, for example if the student was sitting right next to me, they would receive the same guidance as I am giving them right now digitally. And I would have said the exact same things.

Max: Mhm. Nei, egentlig ikke. Altså, jeg tenker meg veiledning i for eksempel hvis studenten hadde sittet vedsiden av meg ville den ha fått akkurat samme veiledning som jeg gjør digitalt, ikke sant. Og jeg ville ha sagt akkurat det samme i det hele tatt.

Tay: Screen sharing is one of the benefits when it comes to guidance. I find it much easier to show things and ask someone can you show me your screen so I can tell you where you should click. It is much easier, I think, than hovering over someone's screen. Or having them hover over my screen when I have physical guidance sessions.

Tay: . Men det som er fordelen med de veiledningene her er jo at det der med skjermdeling og sånn, jeg synes det er mye lettere å vise ting og ha veiledning fordi man kan dele skjerm eller at jeg sier kan du vise meg skjermen din så kan jeg heller fortelle deg hvor du skal klikke og hvor du skal gå og sånn. Det er mye lettere synes jeg enn å stå og henge over skjermen til noen andre eller at de skal henge over min skjerm/pc når jeg har veiledning sånn fysisk da.

Tay: And that we, instead of sending an e-mail to only one person and have to add [person] number two and number three, Teams, where most of the files are stored, has a chat function that allows you to add on the other person.

Which lessens the amount of noise, if you get what I mean.

Tay: Og at vi i stedet for å sende e-post til én, også kanskje må vi koble på [person] nr. 2 og nr. 3, at vi da i Teams, hvor filene ligger og har en chat-funksjon, kan koble på personen. Slik at det ikke blir så mye støy, hvis du skjønner hva jeg mener – altså i forbindelse med e-post korrespondanse når det er i Teams

Max: I do see more and more of us going over on Teams, because it is quite alright to work with files there.

Max: Jeg ser jo absolutt at flere og flere av oss går over på teams fordi det er veldig greit å kunne knytte filer og alt mulig sånt der.

August: I am not against new things, but what I am against, and feel like is the most problematic thing, is that you never get rid of any of the old. That there are so many platforms you have to relate to.

August: Jeg synes det mest problematiske, og jeg er ikke sånn mot nye ting, men jeg er litt mot at man aldri klarer å kvitte seg med noe av det gamle. At det blir så veldig mange plattformer å forholde seg til

August: So, there are some people using the chat on Workplace chat and some people using the chat on Teams, it differs a bit.

August: Så noen er på Workplacechatten, og noen er på Teamschatten, så det varierer litt.

Tay: And when it comes to the chat, we previously used Skype. And then we used Workplace when it was introduced, but at the moment the Teams chat is almost the only chat that we are using.

Tay: Også den chatten så brukte vi Skype først når det kom så brukte vi Workplacechatten, men nå er det egentlig nesten bare Teamschatten som vi bruker da.

Jo: Recently a lot of the chats have moved over to Teams, instead of Workplace. I have started wondering why it is that we have Workplace too. Yeah, it gets a bit much.

Jo: "Nå har jo veldig mange av chattene flyttet seg over til Teams i stedet for Workplace, nå har jeg begynt å lure litt på hvorfor vi har Worklace, ja. Det blir litt mye.

Blake: What I find silly, is the fact that we have three different channels, right. Because you do not learn to take advantage of the possibilities that lie in each of them, equally.

Blake: «Det som jeg synes er tullete er vel at vi har tre ulike kanaler. Ikke sant, for du lærer deg ikke å utnytte mulighetene i det som ligger i noen av de fullt ut.

Max: We have been told that we are to use Teams now, which we talked about during the previous section meeting. So, I am trying to adhere to that now.

Max: «Nå har vi jo fått pålegg om at nå skal vi bruke Teams, så det var det vi snakket om på forrige avdelingsmøte så nå prøver jeg å rette meg etter det.»

Jo: When we got Workplace, they said that it was to cut down on e-mails, in addition it was going to be a place where we were supposed to get all information from the administration, that kind of thing. Then the last two years, year and a half, I don't remember, it was to cut down the number of e-mails. You can get a more wall-like [interface], so you can see what others answer, it is organized.

Jo: Når vi fikk Workplace sa de jo at det skulle kutte litt ned på e-post er i tillegg til at det skulle være et sted hvor man skulle få all informasjon fra ledelsen eller litt sånn type ting da. Så vi har de siste to årene, et og et halvt år, jeg husker - ikke kutte ned på at det blir veldig mye e-post, så man kan få en mer sånn veggaktig sånn at man kan se hva de andre svarer og at det er ryddig

Tay: But now, after we got Teams after New Year's, there is even less e-mail.

Tay: Men nå er det enda mindre mail, etter at vi fikk Teams rundt nyttår.

Blake: Skype is being phased out, but Skype and Zoom are not to be preferred channels.

Blake: Skype fases nok ut, men Skype og Zoom er ikke de foretrukne kanalene.

Jo: For a while, there has been a change in how we are supposed to communicate. Firstly, with Workplace, and now with Teams – where they are kind of trying to relaunch it. At times, there have been a lot of communication platforms.

Jo: Det har jo vært en sånn endring i hvordan vi skal kommunisere en stund. Først med Workplace og nå med Teams hvor de prøver å litt relansere det nå igjen. Det har vært litt mange kommunikasjonsplater tidvis

Blake: There are a lot of those things [issues], what we did not have the opportunity to learn in the beginning [of the lockdown] was how to use the tools. Let me tell you, learning the tools – that is a road that is paved as one is walking. I am very disappointed in the instructions we have gotten, and the introduction we have gotten to the new tools.

Blake: Det er masse sånn er der altså. Du var jo inne på åssen vi jobbet i begynnelsen, det vi ikke fikk tid til var å lære oss verktøyene. Så det skal jeg love deg, å lære oss verktøyene den veien blir til mens man går. Og jeg er veldig lite fornøyd med den opplæringen og den introduksjonen jeg har fått til de verktøyene altså

Dakota: If I am going to talk with my boss, I tend to use the Teams-chat for that. But yeah, me and my colleague, we have used the Workplace-chat a lot, or we still use it a lot. But it is a combination of social and work-related topics, separating them [the topics] is not possible.

Dakota: Hvis jeg skal snakke med sjefen min så bruker jeg gjerne Teams-chatten til det på en måte. Men ja jeg og kollegaen min, vi har brukt Workplace-chatten veldig mye, eller vi gjør det enda. Men det er jo et sammensurium av sosialt og faglig, og ja, så de klarer ikke skille på ting.

Taylor: I only use Skype in instances where we necessarily do not need to see each other. It is a quick way to just say something or to have a regular phone conversation. Considering we do not have a normal phone at work, we go to Skype. And it might be even more used as one gets familiar with it. But it would not be natural to have a Zoom-conversation without having the camera on. So, if you are going to have a phone call and you do not know the respondent, you rather do a Skype call than sending them a Zoom-request.

Taylor: «Jeg bruker Skype i de tilfellene vi nødvendigvis ikke trenger å se hverandre og at det er en rask måte å bare hvis man skal si noe eller ha en vanlig telefonsamtale I og med at vi ikke har en vanlig telefon på jobben, alt

går vi Skype og det kan jo være at det blir enda mer brukt etter hvert når man vender seg mer til det andre da. Men det ville ikke ha vært naturlig å ta en Zoom-samtale uten bilde. Så liksom hvis du bare skal ta en telefonsamtale og du tenker at du skal se personen spesielt hvis du ikke kjenner personen så godt du skal bare se tar du heller en telefonsamtale via Skype enn å sende en Zoom-forespørsel.

Blake: What we like the most! I use Skype because it is the first [tool} that I learned. People moan and ask me can you not stop using Skype? No! I know Skype, I tell them.
Blake: «Det vi liker best selv! Jeg bruker jo Skype jeg fordi det var det første jeg lærte meg. Folk sitter og stønner og sier kan ikke du komme ut av Skype? Nei jeg kan Skype, jeg sier jeg.

Blake: And then there are some who prefer Skype, some who prefer Zoom and some who prefer Teams - because that is what they know the best.
Blake: Og så er det noen foretrekker Skype noen foretrekker Zoom, noen foretrekker Teams fordi de kan det best.

Jo: But it varies from colleague to colleague, what they do and what they like to do. Whenever I have shifts with [coworker], I still do not know how to communicate with them in the quickest way (...), because they never see what I send them. But we are very different though.
Jo: Men det er jo litt forskjell fra kollega til kollega på hva de gjør, og hva de liker å gjøre. Jeg har vakt med [medarbeider] og jeg vet fortsatt ikke hvilken måte jeg skal fortest kommunisere med dem når vi sitter i hvert vårt Zoom rom for de ser ikke noe av det jeg sender, men vi er veldig forskjellige da.

Kim: We, in the communication team, have used Teams the most. And I believe it is the most successful group in Teams. And that might be related to the fact that we, regardless [of the pandemic] work a lot digitally, with text, and that

the median age in the group is relatively young. I do not know if that plays a role.

Dakota: Having some of it on Teams, and some of it on Workplace becomes artificial. Because we are in contact with each other all the time.

Dakota: Dakota: Det blir kunstig å skulle ta noe av det på Teams og noe av det på Workplace. For vi er i kontakt med hverandre hele tiden liksom.