Exploring Experiences of Information Overload: The Influence of Computer-Mediated Communication in the Workplace

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Abstract

Without question, it is apparent that organizations are predominantly dependent on the use of computer-mediated communication (CMC) to conduct their daily operations. As a result, information is rapidly flowing throughout the workplace and being exchanged at a rate unlike ever before. Unfortunately, this rapid flow of information has increased the potential for information overload to occur among employees. Through a phenomenological based approach, this study explored the experiences of information overload that occur as a result of CMC use in the workplace, from the subjective point of view of ten participants. Findings indicated that the experiences described among these participants can be understood through the examination of four descriptive themes: *Constant Communication, Unpredictability, Miscommunication,* and lastly *Increased Workload and Responsibilities*. Furthermore, two theories: Media Richness Theory (MRT) and Social Influence Theory (SIT), served as the theoretical framework for this study.

Keywords: Computer-mediated communication (CMC), information overload, workplace, perceptions, productivity, communicative behaviours, Media Richness Theory (MRT), Social Influence Theory (SIT).

Chapter 1: Introduction

Statement of Problem and Background

It would not be surprising to say that technology has completely transformed our lives, it has changed the way people communicate, how they interact, and how they work. Undoubtedly technology not only provides new methods through which to communicate with one another in the workplace, it has fundamentally transformed the way we communicate and given way to new forms of communicative interaction. In fact, when it comes to the organizational realm and the ways in which people communicate in a professional setting, computers and communication technologies, have come to revolutionize the dynamics of organizational communication (Santra & Giri, 2009). Although, it is important to note that this revolution is not simply due to computer technology in general, it is due to a specific type of computer system technology, one that has had the largest influence on modern day workplaces: the internet. The everyday practice of communicating through computers, via the internet, has grown so much in fact that it has now evolved into its own unique form of interpersonal communication, known as computer-mediated communication (CMC) (Wrench & Punyanunt-Carter, 2007).

Computer-mediated communication is defined as the process of communicating interpersonally through the use, or medium, of computers (Wrench & Punyanunt-Carter, 2007). Evidently, this modern form of interpersonal communication is becoming ever more present in organizational workplace settings, whether it occurs internally between employees, between employees and their employers, or externally between employees and their publics (Pratheeba, 2016). Undoubtedly organizations are predominantly dependent on the use of communication technologies when conducting their daily operations (Applegate, Austin, & McFarlan, 2003). As a result of this, organizations are functioning almost entirely through the use of CMC, including

email and instant messaging (IM), rather than through more traditional or what many view as more personal methods, including telephone and face-to-face (FtF) communication (Ramirez, 2007).

Research has shown that communicating through, or communication mediated by, computers mainly through the internet, has become the most "common mode of communication for people in the workplace" (Santra & Giri, 2009, p. 104). Using technology, like the internet, in the workplace to transmit messages through email or IM has grown so much in use and efficiency that these types of exchanges have become the accepted norm among employees (Santra & Giri, 2009; Simon, 2006). The internet is even considered to be the most prominent "technological necessity" within today's workplaces (Mahatanankoon & Igbaria, 2004, p. 246).

While instant messaging (IM) use in the workplace has grown considerably, email remains the most widely used means of creating and distributing written communications in an organizational setting (Chory, Vela, & Avtgis, 2016; Thomas, King, Baroni, Cook, Keitelman, & Miller, 2006). Email is now the go-to medium for professionals, in fact, and not surprisingly so, it has been found that email exchanges now occur more often than face-to-face (FtF) interactions in many of today's workplaces (Markus, 1994; Sullivan, 1995 as cited in Thomas et al., 2006). Research has shown that the reasons for this shift in preferred forms of interaction can be attributed to the many advantages that email provides to its users over other communicative means. These advantages pertain to features that allow email messages to "be sent easily to a large number of people" and that can, in turn, "facilitate collaboration by coworkers separated in time and space" (Byron & Baldridge, 2007, p. 137). Using email in such a way eliminates the physical distance between users and provides the ability to communicate with one another with a simple click of a mouse. Another appealing feature of email is that it can allow for the "rapid

flow of messages" (Mano & Mesch, 2010, p. 63) within the workplace as well as an "audit trail and record of the communication" (Waldvogel, 2007, p. 122), which individuals can use to store messages and/or tasks and refer to them again and again. This feature is undoubtedly quite useful to employees in a fast paced work environment, where email after email can be sent from person after person, and where things are bound to occasionally slip through the cracks.

Even when only taking the sample of advantages discussed previously into consideration, it is clear why email communication has gained so much popularity and credibility in the professional realm. Individuals can now send, receive and process information at a pace unlike ever before. However, there are some aspects of communicating like this that are not entirely positive. According to relevant studies, the rapid flow of information, described above by Mano and Mesch (2010), can easily turn into an uncontrollable flow, or an overload of information (Bontis, Crossan, & Hulland, 2002).

Information overload is defined as "the condition by which a person cannot process all communication and informational inputs" sent to them at once (Beaudoin, 2008, p. 552; Rogers & Agarwala-Rogers, 1975). It is important to note that within the general body of literature this occurrence is classified under various names all referring to the same concept. Within the context of this study this occurrence was classified as 'information overload', although it has also been referred to as email overload, communication overload, and technology overload just to name a few. Upon reviewing the available literature this researcher chose to consider these concepts as equivalent to each other and as a result they are discussed interchangeably within this study.

As this is a qualitative inquiry it is also important to note that this study examined the occurrences of information overload from a subjective point of view and, as a result, individual perceptions of overload, and not the objective measurable occurrence of it, were discussed.

Objective measurements are more suited for quantitative research which are useful when one wants to distinguish between what is statistically and objectively significant and what is not, while qualitative inquiries, such as this study, seek to explore the subjective meaning behind an occurrence. Elliot Eisner, an advocate for qualitative research design, claimed that in order to gain knowledge it is more important "to understand the meaning of what is known" than it is to measure it in a quantitative form (Eisner, 1994, p. 193)

Within qualitative research, discussing and uncovering the subjective experiences of the participants encompasses much of what researchers seek to do, especially phenomenological researchers. Therefore, seeking to uncover personal perceptions is permissible as phenomenological researchers believe that it is only through a subjective lens that the "essential truths" or the meaning behind a phenomenon come about (Spiegelberg, 1965; Streubert & Carpenter, 2010, p. 87). A great deal of importance is placed on the ability of the phenomenological researcher to uncover the "truth" as it is directly related to the subjective reality of an individual's experience (Spiegelberg, 1965; Streubert & Carpenter, 2010, p. 87). In fact, truth within phenomenological theory is synonymous with its notion of the "reality" of an experience, uncovered from the very detailed descriptions of the very personal accounts of an individual's lived experience of said phenomenon (Spiegelberg, 1965; Streubert & Carpenter, 2010, p. 87). Phenomenology further classifies the 'reality' of an occurrence as a reflection of an individual's perception of it (Streubert & Carpenter, 2010) and in turn also classifies individuals as consequential representations of the reflected effects of the particular phenomenon they have just experienced (Anderson & Spencer, 2002). In addition, within Eisner's the *Enlightened Eye*, knowledge obtained from such research is constructed from subjective experience, and is therefore a reflection of the mind of the individual (1998).

A perception of an event or phenomenon, as opposed to an objective occurrence involving limits and measurements, is a subjective experience derived from our internal systems of belief, and therefore the truth, or reality, behind its occurrence is based on the individual's interpretation of it (Ingram & Fraenkel, 2006). Within phenomenological research understanding another's perception of an event is achieved by describing and "emphasizing the richness, breadth, and depth of those experiences" (Spiegelberg, 1975, p. 70). As individual perceptions become stimulated through such in-depth descriptions the researcher is provided with a clearer and more accurate reflection of the phenomenon in question. The more descriptive the information is, the more likely that a third party will be able to understand what such an experience is like.

Obtaining a detailed description ultimately leads to uncovering the person's perceptions which in turn enable others to discover the underlying meaning of an experience. This, in itself, is precisely what a phenomenology seeks to do: gather individual description based information, or perceptions, and combine them with those of others in order to formulate an in-depth shared understanding of an event or an experience (Polkinghorne, 1989). From this combination of perceptions comes a greater understanding of what information overload is, what are the circumstances under which it occurs, and how it has come to affect employee perceptions of productivity in their workplace and the changes in their communicative behaviours.

This study also discussed the organizational symptoms or situations that give way for the possibility of information overload to occur. These symptoms are the result of the over use of technology in the workplace and the frequency with which users choose to communicate through it. It discussed which types of interactions are more likely to elicit a sense of overload therefore hindering productivity. For instance information overload, or one's perception of feeling

overloaded, becomes even more likely when numerous messages are exchanged asynchronously, or non-directly, such as through email (Thomas et al., 2006). Asynchronous interactions constitute when a message can be sent and received regardless whether or not the "sender" or "receiver" are physically present, resulting in a non-direct, delayed, type of exchange (Thomas et al., 2006, p. 254). In contrast, a synchronous interaction would take the form of a FtF discussion where the sender and receiver of the message are both present or in the case of an IM exchange where the sender and receiver are both actively participating in the discussion at the same time (Thomas et al., 2006).

The issues that arise from asynchronous types of exchanges like email center around an individual's inability to control the rate or frequency at which they receive messages, because they are not required to be actively present, or actively willing, to accept them. Essentially, because an individual does not have to be physically present, i.e. an individual does not have to be in front of their computer to accept a message; their email inboxes are an open door to the public and are often bombarded with multiple messages at once. This bombardment leaves many individuals unable to control the flow of messages and therefore unable to process each one before another comes in. Another indicator of information overload is an individual's belief that their work is piling up and that they do not have enough time to address their workload appropriately or effectively (Konstant & Taylor, 2008). Essentially, receiving multiple messages at once, asynchronously via email, without being given the chance to read, process, and respond accordingly increases the "chance [that a sense of] overload might occur" (Cho, Ramgolam, Schaefer, & Sandlin, 2011, p. 40).

Based on this premise it would seem that the asynchronous electronic methods we are using to communicate, i.e. email, are undoubtedly increasing the amount of information we

receive, and are thus making it impossible for one to process everything at once. Receiving increased amounts of information and an inability to process it all undoubtedly leads to a sense of overload (Konstant & Taylor, 2008). Objectively speaking information overload results in individuals' "ineffectiveness or terminated information processing" (p.552) which translates to mean that not only are employees working ineffectively when feeling overloaded but in some cases they may not be working very much at all (Beaudoin, 2008; Rogers & Agarwala-Rogers, 1975). Without question this ineffectiveness is having an influence on employee perceptions regarding productivity, that of their own and their surrounding environment.

Another feature of email that has the ability to influence an individual's perception of feeling overload is the repeated occurrence of delayed responses. As email is asynchronous it is by definition a 'delayed' system, and therefore does not allow the sender and receiver to effectively address or dismiss an issue simultaneously (Cho et al., 2011). A sender who must wait for confirmation on an issue before moving on, all the while continuing to receive other inquiries, may feel overloaded when juggling multiple issues at once and this undoubtedly lowers their degree of productivity when doing so (Konstant & Taylor, 2008). This type of incessant delay that an individual feels increases the likelihood of information overload (Cho et al., 2011). Message receivers are also just as likely to suffer from a sense of overload in the face of delayed message exchange because they are unable to control, or anticipate, the messages coming towards their inboxes.

Some studies have even shown that communicating through asynchronous channels, like email, which tend to pile on information at once while subsequently delaying confirmation, have a relatively higher effect on overload perceptions than high synchronous, or instantaneous, means of communicating, like IM (Cho et al., 2011). Instant messaging (IM) is a synchronous

communication because it is an instantaneous interaction that can be initiated by either party at any time (Garrett & Danziger, 2007). However, while IM would be considered a synchronous type of communication, as it occurs simultaneously by ensuring both sender and receiver are actively present, it has been found that IM, like email, can also contribute to an individual's sense of feeling overwhelmed or overloaded (Thomas et al., 2006). Research has shown that the exchange of multiple short messages may also generate feelings of overload among those receiving them (Thomas et al., 2006). As the purpose of IM is for an individual to attend to the messages they receive instantly multiple conversations, originating from multiple individuals, can occur. Managing multiple messages at the same time is known as polychronic communication, which is so common in the workplace that it too has its own area of organizational study (Turner & Tinsley, 2002). According to some researchers, polychronic communication has implications for overload and inefficiency as well (Turner & Tinsley, 2002). These implications arise when more than one thing is being attended to at once but nothing is being accomplished any faster as a result (Turner & Tinsley, 2002; Perry, O'hara, Sellen, Brown, & Harper, 2001), leaving the individual overloaded and overwhelmed.

Ultimately, when an individual feels overwhelmed after experiencing occurrences of information overload their attitudes towards the functionality of the technology are affected. Individuals perceive the effectiveness of a technology "from the vantage point of their own internal cognitive processes and develop beliefs about them" (Lewis, Agarwal & Sambamurthy, 2003, p. 659). These beliefs are regarded as "an individual mental activity" that is formed within the context of the environment "to which the individual belongs" (Ingram & Fraenkel, 2006, p. 441). These beliefs alter the way individuals perceive their environment and therefore how they perceive their workplace in general (Rodwell, Kienzle, & Shadur, 1998). Individual perceptions,

derived from these beliefs about the organization, are also considered to have an effect on an employee's perception of an organization's level of productivity (Rodwell et al., 1998). Essentially, "productivity is an attitude of mind: a matter of perceptions" (Ingram & Fraenkel, 2006, p. 444).

For technology to be regarded as a productive tool individuals need to perceive it in a positive manner, however, if individuals believe that such technology is causing their experiences of information overload then a negative perception will follow, ultimately affecting productivity. As stated by Ingram and Fraenkel "the essence of productivity enhancement is knowing how to do things better" (2006, p. 444). Therefore, the benefits of technology "are contingent on the extent to which individual users" can effectively appropriate it into their daily tasks, tasks "that, in turn, contribute to organizational productivity" (Lewis et al., 2003, p. 658). It goes without saying that CMC is only beneficial to a workplace if it contributes to the organization's overall level of productiveness. Issues arise when this technology, implemented to boost productivity, actually inhibits it by creating a sense of overload among those using it. Whether the problem stems from the inefficient use of technology or from the waves of information that result from it, productivity inevitably suffers. According to some research it seems that there is a fine line between a technology's ability to enhance productivity and its ability to diminish it (Cohen, 1996; Hiltz & Turoff, 1985). It has even been suggested that the use of CMC in the workplace may be just as likely to contribute to organizational productivity as it is to causing overload among its users, ultimately impeding the desired increase in productivity (Cohen, 1996; Hiltz & Turoff, 1985).

Just as individual perceptions regarding the productiveness of a technology are affected by the attitudes of the individual, communicative behaviours are also affected by our perceptions

as well (Kohler & Mathieu, 1993, p. 518). Depending on whether or not an individual perceives a sense of overload, changes in behaviours can occur (Kohler & Mathieu, 1993; Rodwell et al., 1998). These behavioural changes can be classified as either intentional or unintentional. The intentional changes occur as individuals adopt new behaviours in order to better manage the larger flows of information they are forced to deal within the workplace. In regards to email these behaviours can take the form of something as simple as flagging or organizing received messages by person or priority, by deferring opening new messages until a later time, or by forwarding important information along with the tag 'FYI' instead of providing a detailed explanation as to the message's relevance. What is interesting is that although some of these behaviours may seem common place they actually contribute to the changing practice of communication in the workplace (Skovholt & Svennevig, 2006). For example, when people carbon copy or 'CC' large groups simultaneously in an email they are not just saving time by communicating with numerous individuals at once, they are "creating new patterns of interaction" (Skovholt & Svennevig, 2006, p. 61).

Media that allow for such accessible, efficient, and mass communication also allow individuals to maneuver around existing hierarchical protocols that may be found in many of today's workplace settings (Skovholt & Svennevig, 2006). For example, individuals can communicate simultaneously with other colleagues and managers at once using the same medium. By using this medium to communicate on such a level platform individuals are "erasing traditional hierarchical structures and established lines of information flow" and are creating their own (Skovholt & Svennevig, 2006, p. 61).

Behavioural changes can also be seen in regards to IM use as well. As many workplace studies have found, when it comes to processing large amounts of data frequent IM users display

different communicative behaviours than other non users, including multitasking and exchanging shorter messages back and forth over longer periods of time in order to remain efficient (Garrett & Danziger, 2007).

Furthermore, while there are changes in our behaviours that are enacted purposefully by the individual to counteract overload, there are also changes in our behaviours that occur as a result of our habitual use of technology, these are the unintentional changes. These behaviours consist of things such as an aversion to communicating with others face-to-face (FtF) or over the phone, giving off negative tones when communicating by email, avoiding attention to detail etc. Individuals tend to remain unaware of these changes in behaviours and habits, but while they may seem subtle their influence on our ability to effectively communicate with others in the workplace can be substantial and therefore deserves exploration. For it is the intentional changes in behaviours that individuals make in the face of overload and the unintentional consequences that occur as a result of exposure to overload that this researcher hoped to explore.

It has also been found that information overload can cause more than just a change in our patterns of communication. Research has shown that "too much information can cause high levels of stress, reducing worker's ability to make decisions, job satisfaction, and overall job performance" (Thomas et al., 2006, p. 256). While these constructs will not be explored in the context of this study, their occurrence mirrors a similar concept discussed by Oppenheim (1997) which is worth noting. Oppenheim suggests that it is possible for too much information to actually become a disadvantage (1997). This onset, known as the 'critical mass' effect, occurs when too much information begins to hinder productivity rather than improve it (Oppenheim, 1997). One of the primary goals of this phenomenological study was to assess where the line between being productive and unproductive in the face of information overload lies.

Purpose of Study

As is the general purpose of any phenomenological study, the purpose of this one was "to reduce individual experiences of a phenomenon to a description of the universal essence" (Creswell, 2007, p. 58; Van Manen, 1990). By reducing individual experiences with information overload down to a composite description, this study was able to generate a comprehensive understanding of what experiences with information overload in the workplace are like for individuals with regards to perceptions of productivity and changes in communicative behaviours. As computer-mediated forms of communication are "becoming more and more a part of our lives" (Santra & Giri, 2009, p. 107) it is important to understand the effects and the implications that this technology is having on ourselves and on the way we work. CMC has situated itself as an "integral part of the communication infrastructure in every kind of organization" (Jackson, Dawson & Wilson, 2003, p. 80), however, "despite its pervasive role in everyday organizational practices and processes, CMC tools [such as email and IM] largely remain under-researched and under-theorized in the organizational literature" (O'Kane, Palmer, & Hargie, 2007, p. 308). As the tools themselves remain under-researched so too do the costs and benefits that follow, which still remain largely undefined as well (Jackson et al., 2003). It is important for organizational employees as well as managers to recognize that with all of the advantages that technology provides there are some downfalls. Examining what these downfalls are and under what circumstances they arrive will help individuals understand information overload and the influence that it can have on their perceptions regarding productivity in the workplace and changes in their communicative behaviours.

The many benefits of this particular study included providing individuals with an overall understanding of their experiences with CMC in the workplace and how these experiences have

come to change/shape the way that they communicate with others and how they work. Secondly, another benefit was that this study can provide individuals with the opportunity to understand the factors contributing to their perceptions of feeling overloaded at work and perhaps provide them with the knowledge as to how they can manage to work more productively. Ultimately, by describing the use of and influence of CMC in the workplace, and the occurrences of information overload as a result, individuals will be better able to identify the factors that led to these perceptions and will thus be better able to prevent/cope with future occurrences.

The benefits of this study for scholarly knowledge are that it will contribute to the growing body of literature surrounding organizational communication, and the use and influence of communication technology in the workplace. As previously noted, despite the prevalence of CMC in today's workplace, examining email and IM along with its contribution towards the occurrence of information overload remains largely unexplored (O'Kane et al., 2007). This study marks the first examination of the use of CMC and the occurrence of information overload along with the influence that these phenomena have on an individual's perceptions regarding productivity and changes in their communicative behaviours in the workplace.

Research Questions

Based on the purpose of this study outlined above, and the supporting evidence provided, the following research questions were generated and were addressed throughout the remainder of the study. These questions are appropriated from the standard research questions generally posed within a phenomenological study, which seek to uncover what an individual has experienced, and what contexts have come to affect the experience of the phenomenon (Creswell, 2007; Moustakas, 1994).

RQ1: Resulting from their use of CMC, what do employees experience in terms of information overload in the workplace?

RQ2: Resulting from their use of CMC, what contexts or situations do employees perceive to have influenced their experiences of information overload in the workplace?

Delimitations

Due to constraints in time and resources the researcher chose to limit the scope of this study to ten participants, an amount often recommended within phenomenological research (Dukes, 1984). A study of this size is large enough to provide the researcher with an adequate amount of descriptive data required for phenomenological analysis and small enough to allow timely analysis and completion. Furthermore, for convenience purposes and availability of resources only employees within the National Capital Region were considered for participation.

In addition, the parameters of this study were also limited in regards to the potential availability of additional communication systems in the workplace. While departments within the federal public service generally have similar CMC systems in place the researcher does recognize that there may be some exceptions to this as there may be some departments employing some newer methods such as Skype or other voice/video enabled IM. For this reason the researcher has decided to limit the parameters of this study to focus solely on email and text-based IM exchanges. The environment within which the phenomenon occurs was also intentionally limited by the researcher so as to only focus on experiences of information overload that occur in the workplace and not in the home environment.

Lastly, it is also important to note that while this study was seeking a composite description of information overload shared among individuals, every individual experiences

things differently, meaning that every individual's experiences are based on their individual perceptions. As a result of this the researcher recognized that participant accounts would be entirely subjective and would therefore not be an objective reflection of the phenomena under study.

Chapter 2: Review of Literature

The following is a review of relevant literature regarding the topic of information overload and the influence of computer-mediated communication (CMC) in the workplace. This chapter is broken down into different sections addressing each primary concept separately. The relationship between these concepts, found among relevant literature, is then identified and explained. The main theories used to frame this study are also presented and defined, Media Richness Theory (MRT) and Social Influence Theory (SIT). Finally, the link between these two theories and the identified concepts is also explained.

Computer-Mediated Communication

The dawn of the industrial revolution and its technologies brought forth the opportunity to expand and increase mass production and worker efficiency (Shahrokh-Shahraki & Bakar, 2011). Since then, greater technological advances have allowed workplaces to change not only what they do, or what they produce, but how they work. These days technology is no longer just used to produce a product, it is used as a medium through which to communicate (Santra & Giri, 2009). The specific medium being referenced here is the medium of computers. With the click of a mouse computers have provided users with the unwavering ability to exchange information at a rate unlike ever before (Santra & Giri, 2009). By using computer-mediated channels, like email and IM one can instantly communicate with thousands of others (Chory et al., 2016). These channels are readily accessible under our finger tips and have a functional presence in nearly every aspect of our lives, especially our professional lives (Westerman, 2008). For the purpose of this study *computer-mediated communication* was defined as the "communication [that occurs] between and among people through the medium of computers (includes e-mail, chat rooms, bulletin boards, and newsgroups)" (Beebe, Beebe, Redmond, Geerinck, 2007, p. 360).

These forms can be either synchronous (instantaneous) or asynchronous (delayed). According to Santra and Giri (2009),

> synchronous CMC is similar to a telephone conversation, except that much of the communication in the former is text-based while the latter is voice-based. In the asynchronous mode, those who wish to communicate with others can do so in their own time and place without the need for face-to-face contact. (p. 103)

Computer-mediated channels have become so common in the workplace that their presence has resulted in the instigation of a new kind of communication system (Kelly, Keaten, Hazel, & Williams, 2010; Kelly & Keatan, 2007), a technology driven system. This system has changed the way organizations function and how they are designed. In essence it has "redefined not only the channels of workplace communication but also overall workplace structures and organizational design" (Kupritz & Cowell, 2011, p.55). Understanding these new structures and how they function within an organization is the cornerstone of effective organizational communication.

It is becoming ever more evident that effective communication within organizations is an important component to its success (Santra & Giri, 2009). As the vast majority of the communication occurring within the workplace today is done through the medium of computers, some researchers consider it nearly impossible to discuss organizational communication effectiveness without first noting the importance of computer-based technologies, or computer-mediated communication in these very workplaces (Rice & Gattiker, 2001).

The term computer-mediated communication (CMC) is used to classify "all forms of communication between individuals and among groups via networked computers" (Santra & Giri, 2009, p. 103). More specifically CMC refers to any form of communication occurring

through the medium of computers, those most widely used today are electronic mail (email) and instant messaging (IM).

We depend on technology more now than we ever have (Karr-Wisniewski & Lu, 2010), especially in the workplace, in fact many of today's organizations, and many of today's professions, could not exist without it. Consequently, amidst all of the benefits of these types of technologies there are some consequences to their use as well. Ironically the very features that drive us to use these technologies, such as the ability to transfer information instantly to numerous individuals with the click of a mouse, are the very things that are contributing to perceptions of overload among employees (Hewitt, 2006), altering their communicative behaviours, and hindering their views of a productive workplace.

email. As previously discussed the use of CMC has increased enormously within the past two decades, particularly email and particularly in the workplace (Waldvogel, 2007). In fact, research has shown that "email has become one of the most prominent communication media in [today's] contemporary organization" (Ishii, 2005, p. 385). It is present in nearly every workplace and it is apparent that "many of today's workplaces could no longer function without it" (Waldvogel, 2007, p. 456). However, what is email? What is it about this technology that has allowed it to sustain and evolve within our workplace to the point where employees would be lost without it?

In order to identify and discuss the beneficial aspects of email and how its features have come to benefit the modern workplace it is important to first define the communication channel itself. Firstly, email is classified as an asynchronous communication, it does not require the receiver to take immediate action to either accept or process the communication and it does not require the sender to await the receiver's actions (Thomas et al., 2006). Simply, *email* is defined

as a non-synchronous method of communication, which means that it does not require "the sender and receiver to be present for communication to occur" (Thomas et al., 2006, p. 254). Secondly, it is also a text based message that can be sent to multiple recipients at once, and often takes the form of a mass message not directed to any one individual. Instead it is more of a general memo, such as a 'CC'. Of course there are also many other advantages to its use as well. Email also has a "built-in memory that allows messages to be stored, retrieved, [and] forwarded" (p. 255) allowing employees to keep their communications organized and sorted accordingly (Thomas et al., 2006). Email also provides users with an automatic record of their typed written communications. Largely, as a result of this last feature email has in effect replaced other written forms of communication and much of the telephone and FtF interactions that were once much more popular in the workplace than they are now (Waldvogel, 2007). In fact, Waldvogel (2007), views email as the standard method of communication, or the norm, in many of today's workplace settings and many other researchers agree (Chory et al., 2016; Dabbish & Kraut, 2006). Essentially, according to Dabbish and Kraut (2006) email communication has become an integral component of today's working life (Chory et al., 2016; Dabbish & Kraut, 2006) and thanks to its key advantage of easy and rapid exchanges of information (Sproull & Kiesler, 1991) it is no surprise that email has now become "a fact of life in many workplaces" (Waldvogel, 2007, p. 456).

Email has been shown to enable senders to communicate with many others instantaneously with the click of a mouse and to elicit frequent and prompt responses by the receivers (Kupritz & Cowell, 2011). Research among employees has also shown that email is the "only mode of communication that was productive in time-sensitive situations" (Kupritz & Cowell, 2011, p.72). According to this same study it is also an effective means of disseminating

important information regarding workplace safety and security, in fact, employees listed email, among other communicative means, as the best way to alert them regarding "security/safety issues" (Kupritz & Cowell, 2011, p.72)

While the benefits of this form of CMC are well known and have been thoroughly researched, the negative consequences of this technology are becoming more prominent in the literature and therefore require additional description and discussion. Ironically, what makes email so appealing to its users are the same features that present problems for many of these same users (Kupritz & Cowell, 2011).

Email allows for rapid paced exchanges and transfers of information unlike ever before (Sproull & Kiesler, 1991), meaning that more information is being sent and received and nowhere is this more apparent than in the workplace. Ishii (2005) notes that "past studies consistently reported that email has increased the total volume of communication in the workplace by accelerating information flow across departments" (p. 386). Undoubtedly, as this is an uncontrollable flow the individual is susceptible to feeling overwhelmed and overloaded (Bontis et al., 2002). Similarly, Skovholt and Svennevig revealed that employees generally "accomplish a great deal of their work tasks through email interaction" and as a result they are often feeling overloaded with information as "email traffic is [becoming] pervasive and employees are inundated with emails of varying relevance" all day long (2006, p. 61). Furthermore, the fact that email is asynchronous, and thus a delayed exchange, it also creates this same unintended consequence for individuals; overload. Essentially, research has shown that delays occurring within communication exchanges increase the likelihood of an individual's sense of feeling overloaded (Cho et al., 2011).

Occurrences of overload such as this stem from the fact that the individual is unable to control the volume of information and communication that is around them and is therefore at the mercy of its influence. Such influence, including changes in individual perceptions concerning productivity, are discussed within their appointed section of this review of literature. Other intentional changes including those regarding the communicative behaviours of the individual are, however, more under the individual's control and will also be discussed, along with the unintentional changes in communicative behaviours that occur in the face of overload. In effect, while the majority of experiences of overload stem from the uncontrollable influence of technology, some overload is experienced as a result of the individual's use of the technology. Specifically, Karr-Wisniewski and Lu (2010) found that the factors contributing to losses of productivity in the workplace, via information overload, are not the result of the technology itself but rather by the way that the individual uses the technology.

Research has found that many individuals within the workplace are not using email in the most productive manner. For example, ineffective email users are sending mass messages to a mass audience of people disregarding the relevance of each individual audience member's involvement in the message. Sending messages in such a way only adds to the unnecessarily large volume of communication in the workplace and in other employees' inboxes (Davidhizar, Shearer, & Castro, 2000). While 'cc-ing' a large group of people like this on a single message has become a common habit, the result of this behaviour contrasts with the goal of email: make working life more efficient, effective and less overloaded. While ineffective email use influences an organization's productivity it also has a tendency to influence an organization's bottom line as well (Kupritz & Cowell, 2011).

However, this is not simply due to inefficient use of email but also personal use of it. It has been found that misusing workplace computer systems for personal use is one of the main factors that contribute to an individual's sense of overload (Dawley & Anthony, 2003). Essentially, employees tend to 'overload' themselves with information and tasks while using the internet for personal purposes (Mahatanankoon & Igbaria, 2004). Fittingly, "information overload is often a result of email abuse" (Dawley & Anthony, 2003, p. 173) and using email in such a way contributes to an individual's perception of a decrease in productivity (Dawley & Anthony, 2003).

In summary, while the majority of the volume of communication within the workplace is outside of the individual's control, a portion of this increasing volume is a result of the individual's ineffective and personal use of the technology. Therefore a portion of the overload that individual's experience and a portion of the loss of productivity in the workplace is based on the individual's own behaviours, or their ineffective use of the technology (Davidhizar et al., 2000).

instant messaging (IM). There are also forms of CMC other than email, such as IM, which have more recently gained popularity in workplace settings as well. What distinguishes this form from email is the rate at which they are exchanged. As emails can be delivered at any time, whether the receiver is available or not, there is generally a delayed response when waiting for a reply (Cho et al., 2011). For this reason email is considered to be an asynchronous form of communication while other forms of CMC like IM are more synchronous (Cho et al., 2011). Compared to email, IM is the more recent CMC tool to have entered into the workplace (Wrench & Punyanunt-Carter, 2007), and for the purpose of this study *instant messaging (IM)* was regarded as synchronous in the sense that it allows users to communicate with each other at the

same exact time as it allows employees to see who else is "online" and currently available to receive messages (Cameron & Webster, 2005, p. 86). For example, IM technology ensures the presence of another person as the receiver needs to be available and physically at their computer, or within reach of their portable device in order to receive a message. Some studies have classified IM as a happy medium between email and the telephone. Essentially, "IM programs combine the type-written form of communication, associated with email, with the synchronicity of message exchange that characterizes telephone conversations" (Ramirez, Dimmick, Feaster, & Lin, 2008, p. 529)

According to Shaw, Scheufele, and Catalano (2005) this synchronicity is possible due to the servers or programs that generally come equipped with many of today's workplace IM systems. Essentially, these "presence servers" keep track of the users' information and online status and can share presence information with other users (Shaw et al., 2005, p. 3). These features are generally standard with every IM system as they are a key element to its appeal. Furthermore, features such as these,

> can also do more than simply detect online status...they can communicate availability – such as whether they're idle or away...provide activity cues such as whether a party is typing a response...as well as communication capabilities – such as being connected via a mobile device. (Shaw et al., 2005, p. 3)

Email systems, especially those found within most workplaces today, do not have these features and are therefore, according to some researchers, much more obtrusive as they create many more opportunities for interruptions than IMs do (Shaw et al., 2005). For instance, according to Bontis et al., (2002) these interruptions are the main contributors to information

overload as receivers have no control of the rate at which they receive these messages and therefore are unable to effectively process or sort through them.

However, there are also many researchers who believe IM to be just as disruptive as email (Garrett & Danziger, 2007). Specifically, this type of technology is described as the interrupting force which hinders an employee's ability to stay focused on or accomplish a task (Garrett & Danziger, 2007). According to this study the amount of interruptions that occur in the workplace is a major issue for employees and organizations alike, specifically for those that must work with the technology every day to conduct their business (Garrett & Danziger, 2007). It is clear, a high rate of interruption is a serious concern within the workplace as it can significantly inhibit productivity levels by disturbing employee "thought processes and work flows" (Garrett & Danziger, 2007, p. 24). Some research even suggests that while IM popularity may begin to increase in the workplace, productivity will lessen due to the amount of interruptions this form of CMC can allow (Evans & Eber, 2013). Inevitably, this phenomenon is having a detrimental influence on employee perceptions regarding their overall level of productivity within the workplace as they are becoming inundated, or overloaded, with information (Garrett & Danziger, 2007).

Garrett and Danziger state that IM is interruptive by definition (2007), and it is therefore unplanned and unpredictable as well (Darmoul, Ahmad, Ghaleb & Alkahtani, 2015). Similarly, O'Conaill and Frohlich (1995) define interruption as a synchronous unscheduled exchange which disallows the recipient to continue their current task. Ironically, by this particular definition, as email is asynchronous, it cannot be characterized as an interruption like other studies have found, only IM can. However, these researchers do admit that not every interruption is disruptive (Garrett & Danziger, 2007). For example, "when interruptions pertain to the current

work tasks, they may be viewed as valuable opportunities for interaction, information sharing, and coordination" (Garrett & Danziger, 2007, p. 25). Therefore, in some cases receiving large amounts of information can actually contribute to productivity as it allows the receiver to accomplish a task more effectively. Furthermore, a study by Lebbon and Sigurjonsoon found that increasing occurrences of interruptions in the workplace does not have an effect on organizational performance or productivity (2016). Other additional research by Mansi and Levy even suggests that depending on the type of task at hand a high amount of IM interruptions in the workplace can actually decrease the amount of time it takes employees to accomplish a particular task (2013).

Seemingly, IM use is contributing, either positively or negatively, to individual experiences of overload and perceptions regarding productivity in the workplace. However, like email, frequent IM use is also contributing to changes in the communicative behaviours of individuals. Individuals are using this technology to their advantage and are changing the way they handle interruptions. Essentially, within Garrett and Danziger's (2007) study, it was even found that IM reduces interruptions, however, this ability is not a result of the technology itself, but rather it is what the individual does with the technology that allows them to reduce the interruptions occurring around them. In fact, many employees within the workplace are using IM to counteract disruptions (Garrett & Danziger, 2007). For example, employees do this by postponing attention to incoming communications until a time when they will be "more relevant or less disruptive" or they integrate and manage numerous tasks at once with the help of IM's "rapid communication and information exchange capabilities" (Garrett & Danziger, 2007, p. 38). Some employees even ignore the IM interruption completely when they believe it hinders their work (Mansi & Levy, 2013). Lebbon and Sigurjonsoon even suggest that employees are able to

assess their susceptibility to interruptions and are able to purposefully speed up, or work faster, when they believe that IM-ing is beginning to have "detrimental effects" on their performance (2016, p. 438). Fundamentally, the main focus and major findings within Garrett and Danziger's study were framed around the possible applications of IM for individuals, rather than the technology itself (2007). Essentially, "workers are developing effective strategies for using IM technologies in positive ways" (Garrett & Danziger, 2007, p. 39) and these are just some of the strategies that individuals use in order to lessen the overload that so many individuals experience in the workplace.

Information Overload

Based on the literature provided it has become evident that the use of email and IM are not the only things increasing in today's workplaces, information and the amount of communication flowing around are increasing as well (Chumakova, 2015). As previously stated this increased amount of information is a direct result of the rapid exchanges of messages made possible by the technologies available within the workplace (Ishii, 2005). And while many individuals would think an increase in information would be a positive thing research has shown that this issue is quite debatable (Ishii, 2005). In fact while receiving increasing amounts of information can sometimes heighten productivity there are also times when it can lessen it as well (Ishii, 2005). Specifically, the increasing volume of message exchanges has largely resulted in an overload of information (Ishii, 2005). *Information overload* is defined as "the condition by which a person cannot process all communication and informational inputs, which results in ineffectiveness or terminated information processing" (Beaudoin, 2008, p. 552; Rogers & Agarwala-Rogers, 1975).

Based on previous research, it has been established that due to the increasing access, convenience, and acceptance of technology within the workplace employees are experiencing an influx of information into our daily lives, especially our work lives. These influxes or excessive exchanges of messages can often bombard individuals and cause "employee stress due to what many refer to as email overload" (Thomas et al., 2006, p. 253). Ironically the very benefits of these types of technologies are the exact things that are contributing to the perception of information overload and an over reliance on technology in the workplace (Hewitt, 2006).

However, it is important to note that these findings are subjective and are entirely dependent on the experiences of the individual. As stated by Karr-Wisniewski and Lu (2010) "dimensions of technology overload are based on individualized perceived measures" and that "two knowledge workers exposed to the same work environment may vary as to their perceived levels of information, communication, and system feature overload based" (p. 1069). Individuals may even differ in regards to their degree of feeling overloaded, for example either positive or negative. In fact, other studies have shown that perceptions of increasing overload among individuals are not entirely a negative thing (Cho et al., 2011). Cho et al., concluded that receiving large amounts of information can actually benefit employees in particular ways, for example, these authors found a link between the amount of information an employee receives and their rate of identification with their organization (2011). Rate of identification refers to an individual's sense of inclusion within the organization or their sense of belonging (Cho et al., 2011). Identifying with one's organizations can also contribute to more effective internal communication among employees allowing for a more effective work environment (Dutton, Dukerich, & Harquail, 1994). Subsequently, Cho et al., also discovered a link between organizational identification and job satisfaction (2011). Essentially, they conclude that "unlike

most previous studies presenting negative effects of communication overload, this study demonstrated that communication overload indirectly and positively affected job satisfaction, being mediated by organizational identification" (Cho et al., 2011, p. 52). In turn, being satisfied with ones job and feeling a sense of identity and belonging to the organization contributes to more effective employees and thus a more productive workforce.

In essence, Cho et al., (2011) argue that for the individuals who thrive on receiving large amounts of information at once, the occurrence of overload actually has the potential to increase the extent to which they identify with their organization. Essentially, for these particular individuals the more information they receive the more they are able to understand and identify with their organization, and the more they identify with their organization the more productive they will be.

But through what methods are individuals receiving the information that will subsequently increase their identification? Cho et al., (2011) found that "the use of high synchronous channels [like FtF] predicted organizational identification more strongly that the use of low synchronous channels" like email (p. 51), and that the use "of low synchronous channels [like email] predicted their perceptions of communication overload more strongly than their use of high synchronous channels" like FtF (p. 51). Seemingly, individuals who use FtF communication more often identify more strongly with their organization and also feel less overloaded than those who use email (Cho et al., 2011). Fundamentally,

> when considering the larger effect of high synchronous channels on organizational identification, employees' greater use of high synchronous channels (i.e., departmental meetings, supervisor meetings) are potentially more useful for increasing their

> organizational identification than low synchronous channels, such as email. (Cho et al., 2011, p. 50)

Perceptions Regarding Productivity and Changes in Communicative Behaviours.

As has been established, the use of communication technologies within the workplace have increased the amount of information and messages being exchanged. However, transformations in the amount, format, and flow of information are not the only changes that have presented themselves due to the influence of technology. Technologies have also drastically changed the dynamics of human interactions and relationships within the workplace as well (Lee, Shin, & Higa, 2007). Based on this research it seems that modern workplaces have been bombarded with so much technology that individuals now interact with and relate to one another differently than before (Lee et al., 2007). As individuals communicate with one another almost entirely through the medium of computers a form of technological dependence has surfaced especially in the workplace.

This dependency on technology has resulted in changes to the social patterns and changes in the communicative behaviours of individuals. For the purpose of this study *changes in communicative behaviours*, was conceptualized as the intentional and unintentional behavioural changes that occur in the face of information overload (Skovholt & Svennevig, 2006). This includes those behaviours purposefully enacted by individuals to counter act overload and those behaviours that occur as an unintentional consequence due to experiences of information overload. These changes have arisen not only due to the frequent use of technology but also due to the need to adapt one's behaviours to function more productively in a technologically driven environment (Skovholt & Svennevig, 2006). Essentially, in the face of technology individuals

have begun to apply new social practices and forms of behaviours in order to work effectively and to communicate more efficiently with others (Skovholt & Svennevig, 2006).

A large portion of these new behaviours are intended to not only help individuals communicate effectively and more efficiently with one another but they are intended to help individuals cope with the overloads of information that have become so common in our workplaces (Skovholt & Svennevig, 2006). By adapting to new technologies, the resulting influx of information, and in efforts to avoid overload, we have begun to establish new communicative behaviours and social practices in order to remain efficient and manage the continual flow of messages that graze our inbox (Skovholt & Svennevig, 2006).

Fundamentally, it has been found that the evolution of CMC in the workplace requires the development of new norms or standards for communicating (Skovholt & Svennevig, 2006). In fact, some workplaces have even developed specific initiatives to help their employees to better cope with overloads of emails by enhancing their "knowledge and readiness to use functions that permit a more efficient handling of incoming emails" (Soucek & Moser, 2010, p. 1459; Ducheneaut & Watts, 2005; DeSanctis & Monge, 1998). These "training interventions" (p. 1465) teach individuals new competencies for how to manage their workflow, such as filing emails by level of importance rather than by date, or by separating mass 'cc emails' from others that are solely addressed to the individual (Soucek & Moser, 2010). In addition, by enhancing these competencies and by teaching individuals more efficient methods for dealing with influxes of information their experiences of overload should decrease (Soucek & Moser, 2010).

However, it is important to note that training does not begin from scratch and that these new methods build upon the individual's already existing behaviours or "self-management techniques" (p. 1459) that are pertinent to their specific position (Soucek & Moser, 2010).

Furthermore, while every individual's case is different so too is every workplace, thus this form of training "not only presents various technical means for coping with a high amount of incoming information but encourages the participants to decide what functions would be useful at their particular workplaces" (Soucek & Moser, 2010, p. 1459). Deciding which 'functions' depends on the type of work the organization does, the type of information it disseminates and the types of publics it deals with. It is important to note that not only are these factors dependent on the internal culture of the organization but they are also dependent on the culture surrounding the organization as well, as culture and context largely affect the "the social norms of interaction in CMC" (Kupritz & Cowell, 2011, p. 63).

In addition to training workplaces have begun investing in other new technologies and new IT systems to improve their productivity, however, as some studies have shown these investments do not always produce their desired results, in fact in many cases technology is the entity responsible for lower levels of workplace productivity (Wet & Koekemoer, 2016; Karr-Wisniewski & Lu, 2010). A reason for this is 'technology overload,' synonymous with information overload, which occurs when the addition of too much of one thing becomes counterproductive (Karr-Wisniewski & Lu, 2010).

Generally, productivity is referred to as "the ratio of output and input" (Hung, Chen, & Lin, 2015, p. 145), where the output must outweigh the input required to accomplish it. For the purpose of this particular study *organizational productivity* was simplified and conceptualized as the degree to which employees perceive that tasks are being accomplished and goals are successfully met in a timely fashion (Garrett & Danziger, 2007). Research has even shown that an individual's perception of overload was associated with lower levels of overall performance (O'Reilly, 1980) and thus productivity. This occurrence is also known as the "Productivity

Paradox" a term coined to describe the absence of a relationship between investing in IT and productivity (Karr-Wisniewski & Lu, 2010, p. 1061). While the consequence of overload on organizations has been shown to affect their bottom line there are also consequences felt upon the individual as well. Some individuals experience a type of stress as a result of their use of and dependency on technology called 'technostress' and according to some researchers this type of stress felt among employees is also a contributing factor to a decrease in productivity (Ragu-Nathan, Tarafdar, & Ragu-Nathan, 2008; Karr-Wisniewski & Lu, 2010). Ironically, while organizations continue to invest in cutting edge information technologies to improve their productivity and efficiency their employees are "reverting to low-tech ways of regaining their productivity" (Karr-Wisniewski & Lu, 2010, p. 1061). These low tech ways include changing our behaviours to work more efficiently with the technology around us.

Furthermore, in regards to the social aspects of communicating through these technologies "it is estimated that there are hundreds of millions of Internet users creating new social situations and communication behaviours today" (Santra & Giri, 2009, p. 101). However, it is not just the behaviours that are changing due to increased technology use and increased information flow, relationships are also changing. Research has found that along with changing how we communicate technology is changing the dynamics of our relationships too, technology is enabling new ways of exchanging messages, interacting with others, and building relationships (Santra & Giri, 2009). Essentially, "CMC is contributing to new forms of interaction in organizations that blend email, instant messaging, face-to-face, and telephone communication for internal and external interactions" (Kupritz & Cowell, 2011, p. 55).

But these relationships are not just limited to inside the workplace, technology has allowed organizational or workplace relationships to extend beyond those immediately around

you. New technologies have expanded an organization's reach and thus their relation to the outside world, "people elsewhere in the organization and outside the organization [comprise] a substantial amount of [social] interactions" (Quan-Haase & Wellman, 2004, p. 253).

It goes without saying that the further the reach of technology the larger the extent of its influence on our behaviours and on our relationships. Individuals are spending more and more time interacting with their computer than with other human beings, and this is having an effect on the way we interact with others (Kupritz & Cowell, 2011). In essence, "it is not uncommon to find that colleagues sitting in an office just next door prefer sending emails instead of getting up and walking over to talk FtF" (Santra & Giri, 2009, p. 107). In fact, Turkle (2011), believes that individuals use email interactions more often as this type of communication leaves them less vulnerable than if they were to communicate FtF. Specifically she suggests that email provides us with the ability to "feel protected and less burdened by expectations" (Turkle, 2011, p.188). As a result of continually choosing to communicate by mediated means, Turkle argues that we have also now begun to see FtF, or even telephone conversations, as largely "intrusive" on others (2011, p. 206). By choosing not to communicate with others through these 'intrusive' means individuals have begun to alienate themselves from others both inside and outside of the workplace (Hewitt, 2006). Based on all of these findings it has become clear that modern advances in CMC have significantly changed our interactions with others (Santra & Giri, 2009). Furthermore, dependency on technology in the workplace has altered employee communicative behaviours so much that many individuals prefer to interact with a computer than with another human being (Turkle, 2011). CMC has redefined relationships and reconceptualised how people interact with one another (Pauley & Emmers-Sommer, 2007)

Theoretical Perspectives

For the purpose of this study, two theories depicting an individual's orientation towards various types of communication technology were discussed. The first of these theories is Media Richness Theory (MRT), which originated with Daft, Lengel and Trevino (1987), and Daft and Weick (1984), and aligns different methods of communication on a continuum from 'lean' to 'rich' and proposes that an individual selects a communication medium (email or FtF, for example) based on its objective characteristics and also on the type of information that is being communicated. Aligning the information that one wants to exchange with the appropriate or valid medium ensures a more effective communicative exchange and thus a more productive workplace.

The second theory to be discussed is Social Influence Theory (SIT), which was largely derived from Bandura's (1986) work on social learning (Fulk, Schmitz, & Steinfield, 1990; Stephens & Davis, 2009). This theory is in direct contrast to MRT as it suggests that the choice of which communication medium to use is not based on its objective characteristics but on an individual's subjective opinion of the mediums' objective qualities. SIT suggests that an individual's opinions are based on what they learn about the medium from their environment and from the behaviours of those around them (Stephens & Davis, 2009).

While these two theories, MRT and SIT, may stand in opposition to one another regarding how an individual typically selects a particular media over another, they are often applied together, especially when exploring electronic methods of communicating in an organizational setting (Hill, 2007; Lee & Lee, 2009). In fact, Hill proposes that the increase in application, regarding MRT and SIT specifically, is a reflection of the relationship between the use of technology in the workplace, and the advancement of organizational communication theory in that area (2007).

Specifically, MRT and SIT were employed within this study as their validity and credibility as proper theoretical framework has already been established (Hill, 2007; Lee & Lee, 2009). Additionally, employing these theories within this study allowed for its findings to contribute to the growing body of literature surrounding organizational communication and the use and influence of CMC.

Hill stated that as the study of email exchange within the workplace pertains to both interpersonal communication as well as mass communication areas of research, there is a need for further examination that combines organizational and mass communication theories, where media richness and social influence are specifically referenced (2007), as is a premise of this study.

In summary, with regards to this particular phenomenological study; exploring experiences of information overload: the influence of computer-mediated communication in the workplace, these two theories were considered for two reasons. First, because of their previously established relevancy within organizational communication research they ensure a valid theoretical framework, and secondly they were considered because each theory has implications from the perspective of one of the two primary constructs being discussed within this study. MRT has implications for productivity while the second theory, SIT, has implications for communicative behaviours. Essentially, each theory proposes that an individual chooses a particular media over another for different reasons; MRT proposes choice is based on the individual's desire to reduce uncertainty, while SIT proposes that choice is based on social influence and examples within the environment. However, the goal of these two theories is ultimately the same, to achieve an accurate and efficient exchange of information. Within MRT when attempting to manage information overload we assume that choosing media that is higher

on the richness scale will ensure a more efficient and more productive exchange, and within SIT we assume that there must be some validity and reliability in the observed choices of others and so we choose to replicate their communicative behaviours to manage our experience of information overload. A flow chart demonstrating this connection can be found within Appendix A.

media richness theory (MRT). This theory dictates that not every available communication medium is appropriate, or well suited, to transmit just any kind of information (Daft & Lengel, 1984). Rather, certain types of information are better transmitted over certain channels depending on their content and context, where the ultimate goal is to reduce uncertainty and equivocality in communication (Kupritz & Cowell, 2011).

MRT places media technology, and other methods of communication on a continuum from 'lean' to 'rich' and discusses the need to use certain types over others depending on the type of information being exchanged or the task at hand (Timmerman, 2002). Weick (1979) hypothesized that an important element in "managing an organization is to reduce uncertainty and equivocality in communication" (Kupritz & Cowell, 2011, p. 59). It was thought that the best way to do this was too use 'rich' forms of media rather 'lean' ones.

According to Cameron and Webster (2005) "rich media are those that provide instant feedback, allow verbal and non-verbal cues, use natural language, and convey emotion," (p. 91). Consequently, when compared to FtF interactions "email is traditionally considered a lean medium" (Skovholt & Svennevig, 2006, p.44). Email is considered lean as it leaves messages open to multiple interpretations, provides delayed feedback, and does not allow for the non-verbal transfer of cues (Cameron & Webster, 2005). Like email, IM also does not allow for non-verbal transfer of cues, however it is generally regarded as being a richer medium as it allows for

more immediate feedback as the users generally need to both be present or 'logged on/signed in' at their computer to use it (Cameron & Webster, 2005). Based on these explanations and previous discussions of synchronous versus asynchronous communication, it can be concluded that 'rich' media, like FtF, encompass more synchronous types of communication while 'lean' media, such as email, encompass asynchronous types of communication.

But how does this theory relate to information overload and productivity in the workplace? When individuals use higher synchronous channels, like FtF communication, they feel less overloaded than when they use lower synchronous channels, such as email (Cho et al., 2011). This finding can be attributed to the specific characteristics that higher synchronous communication offers, such as instant feedback. In this sense a rich or synchronous medium, like FtF, provides individuals with immediate fulfillment of their needs, while lean or "lower synchronous channels are considered less rich...and do not satisfy a human's natural inclination to communicate simultaneously" (Cho et al., 2011, p. 49). Email also allows for multiple messages to be delivered at the same time, predicting that the more email an individual receives the more likely overload will occur (Cho et al., 2011). As email is often considered less personal as it filters out social presence, tone, and other non-verbal cues normally present within a FtF interaction, MRT dictates that it is only suitable for unambiguous information and that it is an "inappropriate medium for managing equivocal communication tasks" or detailed information (Skovholt & Svennevig, 2006, p. 44). In contrast, as FtF ranks high on all objective points of the continuum, such as providing quick feedback and verbal/non-verbal confirmations, increasing the occurrence of FtF communication in the workplace can "most likely reduce the likelihood of communication overload" (Cho et al., 2011, p. 41). Furthermore it was also found that the further

away people stray from these inclinations, and use lower synchronous channels to communicate, the more they will feel overloaded (Cho et al., 2011).

In order for a workplace to function effectively and productively it is important that individuals make the right choice when it comes to selecting a particular medium for a particular type of task. For example, when attempting to clarify uncertainty within an exchange some individuals would simply try and supply more information through the same channel, however, it has been found that the best way to clarify ambiguous information is to use a 'richer' form of communication (Van den Hooff, Groot, & De Jonge, 2005). What remains important is for individuals to be able to select, from the tools they have available, the best method through which to communicate their intended message (Argenti, 2003). There must be an 'optimal fit' between the required information and the medium one chooses (Daft & Lengel, 1984). Choosing the wrong medium could even result in lower levels of productivity as the needs of the task cannot be fulfilled (Van den Hooff et al., 2005).

It would seem that many of the findings within these studies would suggest that organizations would be better off using FtF communication to conduct their business rather than email, however, most research does not go so far as to advocate for this entirely. Santra and Giri (2009) agree and state that while there is "no doubt [FtF] communication is one of the richest media of communication" with "the expansion of organizations and remote working locations, meeting [FtF] on a regular basis is neither economically feasible nor time saving" (p. 106). Therefore, based on efficiency, convenience, as well as savings in time and cost, organizations will continue to depend on the use of CMC to conduct a large number of their daily operations (Santra & Giri, 2009).

However, other research has shown that organizational effectiveness does not have to entail choosing one medium over another. Cho et al. (2011) discuss potential solutions to improving information management and overload in the workplace that do not rely on either synchronous or asynchronous channels alone. In fact, "it is recommended that practitioners encourage their employees to use more diverse communication channels for information exchanges" by incorporating both types together (Cho et al., 2011, p. 50). This recommendation is also similar to Argenti's (2003) view for the possibility of a more balanced approach to communication. Individuals, being well versed in the benefits of various communication mediums can, for themselves, choose to combine the most appropriate methods together in order to communicate their particular message more effectively (Argenti, 2003). Incorporating the "high-tech and sophisticated" features of email with the "personal contact" of FtF interactions allows for a more balanced style of communication (Argenti, 2003, p. 139).

Similarly, some research has shown that using complementary ICTs, such as email and IM, in succession can lead to more effective, and productive, communication (Stevens & Rains, 2011). Complementary ICT use is defined as "a specific class of sequential ICT use where the second, or successive, ICT has different yet modality-expanding capabilities" (Stephens, 2007, p. 104). Complementary ICTs must differ in some way from each other otherwise the receiver may dismiss the message as simple repetition (Stevens & Rains, 2011). The ICTs may differ in numerous ways some of which can be in visual, auditory, or textural properties (Stevens & Rains, 2011). For example, a FtF message (visual/auditory) can be complemented with a successive email (textural) or vice-versa, increasing the chance that the message will not only be received but that it will be attended to, rendering the complementary process more effective than a repetitive process (Stevens & Rains, 2011).

This study also found evidence to support the notion that not only does complementary ICT use result in increased effectiveness but it also results in fewer feelings of overload among participants when compared to the repeated use of the same ICT (Stevens & Rains, 2011). In this case overload, or when people have more information than they can handle, occurs more frequently when an individual is inundated with repeated messages brought forth by the same ICT than they are when the ICTs used are different and complementary (Eppler & Mengis, 2004). In fact, it was found that an email-email exchange resulted in more perceptions of overload than a FtF-email or an email-FtF exchange (Stevens & Rains, 2011). There was also no significant difference in perception of overload between email-email exchanges and FtF-FtF, meaning that overload can occur regardless of the mode of communication as long as it remains repetitive and not complementary (Stevens & Rains, 2011). Findings such as these undoubtedly have implication for productivity as working in a more effective, and less overloaded communication process, will result in a more productive work environment.

While Trevino, Daft, and Lengel, (1990) found that media choice is dependent on the type of information being exchanged, another study found that symbolic and situational cues found within the environmental play a part in media selection as well (Kupritz & Cowell, 2011). And so leads the discussion of theoretical influences of CMC into the social realm, specifically Social Influence Theory (SIT).

social influence theory (SIT). Social learning is yet another "theoretical perspective that suggests the origins of our communication styles lie in what we learn, directly and indirectly, from other people" (Beebe et al., 2007, p. 59). This theory suggests that "in addition to objective media characteristics, media selection is influenced by the subjective perceptions of users and information from others in an organization" (Timmerman, 2002, p. 112). Essentially, as we

attempt to manage overloads of information we alter our communicative behaviours to better cope with excessive messages, and we base these behaviours on what we learn and perceive from others (Stephens & Davis, 2009). We see how other individuals deal with loads of information and how they consciously adapt their behaviours to work more productively, such as multitasking or addressing mass audiences through email 'CC's' rather than single individuals FtF.

Social Influence Theory (SIT) "highlights the important role that others-such as coworkers and managers-play in how people use" communicative technologies (Stephens & Davis, 2009, p. 66). This theory is used to discuss how we observe others' use of media in the workplace and how we incorporate/internalize their choices and practices into our own behaviours. Fundamentally, this theory dictates that technology use is dependent on user's subjective attitudes towards a medium's objective characteristics, the perceptions and attitudes that others have regarding the medium, past experience with the medium, and information or observations gathered from the surrounding environment regarding its use (Timmerman, 2002).

Employees do not simply choose to use particular forms of CMC because they are there; they choose to use them because others around them are using them as well (Kupritz & Cowell, 2011). Choosing to use email, or IM, has developed into a habit or an everyday ritual that is becoming increasingly natural with each passing year (Kupritz & Cowell, 2011). As previously discussed, CMC has established itself as the new standard method of communicating within the workplace, every person uses them to some extent or another, and as such using them is no longer cutting edge or advanced, rather using these technologies has become the habitual norm in today's workplaces. Employee's continually and habitually use "computers for many tasks and they regard computers offhandedly as routine means of communication rather than exotic media

for special circumstances" (Quan-Haase & Wellman, 2004, p. 14). However, as these new methods of communication increase in use new communication challenges and obstacles appear. Individuals are receiving more and more information in more and more ways from more and more people. The challenge comes when trying to integrate new and evolving technologies into existing work practices while dealing with increasingly large amounts of data and information (Kupritz & Cowell, 2011). As individuals begin to learn and adapt to new technology it is inevitable that there will be a period of adjustment. These adjustment periods are filled with miscommunication and misunderstandings as the "depth and interpretations of this information has diminished" (Kupritz & Cowell, 2011, p. 56). Overload can also occur when there is too much information to sort and too much information to process. Productivity levels also decrease when employees spend more and more time "reacting to interruptions and distractions" rather than to the task at hand (Kupritz & Cowell, 2011, p. 56).

Chapter 3: Methodology

Philosophical Perspectives

Creswell (2009) suggests that it is a mistake not to recognize the philosophical roots of the methods a researcher chooses to use. He argues that philosophical perspectives "still influence the practice of research" and therefore need to be addressed appropriately (Creswell, 2009, p. 5). Creswell further states that the essence of phenomenological research is to understand the lived experiences of others, which designates "phenomenology as a philosophy as well" as a method of research (2009, p. 13). Current phenomenological methods, especially transcendental phenomenology, are based largely on the writings of Edmund Husserl (1859-1938), a German mathematician, and others who have since expanded on his views (Creswell, 2007). Those discussed within this study are Moustakas (1994), Stewart and Mickunas (1990), Van Manen (1990). However, the primary philosophical perspective considered within this study was Moustakas' (1994) elaboration of Husserl's transcendental stance.

Transcendental phenomenology was chosen as it generates a "description of the universal essence" of the phenomenon for the reader rather than an external interpretation made by the researcher (Creswell, 2007, p. 58). This 'essence' is an integral part of phenomenological research as it provides the reader with a real in-depth understanding or 'grasp' of the experiences of others (Moustakas, 1994; Van Manen, 1990). The roots of this perspective are based on Husserl's assumption that the most important fact in the universe is the notion of human "awareness" as it relates to human-consciousness and subjectivity (McCall, 1983, p. 55). Through human consciousness comes meaning and the search for knowledge, and "it is the appreciation and elucidation of this fundamental truth that constitutes the heart and soul of Husserl's philosophical mission" (McCall, 1983, p. 56). It was from the combination of, and the

relationship between these notions that ultimately resulted in Husserl's transcendental phenomenology, which were later expanded upon by Moustakas (McCall, 1983).

As Husserl notes, meaning is derived from our consciousness which is why the philosophical perspectives noted above were deemed appropriate for this study (McCall, 1983). Essentially, communication technologies, such as CMC, have come to influence how we consciously perceive the world around us (Finlay, 1987). Technology in itself has become a mediator between an object and an individual's experience of it, in fact "new communications technology interposes itself between our perception and the world" (Finlay, 1987, p. 126). Technology affects what we perceive, what we experience, and how we experience things, and without it our understanding of events, or the world around us, may be quite different (Finlay, 1987). As the goal of phenomenological study is to unearth the shared meaning of an event or occurrence it is important to note the ways in which events or experiences enter our consciousness, through technology.

Furthermore Creswell (2009) proposes focusing on worldviews or "general orientations about the world and the nature of research" (p. 6). One such worldview is the social constructivist view, where "the goal of the research is to rely as much as possible on the participants' views of the situation being studied" (p. 8), quite fitting for phenomenological research (Creswell, 2009). Creswell also states that "constructivist researchers often address the processes of interaction among individuals" (p. 8) therefore, this view has been deemed appropriate as one of the goals of this study is to describe the online interactions of employees (Creswell, 2009).

Research Strategy

Through a qualitative, phenomenological approach, this study examined the influence of computer-mediated communication (CMC) within a workplace setting and employee experiences of information overload. Specifically, this study explored the influence that overload has on organizational productivity and the changes that occur in regards to the communicative behaviours of federal public service employees. As is the goal of phenomenology this study aimed to describe "the meaning for several individuals of their lived experiences" (p. 57) of a phenomena (Creswell, 2007). In this case the description sought would uncover the shared meaning behind experiences of information overload among employees by exploring their personal accounts of using CMC in their workplaces (Creswell, 2007).

Phenomenological research can take on two main forms: hermeneutical and transcendental/psychological phenomenology (Creswell, 2007; Moustakas, 1994; Van Manen, 1990). While Van Manen's (1990) writings on hermeneutical phenomenology center on researcher interpretation, or one that 'mediates' between different meanings, Moustakas' (1994) take on Husserl's transcendental or psychological phenomenology, focuses "less on the interpretations of the researcher and more on a description of the experiences of the participants" (Creswell, 2007, p. 59). For the purposes of this study the researcher chose to employ a transcendental stance as it describes for the reader "what all the participants have in common" regarding a particular phenomenon, in this case experiences with CMC and the occurrence of information overload (Moustakas, 1994; Creswell, 2007).

Sample and Participants

Within any phenomenological study it is essential to ensure that all participants have experienced the phenomenon in question, therefore, criterion sampling methods, or selecting participants based on certain criteria, were deemed most appropriate for this study (Creswell,

2007). Criterion sampling, or what Nardi (2006) also refers to as a form of non-random purposive or judgmental sampling, is employed when there is a specific reason to select certain individuals, such as ensuring that they all work within the same organization, that they all use CMC, and that they have all suffered from some degree of information overload in the workplace at one time or another. Sampling individuals based on these criteria also ensures that all of the individuals will share some similar characteristics in common with each other (Nardi, 2006); ideal for phenomenological study.

Before participant selection even began it was assumed that all individuals working in an environment such as the federal public service would have, to some degree, experienced information overload in their lifetime. While individuals are distinct from one another in their abilities to deal with information, the increasingly high levels of communication apparent in every workplace make it hard pressed "to find anyone fairly well educated and broadly concerned who was not in some way or at some time suffering from information overload" (Klapp, 1986, p. 98). It is also important to note that the focus of this study was not to assess the worst, or most severe cases of information overload, but to gain an overall description of the shared experiences that individuals within the same organization have in common.

The researcher chose to sample within the Canadian Federal Public Service as she has previously been employed with them and can therefore confirm that they meet the specific sampling criteria listed above. While some of the government's various individual departments may be structured somewhat differently than others the computer-mediated communication systems found within them generally remain consistent from one to the other. Most departments are provided with the same computers and the same software systems and are equipped with the same type of email and/or IM programs. Therefore, even if the researcher chose to interview

individuals from different departments their overall communication network would still be the same. Within phenomenological study shared physical locations among participants are not as important as shared experiences (Creswell, 2007). Rather than simply being situated in the same environment phenomenological research prefers its participants to "be individuals who have all experienced the phenomenon being explored and [that] can articulate their lived experiences" (Creswell, 2007, p. 119). However, for convenience purposes participant selection was limited to those within the National Capital Region (NCR).

Another reason to employ this type of purposeful sampling within a phenomenological study is to ensure that there are consistencies within the sample. In essence, as each participant works within the federal public service using roughly the same types of computer systems to communicate, the researcher is able to assume that the individual experiences of each participant will have aspects in common with the others. Of course as with almost everything in this world there are some exceptions to this. For example departments such as Fisheries and Oceans Canada, or Correctional Services Canada are structured and function within a different type of environment than most others. However, as previously stated the focus of this study was to assess the similar and shared experiences that individuals have with the technologies available to them in the workplace and not their workplace environment itself.

Choosing employees from different departments within the same overarching organizational environment also ensured that the experiences of these individuals were not department specific and therefore did not represent any one specific context or location. Furthermore, to ensure that the experiences of the participants were not specific to a particular type of employee or to a specific employee level, unified classifications and ranks were not required among the sample. In fact, diversity among employee position types was deemed more

appropriate so as to ensure that experiences were not representative of only one particular niche of employees. While some researchers would classify this procedure as a tool to ensure generalizability of the results this researcher acknowledges that within qualitative research the ability to apply findings gathered from one group onto another is generally unfeasible. However, within this type of qualitative study a certain degree of knowledge transfer is possible. While generalizability is not usually applicable in qualitative study, transferability is (Erlandson, Harris, Skipper, & Allen, 1993). Transferability is defined as the extent to which knowledge and information gained within one study "can be applied in other contexts or with other respondents" (Erlandson et al., 1993, p. 31). While the participants and the phenomena under study in this case may not be a precise reflection of the views of the larger population the results obtained here can serve as an "example within a broader group and, as a result, the prospect of transferability should not be immediately rejected" (Shenton, 2004, p. 69). For further differentiation between generalizability and transferability see the *Validation Strategies and Ensuring Trustworthiness* section.

In order to generate an appropriate sample that would adhere to the phenomenological requirements described above the researcher chose to enlist a specific type of purposive sampling, called snowball sampling. Snowball sampling is a type of criterion based selection, where a handful of possible participants are first identified "through some personal contacts or organizations" known to the researcher (Nardi, 2006, p. 120). As the researcher has already worked for the federal public service before generating a usable sample from previous contacts was deemed quite feasible.

First, the researcher compiled a personal list of their former co-workers within this organization to solicit. The list consisted of only individuals who were full time employees in the

NCR and those who have worked within the federal government for more than two years. As previously stated their classifications and ranks were not pertinent and therefore the list consisted of individuals from various fields of specialization and within various levels of their career. For example, individuals from Finance (i.e. FI) or Communication (i.e. IS) specialities, from entry level (i.e. 1) or management (i.e. 5 or 6) were deemed equally suitable for study. Two individuals were then randomly chosen from this list to contact by email. Each individual was forwarded the study's *Letter of Solicitation* found in Appendix B. Next, if the individuals agreed to participate the researcher then forwarded them a *Letter of Consent,* and participants were asked to review, sign, and return it upon their scheduled interview if they chose to accept. This form can also be found in Appendix C.

Next, in order to gather more participants the researcher requested that each willing participant provide the names and email addresses of three other individuals within the federal public service that could also be contacted for possible participation in this study. As previously established, it was assumed that all those working within similar workplace environments would have experienced the phenomena in question to some degree and each contact would therefore be eligible for participation. This practice of selecting participants based on certain similarities is customary within all phenomenological research. It is essential that all of the participants share something in common with one another; an experience, that they can openly and outwardly discuss with the researcher (Nardi, 2006). Once the researcher obtained a list from each participant she then randomly drew one name from each list to contact by email. The researcher then repeated this step at the end of each interview and the amount of potential participants then grew, or snowballed, from there until an appropriate number of participants was generated. This

process just described is the essence of snowball sampling and is how the researcher was able to obtain an adequate sample size starting with only two contacts.

This method of building a larger sample from a few initial participants is also a convenient way to make contact with possible participants who have experienced the phenomena without having to sample an entire population of public servants. The researcher decided to limit the sample to ten individuals as, according to Dukes (1984), a sample of 3-10 participants is generally recommended for phenomenological research. Selecting ten individuals allowed the researcher to gather as much descriptive information as possible for future data analysis and interpretation.

Role of the Researcher

As previously discussed in the *Research Design* section, within transcendental studies it is extremely important for researchers to consider their own experience with their particular topic and to clarify any biases that may be present so as not to influence their accounts of the findings (Creswell, 2007). The way in which the researcher clarified, or set aside, any biases was by documenting personal experiences with CMC in the workplace and any resulting occurrences of information overload. Documentation was obtained through the use of a personal research journal/diary that the researcher contributed to frequently.

Much like Pearce believes, this diary allowed the researcher to "ensure against any interference" that their emotions or experiences could cause (2010, p. 4). The diary also provided the researcher with a means of expressing their particular thoughts and feelings throughout the entire research process (Pearce, 2010). This continual personal declaration was done with the intent to maximize "the bracketing that is essential to construct the meaning of participants in phenomenology" (Creswell, 2007, p. 142). Fundamentally, as the focus of phenomenology is to

assess the personal and unique responses of the participants without influence, the only way "to fully describe how participants view the phenomenon, [is for the researcher] to bracket out, as much as possible, their own experiences" (Creswell, 2007, p. 61).

Throughout the study the researcher also acted as the key data collecting instrument as information was solely acquired by this individual (Creswell, 2009). Further details regarding bracketing are provided in the *Data Analysis Procedures* section.

Data Collection Procedures, Instruments and Materials

As is customary in phenomenological research data was collected by the researcher through semi-structured in-depth interviews with participants (Creswell, 2007). The researcher and the participants met once in person for a 40 minute interview where the researcher took written notes of all responses/discussions and interviews were electronically recorded for accuracy. The specific instruments and materials that were used consisted of a list of interview questions to prompt discussion and an interview protocol form for recording the interviewee's responses and any other comments the researcher may deem noteworthy (Creswell, 2007). During the interview the participants were also provided with a list of the primary terms, or constructs, of this study and their general definitions. This list served as a tool of reference for the participants as well as a tool to spark further discussion if so desired by the researcher. The *Interview Questions* and the *Terms and Definitions* can be found in Appendix D and Appendix E.

Generally, within a phenomenology the goal of each interview is to uncover the answers to two broad overarching questions (Moustakas, 1994; Creswell, 2007). Within this study these questions related to the participants' use of CMC and their experiences with information overload in the workplace. Specifically, these questions consisted of *what do employees experience in terms of information overload in the workplace?* And *what contexts or situations*

do employees perceive to have influenced their experiences of information overload in the workplace? These questions are those that ultimately led to the textural and structural descriptions of the study, which are further explained in the *Data Analysis Procedure* section (Creswell, 2007).

Additional and more specific questions were also asked to guide the interviews and allow respondents to further elaborate on their experiences. Interviews such as these are often compared to an exchange or "a conversation in which the interviewer establishes a general direction for the conversation and pursues specific topics raised by the respondent" (Babbie, 2001, p. 336). This process allows for flexibility within the interview and it allows for the emergence of unique themes not restricted to the answers of the interview questions.

From these questions the researcher was then able to develop the essential, invariant structure of the study which is the "composite description of the essence of the experience for all of the individuals" (Creswell, 2007, p. 62). Further details regarding this structure have been provided in the *Data Analysis Procedure* section.

Data Analysis Procedures

The data analysis procedures for this study followed those developed by Moustakas (1994) and further expanded upon by Creswell (2007). As previously stated a very important first step in this process involved the researcher bracketing out any and all preconceived notions or experiences with the phenomenon in order to better understand the experiences of the participants (Creswell, 2007). The next step of analysis involved going through the data and highlighting 'significant statements,' or sentences that provide a description and an understanding of the personal experiences of the participants regarding the phenomena (Creswell, 2007). Moustakas refers to this particular process as horizonalization (1994).

Within the third step of analysis the researcher develops, from the significant statements, clusters of meaning which aid in transferring relevant units of information into themes (Creswell, 2007). Subsequently, the significant statements, the clusters of meaning, and the newly derived themes are then used to write a detailed description of *what* the participants experienced: a textural description (2007).

Once the textural description has been generated the researcher then moves on by seeking to establish the structural description. The method though which this second description is gathered is through the process of 'imaginative variation,' a method where the researcher seeks to gather various possible meanings through his or her own imagination and perspectives and are based on the data collected (Moustakas, 1994; Van Manen, 1990). While imaginative variation is predominantly used in Van Manen's (1990) hermeneutical phenomenology, Moustakas (1994) also utilizes imaginative variation to establish a structural description of "the context or setting that influenced *how* the participants experienced the phenomenon" (Moustakas, 1994 as cited in Creswell, 2007, p. 61).

Thus, while the textural description describes *what* the participants experienced, the structural description describes *how* the participants came to experience what they did (Moustakas, 1994). Once both a textural and structural description of the phenomenon have been established the researcher can then generate a "composite description that presents the 'essence' of the phenomenon, called the essential, invariant structure" (Creswell, 2007, p. 62). The invariant structure of a phenomenological study is the passage that focuses "on the common experiences of the participants... [ultimately] it means that all experiences have an underlying structure" (Creswell, 2007, p. 62). This essential passage is quite descriptive and once the reader has finished it they "should come away from the phenomenology with the feeling, 'I understand

better what it is like for someone to experience that,'" which is the ultimate goal of any phenomenology (Polkinghorne, 1989, p. 46).

Validation Strategies and Ensuring Trustworthiness

The validation strategies used within this study consisted of those put forth by Creswell (2007). According to Creswell at least two validation strategies should be applied within every research study to ensure its legitimacy (2007). For this study three strategies were utilized. These include member checks, clarifying researcher bias, and rich and thick description. In the same instance 'trustworthiness' was also generated in connection to these very strategies (Erlandson et al., 1993). Trustworthiness is characterized into four categories three of which relate directly to the strategies of validation chosen for this study: credibility (member checks), confirmability (clarifying researcher bias), and transferability (rich and thick description) (Erlandson et al., 1993; Lincoln & Guba, 1985). The three validation strategies as well as their corresponding category of trustworthiness are discussed below.

Firstly, member checking involved taking data "back to the participants so that they can judge the accuracy and credibility of the account" (Creswell, 2007, p. 208). This was achieved by forwarding each participant an electronic copy, via password protected email, of their interview transcript and allowing them to review their answers and quotations for accuracy. Significant statements were also included and were highlighted within the transcript for clarity and for the convenience of the participant. These statements are the most important (significant) part of the transcript as they are the statements which most accurately describe the personal experiences of the participant, and those that pertain to the research and interview questions.

At the same time, and in addition to reviewing their statements for accuracy, participants were also encouraged to edit and/or provide any additional information they deemed necessary

upon reflection. This was allowed so as to gather the most accurate representation of their experience. Participants were encouraged to provide their feedback directly to the transcript via the track-changes tool in MS Word and to forward it back to the researcher via email within the same password protected document, however, the researcher was also available to discuss feedback via email and/or telephone when necessary. Depending on the participants feedback data was adjusted accordingly.

Once any additions, subtractions, and/or adjustments were made to the interview information the researcher was able to finalize the data. Finally, from clarifying and finalizing data came the generation of phenomenological themes. Although themes were group based, individual participants were still asked to review those that pertained to them and to verify whether the themes represented the information they provided during the interview, and whether they act as a clear reflection of what they experienced. The *Member Checking Verification Form* can be found in Appendix F.

Ensuring that proper member checks were implemented also contributed to the 'credibility' of the findings or what Erlandson et al., (1993) deem the "degree of confidence in the 'truth'" (p. 29). When the researcher is able to return to the original source of data to confirm and/or disconfirm information a sense of credibility is given to the researcher's findings and their pursuit of the 'truth' (Erlandson et al., 1993).

Secondly, similar to Moustakas' (1994) concept of bracketing, and as discussed within the *Role of the Researcher* section, clarifying researcher bias was utilized to ensure that any biases or pre-judgments that the researcher may have would not influence the findings of the study (Creswell, 2007). Biases were clarified within a research journal throughout the entire study process. Contributing to this journal allowed the researcher to openly and honestly discuss

her personal experiences with information overload in the workplace and its influence on her perceptions regarding productivity and changes in her communicative behaviours. Such contributions allowed the researcher to distinguish between personal and participant perceptions.

The aspect of trustworthiness relating to clarifying researcher bias is known as 'confirmability' (Erlandson et al., 1993). Confirmability places a certain degree of importance on separating the researcher's perspectives from those of the participants. Confirmability is defined as the degree to which study "findings are the product of the focus of its inquiry and not of the biases of the researcher" (Erlandson et al., 1993, p. 34). Clarifying bias from the onset allows the reader to confirm for themselves the line separating researcher perception from participant perceptions.

Lastly, a strategy of rich and thick descriptions was also used to validate the findings. This strategy consists of a detailed and in-depth descriptions that allow the reader to be transported to the research setting "and give the discussion an element of shared experience" (Creswell, 2003, p. 196). By employing this method the results also become much more realistic to the reader (Creswell, 2009). This sense of realness also allows the reader to make certain generalizations about the data for themselves. While generalizability is primarily inapplicable within this type of study there are some contrasting views who suppose that a certain degree of generalizability is possible among qualitative study (Denscombe, 1998). As discussed in the *Sample and Participants* section of this study Lincoln and Guba (1985) have identified an alternative method for generalizing qualitative research as 'transferability' which places the responsibility of making generalizations in the hands of the reader. Simply, transferability "is an imaginative process in which the reader of the research uses information about the particular instance that has been studied to arrive at a judgement about how far it would apply to other

comparable instances" (Denscombe, 1998, p. 299). While this component may seem similar to the generalizability of findings that is possible within quantitative analysis it is important to note that transferability and generalizability differ (Twining, 1999). Generalizability dictates that the results of one study will be found within others while transferability allows for the knowledge discovered in one study to be applicable, and therefore able to transfer, elsewhere for utilization. Therefore, based on the data provided to the reader, and based on their particular individual perception of it, a small degree of generalizability may be possible in such qualitative cases.

Ethical Considerations and Ensuring Confidentiality

Considering the specific nature and design of this study certain ethical considerations needed to be addressed. First and foremost, the researcher made sure to follow all of the proper ethical procedures outlined by the University of Ottawa, the first of which is to apply for and be granted an *Ethics Approval Certificate,* which can be found in Appendix G. Next, before interviews could begin potential participants were provided with a *Letter of Solicitation* form detailing the purpose of the study, their role, and what the interview process would entail. This form can be found in Appendix B. Next, if participants chose to participate, they were then provided with a *Letter of Consent* to review*,* found in Appendix C, which explained the details of their voluntary participation, their right to withdraw from the study at any time, and their guarantee of anonymity/confidentiality. This form also provided contact information for the Protocol Officer for Ethics in Research at the University of Ottawa, should they have any questions or concerns throughout the research process. If participants agreed to the terms they were asked to sign the form and return it to the researcher upon their scheduled interview. Once the researcher took possession of the signed form data collection could begin.

The researcher made sure to guarantee the confidentiality and anonymity of the participants throughout the research process and stated so in the *Letter of Consent*. Once written consent had been obtained by the researcher each participant was provided with a code letter. Each letter acted as pseudonym and represented a different participant throughout the remainder of the study. For example, participants were no longer referred to by name within the written portion of the study but by pseudonym, for example, Participant A, Participant B, Participant C, etc. Only the researcher had access to the information required to connect each participant with their corresponding pseudonym. To further guarantee a sense of trust among the participants all personal data was securely and safely guarded throughout the research process. All written data were kept in the private home office of the sole researcher in a locked file cabinet. All electronic data and information were also kept on the researcher's private home computer equipped with password protection. Electronic data was also backed-up on a USB drive which was also kept locked in the same file cabinet as the written data. Once the study has been completed all of the information/data pertaining to it will be conserved for a minimum period of five years. Once this period is over all written information/data will be shredded and all electronic files will be securely deleted, and permanently erased from the researcher's home computer. In addition, as per the Faculty of Graduate and Postdoctoral Studies (FGPS) guidelines a copy of all data was kept on a second USB drive and was stored in the supervisor's office on campus and locked in a secure filing cabinet.

In order to ensure the safety and continued well-being of the participants a few extra ethical precautions were taken during this study. While the risk of stress or emotional discomfort was extremely low, as an extra precaution, the researcher checked-in with the participants periodically throughout the interview process to ensure that they are not experiencing any stress.

During these check-ins participants were once again fully informed that they are free to discontinue their interview or involvement in the study at any time if they were feeling uncomfortable. If a participant did experience discomfort or stress during the interview process due to a revelation of feeling overloaded at work their participation and their data were to be terminated. As a precaution any participants experiencing stress would have been referred to the University of Ottawa's Centre for Psychological Services for help.

Chapter 4: Findings and Preliminary Analysis

Bracketing

As previously discussed within the *Methodology* section the first step of analysis within phenomenological research involves bracketing (Creswell, 2007 & Moustakas, 1994). Stemming from Husserl's concept of 'epoche' bracketing occurs when the researcher suspends and puts aside their judgments regarding the topic under examination (Stewart & Mickunas, 1990).This process is necessary as it allows the researcher to bracket out any preconceived notions or biases with the phenomenon in order to better understand the experiences of the participants (Creswell, 2007).

Bracketing began during the initial stage of research, the proposal stage, well before participant data was collected. It was important to begin the bracketing process early as to prevent the personal views of the researcher from influencing the research and interview questions. It was also important for the researcher to remain as impartial as possible throughout the interview process so as not to influence or coerce the participant's responses.

While it has been established that participant perceptions are an integral component to uncovering the meaning behind a phenomenon it is also important to consider the perceptions of the researcher as well. Moustakas (1994) believes that when seeking to establish the 'truth' behind the participants' experiences it is essential to first begin with the researcher's perceptions of it. Fundamentally, within phenomenological practices the only way to fully understand the experiences of the participants is to first openly discuss the experiences of the researcher (Creswell, 2007).

Bracketing also serves as the primary platform used when assessing the validity of the data collected. Bracketing is an integral component to 'clarifying researcher bias,' a validation

strategy, that begins with the researcher openly and honestly discussing their experiences with the phenomenon. By identifying their own personal perceptions from the beginning the researcher is then able to make a clearer distinction between their views and those of the participants (Erlandson et al., 1993). A *Summarized Reflection of the Bracketing Process* can be found in Appendix H.

Participant Information

The data presented in the following analysis was attained through semi-structured and in-depth interviews with participants and subsequent follow-ups and member checks which took place between September 2011 and February 2012.

A total of ten participants were interviewed for this study, and all worked for the federal public service in the National Capital Region in and around Ottawa, ON. Participants were from various departments and these included Natural Resources Canada (NRCan), Human Resources and Skills Development Canada (HRSDC), National Defence Canada (DND), Public Works and Government Services Canada (PWGSC), Public Health Agency of Canada (PHAC), Department of Foreign Affairs and International Trade Canada (DFAIT), Industry Canada (IC) and Environment Canada (EC). Each department listed was represented by at least one participant while NRCan and PWGSC were both represented by two participants.

Participants varied in gender and in age, six were female and four were male ranging in ages between 25-38 years old. The average age for women was 30 years old and the average age for men was 34 years old. Positions or classifications also varied as well as employee levels. Participants represented a variety of different fields and specialities and these included Administrative Services Group (AS), Information Services Group (IS), Computer Systems Group (CS), Financial Management (FI), Library Science Group (LS), Patent Examination

Group (SG), and the Economics and Social Science Services (EC). Each of these classifications was represented by at least one participant as well, except for the AS, IS and LS professionals which were represented by two participants. It is important to note that participants within the same classification do not necessarily have the same position or title; classifications are an overarching term used to distinguish between different areas of professional expertise. For example, employees within the IS classification can hold various positions, such as in the case of this study, where P-B is a Communication Advisor while P-D is a Media Analyst, but both employees still belong to the Information Services Group classification.

Employee ranks, or levels, from 1-4 were present among the participants; these levels generally represent anyone from entry level positions to senior level professionals. While rank and level equivalencies do not translate evenly from one classification to another, this information is still relevant as it provides the reader with a clearer grasp as to the varying amounts of experience each participant has and an understanding of the degree of work they are responsible for. A summary table listing all pertinent *Participant Demographic Information* can be found in Appendix I.

Available Methods of Computer-Mediated Communication

In order to begin exploring the use of CMC in the workplace and the occurrence of information overload, as well as its influence on productivity and changes communicative behaviours, it is necessary to first establish which forms of CMC each participant has access to within their corresponding workplaces. While direct comparisons between those that have access to only one form of CMC rather than two will not be assessed this information provides context as to the source of the participant's unique experiences of information overload. *Figure 1* presents a list of the participants by pseudonym with a checkmark indicating the form of CMC

that is available to them. As expected every participant had access to email within their workplace while only four participants had access to IM.

Figure 1:

CMC Tools Available Within Each Participant's Workplace:

Participant	Email	IM
A	✓	
B	✓	✓
C	✓	✓
D	✓	
E	✓	
F	✓	
G	✓	
H	✓	
I	✓	✓
J	✓	✓

Themes

Four themes were extracted from the analysis; these themes describe the factors that contribute to the participants' experiences of information overload in the workplace. Listed below are the four themes, numbered in no particular order of importance.

1) constant communication
2) unpredictability
3) miscommunication
4) increased workload and responsibilities

constant communication. The first theme that was found to contribute to an employee's perception of feeling overloaded was the constant amount of electronic communication messages they would process-- sending and/or receiving-- in a given day. These communications could take on the form of either email or IM depending on the type of CMC tools available to each

participant in their particular workplace. *Constant communication* was regarded as the transfer of multiple messages through the "use of multiple communication media" such as email and IM (Sardeshmukh & Srinivasan, 2014, p. 46). The communication becomes constant as it must occur more frequently in order to "overcome the communication issues" (Sardeshmukh & Srinivasan, 2014, p. 47) that it has when compared to FtF communication.

While every participant reported feeling "bombarded" or feeling "overloaded" with all of the messages that appear in their inboxes they stated that the types of messages that they believed to be the largest contributor to their sense of feeling overloaded were the "not so important" messages (P-A, P-F) that are so frequently distributed around the office. While many participants noted that email is a convenient and efficient way to receive pertinent and relevant information, some also noted that a large portion of the emails they receive in a day are what they describe as "unimportant or irrelevant" (P-D, P-E). Furthermore, participants added that they believe the sheer amount of unimportant or irrelevant messages they receive in a given day is one of the most prominent factors contributing to their perception of feeling overloaded in the workplace. The most common example that was provided to describe these types of message were those that are sent department/division wide by CC 'Carbon Copy'. Participants regarded email CCs as "nuisance messages" (P-D, P-E) that are not addressed directly to an individual recipient but to multiple recipients and occasionally take the form of a general workplace memo rather than a directed inquiry.

A second example of the types of 'unimportant or irrelevant' messages that participants receive is what participants referred to as "I'm too lazy to get up or pick up the phone" messages (P-J):

> instead of someone taking the time to actually get up from their desks and ask me a quick question in person I will get email after email from coworkers asking about everything from 'would you like to go grab a coffee' to 'what time are you taking lunch' to 'did you see that game last night'...and it really tends to pile up. (P-A)

Participants noted that email has become the go to medium for "everything" (P-A, P-D), seemingly, "every random thought that pops in their head" (P-I) is electronically sent, whether the message is work related or not.

While sending an email containing a simple short request may not seem as though it would create an issue for the one receiving it, when these 'simple emails' are added to the already abundant amount of other potentially relevant or work related emails that an individual receives a problem does arise. It becomes increasingly more difficult for an individual to respond to email messages in a timely and productive fashion when the flow of messages into their inbox is constant and they are consistently required to process incoming information.

Participants with access to both email and IM within their workplaces reported that the majority of the messages they receive in any given day are by email, with a large number of those emails being classified as 'unimportant or irrelevant' as previously discussed. However, there were also instances in which a participant would receive the same types of 'unimportant' messages by IM as well, "my computer monitor has become a pop-up screen of random thoughts" (P-I). For this particular participant using IM in their workplace was generally designated for non-work related interactions with co-workers (P-I).

It is important to note that while participants believed that constantly receiving 'unimportant' messages was the largest factor contributing to their sense of feeling overloaded, receiving other rather 'important' messages also contributes to their perception of feeling

overloaded as well (P-A). While these messages may be relevant and work-related they can still contribute to the overall theme of constant communication:

> it seems as though there is always so much work to get done, I am constantly being messaged about various projects, and whether the message requires a detailed response or just a quick approval it takes up a lot of my time. It's so easy to send a message but it is not always so easy to respond especially when the messages just keep piling up and up. (P-I)

Undoubtedly, the constant flow of information in the workplace is contributing to an employee's sense of feeling overloaded, and this also has implications for participants' perceptions regarding productivity as well, both their own and that of the general workplace. The most succinct response provided by a participant that demonstrates this occurrence was simply "I feel very unproductive when I am overloaded with constant emails" (P-F). Furthermore, an employee's perception regarding the general level of productivity in the workplace is also affected; "sometimes I find it hard to believe that anyone around me is able to get anything done, their inboxes are like dumping grounds for every thought anyone else has had that day, it's hard for anyone to be productive in that situation" (P-J).

With regard to the changes in the communicative behaviours of participants when faced with constant communication, or the strategies they use to counteract information overload, some reported they do attempt to respond in a timely manner, however they are not able to address the message with their full attention, "if I am able to reply at all I skim through it and my response is very short" (P-E). Others wanting to give their full attention to the inquiry find it best to walk away for a moment (P-A, P-F) "when I feel overloaded I try and take a break from what I am doing and try to delete all of those non-essential emails and get back to it" (P-F).

When noting the unintentional changes that occur in behaviours, the participants who "skim" through the messages and provide "very short" responses admitted that they do not always reply in a positive manner (P-E, P-F). As these participants noted, when they feel overloaded with messages they tend to reply with very short succinct responses if at all, and when they do they recognize that their tone may seem "stressed or dismissive" (P-F) to the receiver. One participant who admitted receiving messages such as these discussed his frustration at receiving "a one sentence reply that doesn't even give me the answer I was looking for" (P-J), which then in turn causes this participant to send another inquiry which only adds to the constant communication in the workplace and creates the possibility of disturbing or interrupting the receiver again. The occurrence of interruptions within the workplace is discussed within the second theme of this study.

unpredictability. The second theme describing what the participants experienced in terms of information overload in the workplace builds upon the study's first theme: constant communication in the workplace. Specifically, constant communication in the workplace allows for interruptions to occur, ultimately contributing to an environment filled with distractions and unpredictability. Essentially, constant communication ultimately leads to constant interruptions as well, and the frequencies with which interruptions occur in the workplace ultimately contribute to an employee's perception of feeling overloaded. *Unpredictability* was defined as the synchronous and unplanned occurrences which hinder an employee from completing their task (O'Conaill & Frohlich, 1995). For example, as participants are required to attend to numerous messages throughout the day there are often instances when employees must cease their current task in order to process new messages. As a result of this they can become distracted from their work and their concentration can be disrupted. One example of this cited by

a participant was “when you get bombarded with a lot of emails, some relevant and some not, it can be a real nuisance when you are trying to concentrate” (P-C). Being distracted from work and being unable to stay focused ultimately increases the amount of time needed to complete a particular task, trying to manage multiple tasks with limited amounts of time ultimately contributes to their sense of feeling overloaded.

As technology has allowed us to communicate with others with such ease, whether through asynchronous or synchronous forms, email and IM respectively, expectations arise regarding the reciprocity of such exchanges. This sense of reciprocity is contributing to an employee’s experience of overload as some feel they are required to address communications immediately. Among the participants this sense of reciprocity or urgency was described as an “expectation of immediacy” (P-A, P-D, P-I), this expectation is both on the part of the receiver to respond promptly to the message, “people always expect you to get back to them right away” (P-A) and on the part of the sender “I like to be responded to as soon as possible...I find it frustrating when I do not hear back” (P-B). A lack of immediate response then leads the original sender to repeat their first message. At first, the repeated message is typically sent by the same medium and if a response is still not achieved then the sender will usually choose another method to communicate in hopes of eliciting a response that way (P-B). Unfortunately, however, sending repeated messages only contributes to repeated interruptions for the receiver.

Participants also felt that the unpredictability that comes from these frequent interruptions ultimately led to an unpredictable work day. At any particular moment one is unsure of what messages or tasks they may be required to address in the not too distant future; “I never know what’s going to come up, and because everyone can reach you at any time they want you’re

expected to reply right away, all the time" (P-A). This is leading to a climate of unpredictability among employees as they never know what could appear in their inboxes or on their IM screen.

Some of the methods, or behaviours, participants employ to manage this sense of unpredictability is to distance themselves from the communication and the possibility of being interrupted:

> I turn off my [IM] 'new message' pop-up notifications and do not look at the email window, one problem with this however is that if someone cannot get a hold of me this way they just try another way, like a phone call or they even stop by sometimes, so the interruptions don't really stop they just change forms. (P-C)

Seemingly, even when an employee attempts to manage their perception of feeling overloaded, they are sometimes approached through other modes of CMC or even non computer-mediated means of communication to elicit a response. Being approached in such a way leads the employee to engage in some behaviours that have unintentional affects:

> when someone comes by my door or calls me and says they tried contacting me through email but I didn't respond I tend to get very short with people, I find it very disruptive and annoying that when I'm trying to concentrate on something someone will just burst in, I can get pretty aggravated. (P-D)

As discussed within the first theme it becomes increasingly difficult for employees to regard themselves as being productive when they are continuously faced with constant communication. The very same can be said for constant interruptions in the workplace as well, "when I am being constantly interrupted I can't seem to get any work done...I do not feel productive in the least" (P-I). Furthermore, an employee's perception regarding the productiveness of their workplace in general comes into question as well, because how could an

environment plagued by unpredictability in addition to constant communication be conducive to a productive environment.

miscommunication. Another prominent theme that was found to contribute to participant perceptions of feeling overloaded was the occurrence of miscommunication in the workplace. As previously discussed within the Literature Review, the primary method of CMC used in the workplace, email, is not a simultaneous or synchronous form of communication, email is a delayed interaction and therefore does not provide immediate feedback. As a result, email allows for the possibility of misunderstandings or miscommunication to occur as employees can not immediately get the acknowledgement, confirmation, or clarification that is possible with synchronous forms of communication:

> I tend to experience a lot of miscommunication when interacting with my boss [through email], she doesn't always make herself clear so people always misunderstand her and then have questions. I find I usually have to contact her again to clear some things up but that just adds to the email traffic and doesn't guarantee I'll get the clarification I need....and when more people ask her for the same kind of clarification she just gets frustrated and then just wants to set-up a meeting with everyone which just takes up even more time. (P-E)

Essentially, *miscommunication* is a form of dysfunctional communication that occurs when there is a lack of constructive and reliable feedback accompanying the original message (Parsons & Urbanski, 2012). Furthermore, there is also a general lack of depth to that information as well, which would usually allow for a more valid interpretation of the information (Parsons & Urbanski, 2012; Kupritz & Cowell, 2011). And setting up a meeting simply to clarify some of

the information from an email is not a productive use of an employee's time, and attending these meetings only decreases the amount of time one can devote to completing their usual tasks.

In contrast to email being a catalyst for miscommunication in the workplace, some participants prefer to use email as a tool to prevent possible future misunderstandings (P-A, P-B). In fact, one participant believes that they can better explain themselves when communicating through email because they "get time to write out" (P-A) their response. Email also provides them with the "opportunity to think and review [their] message before pressing that final send button" (P-A). Therefore, email also has the ability to eliminate the possibility for misunderstandings to occur as one has time to write, reflect, and revise if need be. However, another participant stated that even though email may provide them with the ability to organize their messages there still lies the possibility for errors in communication to occur as "there is always room for misunderstanding when using email because you can easily misunderstand someone's tone" (P-B) or the underlying meaning behind their message. For one participant attempting to remain professional but efficient in their emails is actually creating a win-lose scenario:

> I find I spend a lot of time trying to watch my tone when I am sending as email, especially to a superior. You want to be concise and to the point but not rude, so I like to have the time to review what I wrote but then in the same sense taking too much time to get back to someone can be rude as well...sometimes you can't win. (P-G)

It seems that for this participant a considerable amount of their day is being spent reviewing their tone or sorting through and organizing information in hopes to avoid any miscommunications. This undoubtedly contributes to their workload and ultimately to their experience of overload as well.

increased workload and responsibilities. Another recurring theme that was found to contribute to a participant's perception of feeling overloaded was the increase in the amount of tasks that they are responsible for. As previously discussed, the amount of information circulating around the workplace is not the only thing that is increasing. More readily accessible, and easy to use, methods of communication like email and IM allow for more information to be circulated, which then must be processed which increases workload. Essentially, *increased workload and responsibilities* refers to an increase in the amount of tasks, and generally the types of tasks, which an employee is responsible for ensuring are accomplished successfully (Thunman, 2015). This then only adds to each individual's responsibilities, "employees are expected to focus on so many different things at once, that the workplace is not as efficient as it could be" (P-D).

Furthermore, organizations want employees to be more independent and to work more autonomously "but not in the sense that they don't want you working with others, they just want you to be able to be responsible for your own stuff from the start, through the approval process, and then on to the web" (P-D). It seems that organizations are increasingly requiring their employees to be a "one-stop shop" (P-D) of expertise. As there is more information and more tools available employees are expected to work more autonomously, processing information and managing tasks independent from one another, "I am finding that employees these days are required to know a lot about technology and they are also required to do a lot of their stuff alone"(P-D). In fact, one employee noted that there has been a "huge shift in [their] job description" (P-B) from when they started in their current position until now, "not only do I have to write the content [for the department's internal or external webpage] but now I have to publish it online myself, when I never got training to actually do that" (P-B). In the past organizations

would generally have separate teams or divisions that would be responsible for these tasks, but now as employees are expected to work much more autonomously from each other they are required to work independently as well, “we are all required to do our own web-work, I now need to know HTML [Hypertext Markup Language] and CSS [Cascading Style Sheets]” (P-A). It is as if organizations assume that all employees are up to date on all forms of CMC and its programs, and that they should know how to implement and use them effectively.

Essentially, as CMC technology is readily available in nearly every workplace there comes an expectation that all employees with access to the technology and its features will already know how to use it or its programs properly. However, this is simply not always the case, “they just assume that everyone will know how to use these [programs]...people are required to know a lot more about technology than they used to” (P-C). And when employees do not have the technical skills required in their position they must learn, either through self-teaching or formal training, which undoubtedly takes time away from ones tasks and responsibilities, adding yet another factor that contributes to their perception of feeling overloaded.

In some cases participants regarded this as a generational issue between the younger and the older employees. In a sense the workplace can be viewed as becoming more efficient and productive for younger workers as they enter the workforce already equipped with many of the skills they will require on the job, while at the same time the workplace is becoming less efficient and therefore less productive for older workers because they are continuously trying to learn and adapt to the new technological tools that are required to function in today’s modern workplace, “the technology is evolving faster than we can learn it...some people are being left behind” (P-H).

When any employee, whether they are older or not, is required to attend to many different tasks at once their degree of productivity could be affected. Furthermore, not only are they not working efficiently or productively but they are not working effectively either, having to focus on too many tasks at once renders the employee with a strong sense of overload and therefore unable to successfully, or effectively, complete a particular task. In a sense employees are becoming a "Jack of all trades, but [unfortunately] a master of none" (P-C). Employees are expected to attend to numerous types of tasks, some of which they may not have training or prior experience with, rather than focusing on tasks within their existing skills set:

> back in the day people would have one or maybe two specialities where that's all they did all day long but now it's so different. You can do a hundred different things in any given day because the technology is there and it allows for you to do that. And because you can work like that it is expected that you will. (P-B)

Essentially, employees are being asked and expected to take on much more responsibility and many more tasks than ever before, and the accumulation of various types of tasks and responsibilities undoubtedly increases workload and thus overload in the workplace. Feeling overloaded and being unable to complete a task entirely and "check it off their task list" (P-G) at the end of the day undoubtedly leaves participants feeling unproductive. In order to rectify this perception of productivity, or lack thereof, one participant's solution is to try and prioritize their tasks and minimize the daunting nature of it, "I try to break down my larger more complicated tasks into smaller steps so that at the end of the day I feel like I have actually accomplished something" (P-G).

As previously discussed organizations are expecting their employees to work increasingly independent from one another, and this leaves many feeling quite isolated from other members in

their team, “I am basically stuck at my desk all day by myself, working alone, doesn’t lend for a very supportive team environment” (P-H). This actually leads some participants to question whether they need to come into the workplace at all, and some even “dread having to come to work to just work alone...I could do that at home” (P-A).

Composite Textural Description

As previously discussed within the *Methodology* section of this study the textural description explores ‘what’ the participants experienced in terms of the phenomena: information overload in the workplace. It is a concise description that is generated by summarizing the previously established themes and includes some of the “thoughts, feelings, examples, ideas, [and] situations” that comprise the experience (Moustaka, 1994, p. 47).

As CMC technology has become so widespread in the workplace participants feel as though they are now in an environment made up of constant communication and a never-ending cycle of information. This abundance of information and the efforts required to process it undoubtedly create opportunities for interruptions to occur in the workplace, as employees must cease their current task to addresses this new information. These interruptions then lead to an unpredictable work environment as one is never certain what new messages or new tasks may come about. Furthermore, as employees attempt to navigate this unpredictable environment and attempt to address these interruptions, the possibility for miscommunications to occur increases as employees may not be able to devote enough time to address each message properly, or a message could be accidentally missed or overlooked as employees begin to become overwhelmed through information overload.

As messages pile up employees are undoubtedly left with an inability to address all communications in a timely manner, resulting in a decreased level of productivity. Evidently the

constant communication that is becoming ever more present in today's workplaces is having an effect on employee perceptions of their own level of productivity and that of their workplace in general. These perceptions regarding the lack of productivity in the workplace can be very disconcerting for employees:

> I like to feel as though I have accomplished something, but it becomes really hard to feel that way because once I am finally able to go through every email one by one more always get added to the pile. Then at the end of the day it doesn't look like I did anything because I still have the same number of unanswered messages that I had in the morning. (P-D)

Evidently, an inability for an employee to be able to "check [something] off their list" (P-G) at the end of the day undoubtedly leaves participants feeling unproductive and feeling like they "can't get anything done" (P-E).

Some of the intentional communicative behaviours employed by participants to counter act their sense of overload are to provide "very short" responses to email or IM inquiries. Unfortunately however, there are unintentional consequences that occur as a result of this intentional behaviour, including, "giving off a negative tone" (P-E, P-F), which employees interpret as being "dismissive or short" (P-F) when received. In an effort to prevent projecting such a tone one participant stated that they tend to spend a considerable amount of their day reviewing their tone and sorting through information in hopes to avoid any miscommunications or "coming off in a negative way" (P-F). The extra time one spends simply reviewing their messages for tone or the hypothetical interpretations that could follow only add to this person's workload.

In addition to contributing to increases in communication, increases in interruptions, and increases in misunderstandings, CMC has also contributed to changes in how the workforce is structured. As CMC provides employees with access to the necessary technology, and therefore the ability to complete numerous types of tasks with the click of a finger, workers are now expected to work more autonomously. Furthermore, as there is an increase in the amount of information flowing in the workplace more work is needed to process all of it, ultimately increasing the workload of every employee.

Composite Structural Description

Building upon the textural description of the phenomenon, which is the composite description of relevant themes describing 'what' the participants experienced in regards to information overload in the workplace, the next stage in the analysis was to generate the structural description. This second description details "the context or setting that influenced *how* the participants experienced the phenomenon" (Creswell, 2007, p. 61) and is achieved through the process of imaginative variation which explores "the underlying and precipitating factors that account for what is being experienced" (Moustakas, 1994, p.98). Even though Moustakas (1994) places much emphasis on the importance of employing imaginative variation in phenomenological analysis Creswell (2007) does not explicitly account for it within his *Template for Coding a Phenomenological Study* (p. 170), and for that reason this researcher produced a revised template for the purpose of this study in order to emphasize the importance of imaginative variation in the phenomenological process as seen in Appendix J.

By using imaginative variation two factors or contexts, under which information overload occurs in the workplace, were generated: the first is the general over-dependency on CMC that

has plagued the workplace and its employees since its introduction, and the second is the illusion of productivity that has manifested itself within the organizational environment.

Firstly, the over-dependency on CMC, such as email and IM, in the workplace undoubtedly gave rise to the opportunity for information overload to occur in the modern workplace. Simply put, employees rely far too much on these tools to conduct the majority of their daily tasks and operations, "everything that I do is through some form of computer [mediated communication]" (P-G), in addition another employee remarked that "a huge chunk of my day is spent sifting through [email or IM] messages" (P-J).

Due to this over dependency, employees place far too much trust in the ability of an email or an IM to communicate their intended message, they assume once their message is sent it is out of their hands and that the receiver should immediately attend to it "well I sent it to you so you should have done it" (P-D). If the receiver does not attend to the message, or if the receiver misses that particular message, the sender does not take any responsibility for the incomplete task even if they did not follow up originally, "I don't send them a reminder to look into something because I just assume they will see it the first time" (P-B).

When one participant was questioned as to why they believe email use is so popular in the workplace, he/she stated that while he/she admits that email use is quite rampant in the workplace it is not necessarily the most effective method of communicating, "I don't think that email is really a better way to communicate [in the workplace], we just like it because it's quick and easy to use" (P-C). Essentially, email is so widely used in the workplace not because it is the most effective way to communicate but because it is the most convenient tool for employees to use, unfortunately however, efficiency does not necessarily guarantee effectiveness.

Another reason that participants gave for why email is so popular is that "it keeps a record of everything, so it shows that you actually did something that day" (P-C), and for that reason it is also used as a way to keep track of their work to ensure to their supervisors that they are working productively. As one participant stated, "email is mainly used for accountability" (P-A), and as a way to demonstrate productiveness. Simply demonstrating an appearance of productivity, rather than actually achieving it, leads into the second context under which information overload occurs in the workplace, the illusion of productivity.

Undoubtedly, the reality of actually being productive and looking productive are two very different things and trying to succeed in both is leaving employees feeling overwhelmed, overworked and therefore overloaded. As previously discussed when one becomes overloaded they become less and less productive. Seemingly, this process represents a never ending cycle where maintaining the appearance of productivity is actually hindering it in the end.

If you use the example of the average government employee working in a cubicle, a person who spends their day with their head down working on a task all day long without looking up to address their email or IM messages, to others this employee may seem less productive than someone who consistently answers their emails and replies to inquiries right away but who does not accomplish many tasks. There is so much emphasis placed on being a "productive worker" that some participants believe that it is just as important to appear productive in the workplace as it is to actually be productive (P-A, P-C, P-J):

> I think the most important thing to remember about the government is that the appearance of working is so important. Productivity is rarely measured by what you are producing these days in the government, it's measured by how long you stay at your desk and what time you come in the morning and what time you leave at. (P-C)

Trying to keep up with this illusion, this appearance of being productive is what is contributing to information overload. Some employees believe if they were given the chance to work from home, lessening the chances of interruptions, then they could potentially be more productive, however, as organizations generally prefer their employees to remain visible in the workplace, so as to look productive, many employees are not given this opportunity:

> well the way we work today, we are stuck in an isolated cubicle with all of the daily stresses and interruptions which is obviously not a very productive environment, you could probably get a lot more work done at home but then they can't see or monitor exactly what you're doing there so most workplaces don't go for that. (P-D)

Evidently, these underlying factors not only describe how overload is experienced among employees but it also provides a glimpse into the underlying context under which it occurs as well (Creswell, 2007). These underlying contexts then bring into question the way that organizations function in terms of their over use of CMC and the way that they evaluate productivity.

Chapter 5: Advanced Analysis and Discussion

Invariant Structure-Essence of the Phenomenon

The final component of the analysis is a discussion of the invariant structure of the phenomena. Essentially, phenomenological theory states that "all experiences have an underlying structure" (Creswell, 2007, p. 62) and it is this structure that serves as the foundation for one's experiences with the particular phenomenon. This is also the passage that addresses both of the *Research Questions* that were presented within the introduction of this study; *RQ1: Resulting from their use of CMC, what do employees experience in terms of information overload in the workplace?* And *RQ2: Resulting from their use of CMC, what contexts or situations do employees perceive to have influenced their experiences of information overload in the workplace?* As the answers to these research questions were already directly discussed in the previous chapter, within the *Textural and Structural Descriptions*, their discussion here is a summary analysis of what has been found. Lastly, once the underlying structure has been discussed then the overall essence of the phenomena can be established. This essence is a cumulative insight that allows the reader to "understand better what it is like for someone to experience that," which is the ultimate goal of any phenomenological study (Polkinghorne, 1989, p. 46).

As previously stated, the primary research questions posed within every phenomenological study are those that seek to uncover 'what' an individual has experienced, and 'how' they have come to experience of the phenomenon (Creswell, 2007; Moustakas, 1994), and the answers to these questions are the textural and structural descriptions respectively.

Based on the textural description it has been established that what the participants experienced in terms of information overload in the workplace can be demonstrated among four

themes, *Constant Communication, Unpredictability, Miscommunication,* and lastly *Increased Workload and Responsibilities*. Information overload is a constant presence in the workplace; its very nature of consistency allows for interruptions to occur which then creates an unpredictable environment. As one attempts to process all of these unpredictable communications, misunderstandings often occur as a result of miscommunication between employees. These misunderstandings that occur through CMC are a consequence of the nature of the workplace, as employees are responsible for many more tasks due to their unlimited access to the technology, and lastly, as access to the technology is unlimited so too is the reach of information overload.

Next, the structural description, or the underlying "precipitating factors that account for what is being experienced" (Moustakas, 1994, p.98), were found to be the over-dependency on CMC that has plagued the workplace, and the illusion of productivity that has become the ultimate achievement. Based on these descriptions and upon further analysis the underlying or invariant structure regarding experiences of information overload in the workplace that was found among all participants was a paradoxical event, a catch-22, or a contradictory situation. It seems as though while the original intention of implementing CMC technology in the workplace was to make things easier for employees, it has actually increased their workloads, "I have so much more to deal with, and because I can get through it faster there is always more to do" (P-E).

Specifically, as CMC allows for more information to be easily exchanged it also creates more work for each employee because all of this information needs to be processed. What was meant to make accomplishing tasks easier actually increased the amount of tasks, and therefore making it harder to accomplish. As one participant described "when the work starts to pile up I always try to get more things done at once than I probably should...and whenever I feel ahead of

the game more stuff just keeps coming" (P-B). As CMC technology seemingly provides employees with the ability to work faster and perhaps more efficiently, it has also increased the amount and the speed with which information is exchanged, and therefore it seems that CMC technology is actually contributing to increased workloads, rather than being used as a tool to counteract it, "the increased use of technology has definitely increased my workload" (P-F).

Finally, based on this underlying structure of the phenomena the essence of information overload can be attributed to the tendency for organizations to focus on the amount or the quantity of work being completed rather than on the quality of the work in general. Fundamentally, productivity is being measured by the amount of work being completed, not the quality or caliber of the work. One participant even noted that "if I had fewer things to do I would definitely be able to spend more time focused on one thing at a time" (P-E), which would allow this participant to produce a better product. Seemingly, if there was less work to manage an employee would be able to focus on generating quality work rather than just trying to get the work done.

Findings in Context of Existing Literature/Contribution to Theory

In regards to the existing literature, and as previously stated, two opposing theories depicting an individual's orientation towards various types of communication technology were discussed. The first was Media Richness Theory (MRT), which aligns different methods of communication on a continuum from 'lean' to 'rich,' and argues that one chooses a medium based on one's perceptions of its richness (Daft et al., 1987). The second theory that was discussed was Social Influence Theory (SIT), which contrasts with MRT as it suggests that choosing a communication tool is based on the individual's perception of the medium's

characteristics, and what they learn about the medium from their environment and from observing the behaviours of others (Fulk, Schmitz, & Steinfield, 1990; Stephens & Davis, 2009).

In regards to this study, which focussed on the occurrence of information overload in the workplace, these two theories were considered as each has implications for one of the two primary constructs being discussed: productivity and changes in communicative behaviours. Firstly, the question concerning how information overload contributes to employee perceptions regarding productivity relates to Media Richness Theory (MRT). Just as productivity is a matter of perception within this study so too is media richness, as Turetken, Jain, Quesenberry, & Ngwenyama state "media richness as a perceptual characteristic" (2011, p. 61).

When choosing a communication medium, either email, IM, or FtF it seems that perceived level of intrusion was the largest consideration for participants. Even though richer mediums like FtF or phone calls may be higher on the richness scale and can reduce uncertainty (Kupritz & Cowell, 2011), participants believe that they also allow for more inconvenient interruptions "I definitely don't like to bother people by stopping by their office, sending an email is more convenient and less intrusive" (P-B). Employees prefer to use that which will cause the least amount of disruption to their own workflow and to the receiver's concentration, an email for example, is something that can wait to be addressed. However, this could differ whether it is the message sender or the message receiver being considered.

Secondly, the questions concerning how information overload contributes to employee communicative behaviours relates to Social Influence Theory (SIT). As stated in Eckhardt, Laumer, and Weitzel, social influence is defined "as a change of mind in behaviors, thoughts or feelings from an individual's perspective as revealed by interaction with another individual or a group" (2009, p.13). When faced with information overload employees tend to make intentional

changes to their behaviors in order to combat it. Some examples found within this study were that in the midst of feeling overloaded one will give "very short" responses to CMC inquiries, it is a behaviour that is quite rampant in the workplace as "everyone seems to need to send those messages from time to time" (P-E). Unfortunately however, as previously discussed there are unintentional consequences that occur as a result of these behaviours, including, "giving off a negative tone" (P-E, P-F) and sounding dismissive to others.

However, even though these two theories initially stand in opposition to one another upon further discussion even long time MRT theorists recognize the connection between the two. For example, Trevino, Webster, and Stein, gather that along with the objective characteristics that influence an individual's decision to use a particular media, subjective perceptions derived from social influences have an effect as well (2000). Essentially, "this theory holds that individuals choose communication media based on their subjective perceptions of a particular medium, not [solely] based on its objective characteristics" (Lee & Lee, 2009, p. 63).

Contribution to Communication Research

In terms of contributing to the general body of research surrounding CMC and information overload in the workplace, this study provided a unique perspective addressing the influence this phenomena has on productivity and changes in communicative behaviours.

Concerning productivity specifically, this study provided an additional argument regarding the "never-ending debate [as to] whether communication and office technology has boosted productivity" (Roach, 2006, p.46). As previously established within the *Invariant Structure* analysis, while there are many benefits to using email there are also many disadvantages as well, specifically in regards to whether email allows one to accomplish tasks more easily, or whether it mainly just increases workload. Essentially, with respect to being a

part of the solution to work faster and better in the workplace some CMC can also create an opportunity for informational overload to occur as this also creates greater workload, and "no communication medium illustrates this disagreement better than e-mail" (Roach, 2006, p.46).

Lastly, this study also provided an examination of the phenomena in respect to two distinct and opposing theories regarding how one chooses a medium through which to communicate; *Media Richness Theory* and *Social Influence Theory*. However, regardless of the method of communication the comparative discussion itself contributes to an area of interest, as "disclosing how individuals make their technology adoption decisions remains an exciting and worthwhile research area" (Eckhardt, Laumer, & Weitzel, 2009, p.22).

Chapter 6: Conclusion

Significance of the Study

The significance of this study was to add to the growing body of research and provide momentum for future exploration on the issues regarding the use of CMC and the occurrence of information overload in the workplace. This study contributed much to the existing literature as it explored the influence of these occurrences directly from the perspectives of the employees. It described their personal views on how this has affected their perceptions regarding productivity within the workplace, and how it has affected their communicative behaviours to date, both intentionally and unintentionally. In fact, the purpose, or the need for this study has already been established as past research has called for further examination of the influence of communication overload on performance, or productivity, and workplace dynamics (Cameron & Webster, 2005), precisely the goal of this study.

Few studies have attempted to explore both the use of CMC in the workplace, and its influence on productivity. Therefore, by examining these two concepts along with the occurrence of information overload, and its influence on employee communicative behaviours, this study has situated itself well within the existing body of literature. In essence, the researcher aimed to fill the void that exists in the current literature regarding all of the concepts listed.

Overall, as is the purpose of phenomenological research, the researcher aimed to gather in-depth descriptions of the experiences of the participants and to draw connections between them with the ultimate goal to generate greater understanding of what experiences with information overload are like. It is the hope of this researcher that once readers have reviewed this study they will then be able to walk away with full knowledge of the experiences of these

participants and a sense of understanding, an integral component to the integrity of phenomenological research (Polkinghorne, 1989).

Limitations

As with all research, there were some limitations that arose during the study process. Regarding the interview process, due to time constraints and lack of available resources only one FtF interview was conducted with each individual participant. Another limitation was that only participants within the NCR were selected, as there may be a slight possibility that departments in other provinces may feel or experience information overload differently. Furthermore, only four participants had access to IM within their workplaces, therefore, a direct comparison between the sources of their overload experience, either email or IM, cannot be made. However, qualitative study does not generally require direct comparisons; the focus is instead on the individual's unique experiences with the phenomenon. Lastly, as the knowledge gained from this study is based solely in the perceptions of the participants, perhaps the most significant limitation in this study was the inability to precisely measure productivity and the changes within our communicative patterns and behaviours, as would be possible within a comprehensive quantitative study.

Lessons Learned

As phenomenological studies are known to generate a lot of in-depth descriptive information this researcher at times exhibited some of the signs of information overload. As a result, a better system for managing this data, such as NUDIST (qualitative research software) may have been useful after the fact. However, by thoroughly examining the data first-hand the researcher was able to become more familiar with the information and thus more adept with regards to the experiences of the participants. While NUDIST may have allowed for better

organization first-hand analysis provided the researcher with the ability to continuously examine the data from different angles perhaps allowing connections to be made that may have otherwise gone unnoticed

Future Research

As previously stated one of the main limitations of this study was the fact that productivity and changes in communicative patterns could not be statistically measured, and therefore future experimental forms of research could be undertaken to quantitatively assess these phenomena. In addition, O'Kane et al., propose that even though CMC tools, such as email and IM, are ever more present in today's modern workplace there is still exists a need to explore the use of these tools within an organizational setting (2007). Even though the presence of these tools has increased in the workplace their implications and influence remain largely "under-researched and under-theorized in the organizational literature" (O'Kane et al., 2007, p. 308).

One interesting aspect that was found within the analysis of this study was how there generally seems to be a large crossover of information occurring between the work and home environment. As our CMC tools are now readily accessible at more than one computer at a time and are now more mobile than ever the technology tends to continuously follow us around (Wet & Koekemoer, 2016), and inevitably so does the experience of information overload (Hung, Chen, & Lin, 2015). We, as CMC users, tend to routinely 'check-in' on our personal smart phones while at work and on our work-related Blackberry when not at work. This behaviour has a tendency to make it difficult for some individuals to focus on their family while at home when they are being interrupted by messages from work, while others may find it just as difficult to focus on their tasks at work when they are interrupted by messages from home. Without a proper boundary between ones work environment and home environment information is free to flow

within each, ultimately increasing stress and the time needed to process this information, as well as decreasing productivity (Cousins & Robey, 2015).

Future research could explore the occurrence of information overload within both environments, or it could even limit the exploration of information overload to only the home environment, and only non-work related information. An examination such as this, combined with the findings of this study, could provide an interesting comparison between how experiences of information overload generally differ between one environment and the other. While this study specifically focused on information overload and CMC use in the workplace future research could look into comparing the occurrence of information overload and the rates of productivity between employees who work solely from home and those that work solely in an organizational setting. Lastly, while this study did not address the influence and effects of social media use in the workplace a future study examining that in terms of productivity and changes in communicative behaviours would be an interesting comparison.

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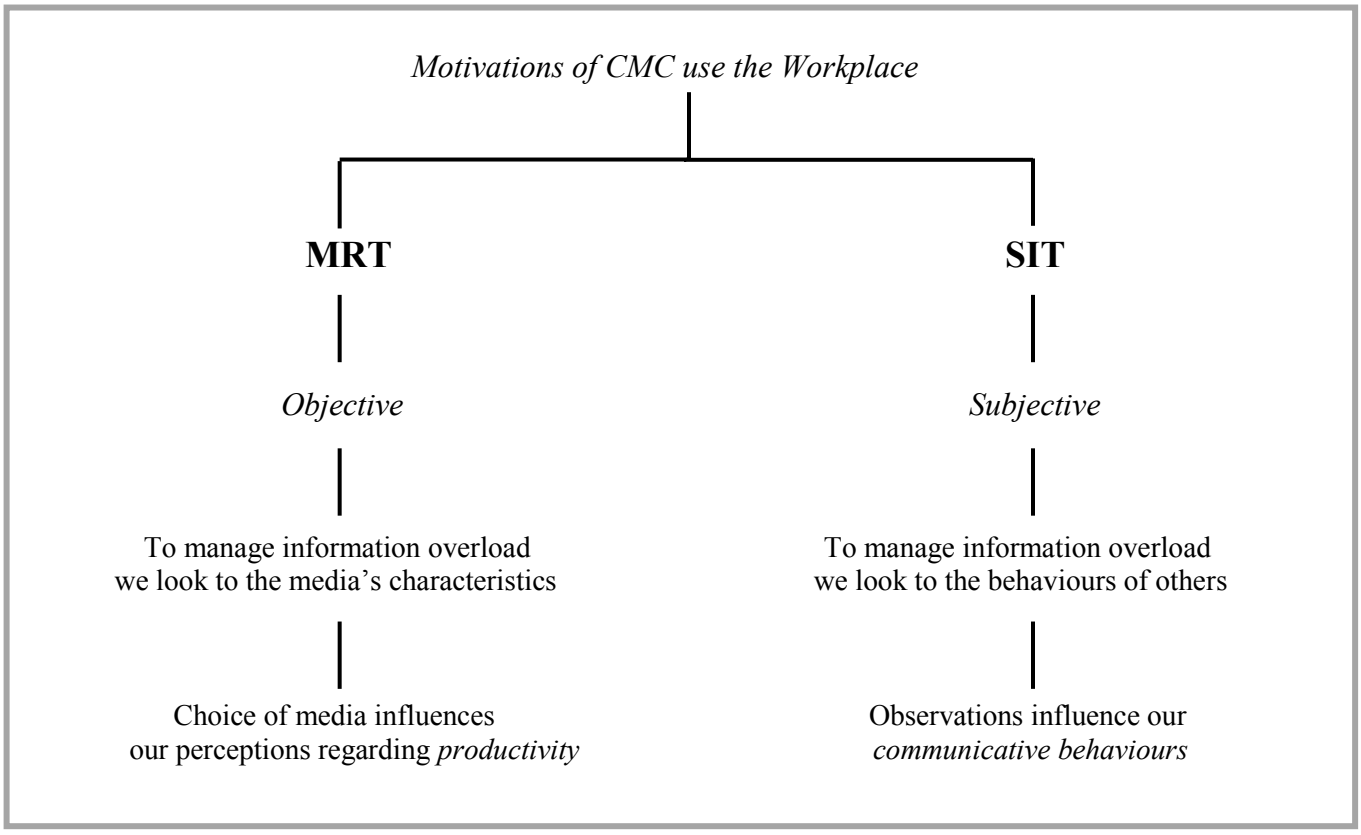
Appendix A

Motivations of CMC use in the Workplace-MRT & SIT



Appendix B

LETTER OF SOLICITATION

Dear potential participant,

You have been invited to participate in a phenomenological research study, titled *Exploring Experiences of Information Overload: The Influence of Computer-Mediated Communication in the Workplace,* conducted by Christina Watts, 2nd year Master's student at the University of Ottawa, under the supervision of Prof. Rocci Luppicini, Ph.D.

Your participation will involve attending a short interview session which will last for approximately 40 minutes. This session will include an informal discussion regarding your use of computer-mediated communication (CMC) within your workplace, your experiences with information overload, and the perceived influence that these experiences have on your communicative behaviours and on your overall levels of productivity. Upon completion of the interview you will also be asked to provide the names of three other possible participants that the researcher could contact. Furthermore, in order to ensure the accuracy of your statements interviews will be audio-recorded and you will also be asked to review the transcript of your interview, and the corresponding themes, once they have been provided to you electronically by the researcher.

It is important to note that the information you provide will be kept confidential and anonymous. Your participation in this study is entirely voluntary. If at any time you wish to be removed from the study you are permitted to do so. At that time any information you have already provided to the researcher will be safely discarded. Only the researcher and supervisor will have access to the information you provide.

If you wish to participate or have any questions, please feel free to contact me.

Thank you & sincerely,

Christina Watts

Appendix C

CONSENT FORM

Exploring Experiences of Information Overload:
The Influence of Computer-Mediated Communication in the Workplace

Researcher: Christina Watts
Department of Communication
Faculty of Graduate and Postdoctoral Studies
University of Ottawa

Supervisor: Prof. Rocci Luppicini, Ph.D.
Department of Communication
Faculty of Graduate and Postdoctoral Studies
University of Ottawa

Invitation to Participate: I am invited to participate in the abovementioned research study conducted by Christina Watts and supervised by Prof. Rocci Luppicini, Ph.D.

Purpose of the Study: The purpose of this study is to explore the use of computer-mediated communication (CMC) within the workplace, experiences of information overload, and the influence that these experiences have on communicative behaviours and on perceptions of overall levels of productivity.

Participation: My participation will consist of attending a one-on-one interview session, scheduled at a time of my own convenience, which will last approximately 40 minutes. During this time I will be asked to engage in an informal discussion with the researcher regarding my use of and experiences with CMC and information overload in the workplace. The researcher will also inquire about the influence of these experiences on my communicative behaviours as well as on my perceptions of productivity. Upon completion of the interview I will also be asked to provide the names and contact information of three other possible participants whom I know within the federal public service that the researcher could also contact. Lastly, for clarification purposes I am aware that my interview session will be audio-recorded and that I will also be asked to review the interview transcript, and corresponding themes, which will be sent to me electronically via password protected email. Once received I will have one week to review and either confirm my agreement with or provide any additional information or clarification I deem necessary. I will be able to report back to the researcher via their University email address or via their personal unlisted phone number. If the researcher has not received my response within one week I will receive a reminder email asking for my response within the next four days, after which if I have not yet responded I understand that my data and information will be removed from the study immediately.

My interview has been scheduled for _____

Confidentiality and Anonymity: I have received full assurance from the researcher that the information I will provide will remain completely confidential. I also understand that my confidentiality will be guaranteed as only the researcher and supervisor will have access to my information.

Conservation of Data: I understand that my information and answers will be included in a Graduate Master's thesis, and that this information will be safely kept by the researcher in a secure environment and will be safely discarded after a minimum of 5 years.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all of the information gathered from me will be safely discarded immediately afterwards.

Acceptance: I, _____, agree to participate in the above research study conducted by Christina Watts of the Department of Communication, Faculty of Graduate and Postdoctoral Studies, which is under the supervision of Prof. Rocci Luppicini, Ph.D.

If I have any questions about the study, I may contact the researcher or her supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: (613) 562-5387 Email: ethics@uottawa.ca

I understand that signing and returning this form implies consent.

Participant's name: _____

Participant's signature: _____Date (YYYY/MM/DD)_____

Researcher's signature: _____Date (YYYY/MM/DD)_____

Appendix D

Interview Questions

Participant_____

Age_____

Sex_____

Position title_____

Position level/rank_____

Organization_____

i) What have you experienced in terms of information overload in the workplace?

ii) What contexts or situations have typically influenced or affected your experiences of information overload?

1) Describe your experiences with using computer-mediated communication (CMC) such as email or IM, in the workplace? What do you have in place at your workplace?
2) Can you describe the benefits of communicating with someone through CMC?
3) Can you describe the disadvantages of communicating with someone through CMC?
4) Can you explain in what situations you prefer to communicate with someone through CMC rather than through other methods of communication, ex. Phone, or face-to-face (FtF)
5) Can you explain whether you believe CMC use in the workplace has increased or decreased your workload?
6) Can you explain whether you believe CMC use in the workplace has increased or decreased workplace productivity?
7) How does feeling overloaded affect your perceptions of productivity in your workplace? For example, when you are feeling overloaded do you believe you are acting productively?
8) How does feeling overloaded affect your communicative behaviours? For example, when you are feeling overloaded what do you do to resolve this? How do you think your communicative behaviours have changed since experiencing information overload?

Appendix E

Terms and Definitions

At this stage of research relevant terms will be defined as follows;

Computer-mediated communication (CMC), will be defined as "communication between and among people through the medium of computers (includes e-mail, chat rooms, bulletin boards, and newsgroups)" (Beebe et al., 2007). These forms can be either synchronous (instantaneous) or asynchronous (delayed). According to Santra and Giri (2009) "synchronous CMC is similar to a telephone conversation, except that much of the communication in the former is text-based while the latter is voice-based. In the asynchronous mode, those who wish to communicate with others can do so in their own time and place without the need for face-to-face contact" (p. 103).

Email, will be defined as an asynchronous communication which does not require "the sender and receiver to be present for communication to occur" (Thomas et al., 2006, p. 254). It is a text based message that can be sent to multiple recipients at once and often takes the form of an informal conversation. Email also has a "built-in memory that allows messages to be stored, retrieved, [and] forwarded" (Thomas et al., 2006, p. 255).

Instant messaging (IM), will be regarded as a synchronous "communication technology that allows employees to send and receive short text-based messages in real-time and to see who else is 'online' and currently available to receive messages" (Cameron & Webster, 2005, p. 86).

Information overload, will be regarded as "the condition by which a person cannot process all communication and informational inputs, which results in ineffectiveness or terminated information processing" (Rogers & Agarwala-Rogers, 1975, as cited in Beaudoin, 2008, p. 552). Furthermore, for the purpose of this study information overload, email overload, communication overload, and technology overload will be discussed interchangeably.

organizational productivity, as "productivity generally refers to the ratio of output and input" (Hung et al., 2015) will be simplified and further conceptualized as the degree to which employees perceive that tasks are being accomplished and goals are successfully met in a timely fashion (Garrett & Danziger, 2007). This includes perceptions of their own level of productivity and that of the general workplace.

changes in communicative behaviours, will be conceptualized as the intentional and unintentional changes that occur in communicative behaviours in the face of information overload. This includes the behaviours purposefully enacted by individuals to counter act overload and the unintentional consequences that information overload has on the social interactions of employees (Skovholt & Svennevig, 2006).

Appendix F

Member Checking Verification Form

Participant_____ Age_____ Sex_____ Position title_____ Position level/rank_____ Organization_____
Please review the attached themes that correspond to the data you provided in your interview.
Do the themes provided represent your overall experience of the phenomena?
What information, if any, would you add to better clarify your experience?
What information, if any, would you delete to better clarify your experience?
Additional comments; please feel free to elaborate as much as you like regarding your experiences with information overload:

Appendix G

Ethics Approval Certificate

File Number: 06-11-30 **Date (mm/dd/yyyy):** 07/27/2011

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice

Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

First Name	Last Name	Affiliation	Role
Rocci	Luppicini	Arts / Communication	Supervisor
Christina	Watts	Arts / Communication	Student Researcher

File Number: 06-11-30

Type of Project: Master's Thesis

Title: The Use of Computer-Mediated Communication (CMC) and the Occurrence of Information Overload in the Workplace: Effects on Employee Communicative Behaviours & Perceptions of Productivity

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
07/27/2011	07/26/2012	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:
N/A

550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada
(613) 562-5841 • Téléc./Fax (613) 562-5338
http://www.research.uottawa.ca/ethics/index.html
http://www.recherche.uottawa.ca/deontologie/index.html

File Number: 06-11-30 **Date (mm/dd/yyyy):** 07/27/2011

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement and other applicable laws and regulations in Ontario, has examined and approved the application for ethical approval for the above named research project as of the Ethics Approval Date indicated for the period above and subject to the conditions listed the section above entitled "Special Conditions / Comments".

During the course of the study the protocol may not be modified without prior written approval from the REB except when necessary to remove subjects from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the study (e.g. change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, information/consent documentation, and/or recruitment documentation, should be submitted to this office for approval using the "Modification to research project" form available at: http://www.rges.uottawa.ca/ethics/application_dwn.asp

Please submit an annual status report to the Protocol Officer 4 weeks before the above-referenced expiry date to either close the file or request a renewal of ethics approval. This document can be found at: http://www.rges.uottawa.ca/ethics/application_dwn.asp

If you have any questions, please do not hesitate to contact the Ethics Office at extension 5841 or by e-mail at: ethics@uOttawa.ca.

Protocol Officer for Ethics in Research
For Barbara Graves, Chair of the Social Sciences and Humanities REB

550, rue Cumberland 550 Cumberland Street
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http://www.recherche.uottawa.ca/deontologie/index.html

Appendix H

Summarized Reflection of the Bracketing Process

As a former employee of the federal public service the researcher has evidently had her own experience with information overload in the workplace, and over time has witnessed the experiences of information overload among others as well. She has noticed the changes in her own perceptions of productivity as well as the changes in her communicative behaviours as a result. Of course these changes in perception did not occur instantly nor did they occur simultaneously, they occurred through years of working within the same type of environment, where she became increasingly more dependent upon technology to conduct her daily tasks. As technology, such as email and IM, has provided employees within her workplace with the ability to communicate faster and deliver content at the speed of light the researcher began to notice not only an increase in communication but also an increase in her workload, an increase that otherwise would not have been possible if it were not for the increase in information being exchanged via CMC.

When the researcher's workload began to increase and she would feel a sense of overload when faced with all of this information. When feeling overloaded she would spend considerable amounts of time simply trying to sift through all of the information coming to her at once and deliver a response as soon as possible. After this came the realization that because she spends so much time managing information the modern workplace is becoming more about quantity than quality. This realization is what first intrigued the researcher and guided her on the path of conducting this study.

The researcher personal experience regarding occurrences of information overload in the workplace arose when she began working for the public service as a Co-op student in the University of Ottawa's Communication program. Between 2007 and 2009 she obtained four placements in two separate departments. She also worked as a summer student under the Federal Student Work Experience Program (FSWEP) and finally as a term contract employee before beginning her Masters studies in the Fall of 2010. In total she has over two years of experience working for the department of Natural Resources Canada: as a Communication

Intern, a Communication Assistant, and as a Communication Coordinator, and for the department of Human Resources and Skills Development Canada as a Research Assistant.

During her time there she witnessed firsthand the extent to which today's workplaces rely on CMC to conduct their daily operations. The vast majority of her day would be spent at her desk working on her computer managing information and tasks, and it was not long before she noticed that this was also the case for a large majority of her co-workers as well. The researcher was surprised by the amount of information she would receive by email and IM and she was also surprised by the fact that these non-synchronous forms of communication seemed to be the preferred means of interacting with others, both inside and outside of the organization. It soon became evident to the researcher that she and those around her were to a certain degree boggled-down to their desks due to the amount of information they would receive and thus have to process.

What was interesting to her were the ways in which those around her tended to respond to information overload. She noticed that different people handled the amount of information they received in different ways. While some seemed deterred by information overload, others seemed to thrive in the face of it. It became evident that suffering from information overload is not necessarily always a negative thing, and that in fact some individuals prefer to work under a sense of feeling overloaded.

She also noticed, based on personal experience and by witnessing those of others, that an individual's experience of information overload seems to have an effect on that individual's perception of productivity; perceptions regarding their own personal sense of productivity and the extent to whether or not they view their workplace as a productive environment.

Despite her experiences the researcher understands that the focus of a phenomenological inquiry is the experiences of the participants. The researcher's experiences simply serves as the initial element that sparked her interest in this topic and was thus the inspiration for this study.

Appendix I

Participant Demographic Information

Participant	Age	Sex	Position Title	Position Category /Level	Organization
A	33	F	Warehouse/Distribution Officer	AS-02	Natural Resources Canada (NRCan)
B	28	F	Communication Advisor	IS-04	Human Resources & Skills Development Canada (HRSDC)
C	39	M	Web Developer	CS-02	Department of National Defence Canada (DND)
D	26	F	Media Analyst	IS-02	Public Works & Government Services Canada (PWGSC)
E	30	F	Administrative Officer	AS-02	Public Health Agency of Canada (PHAC)
F	25	F	Junior Analyst	FI-01	Public Works & Government Services Canada (PWGSC)
G	35	F	Portfolio Reference Librarian	LS-02	Department of Foreign Affairs and International Trade Canada (DFAIT)
H	37	M	Senior Information Advisor	LS-03	Natural Resources Canada (NRCan)
I	32	M	Patent Examiner	SG-04	Industry Canada (IC)
J	28	M	Information Analyst	EC-02	Environment Canada (EC)

Appendix J

Revised Template for Coding a Phenomenological Study

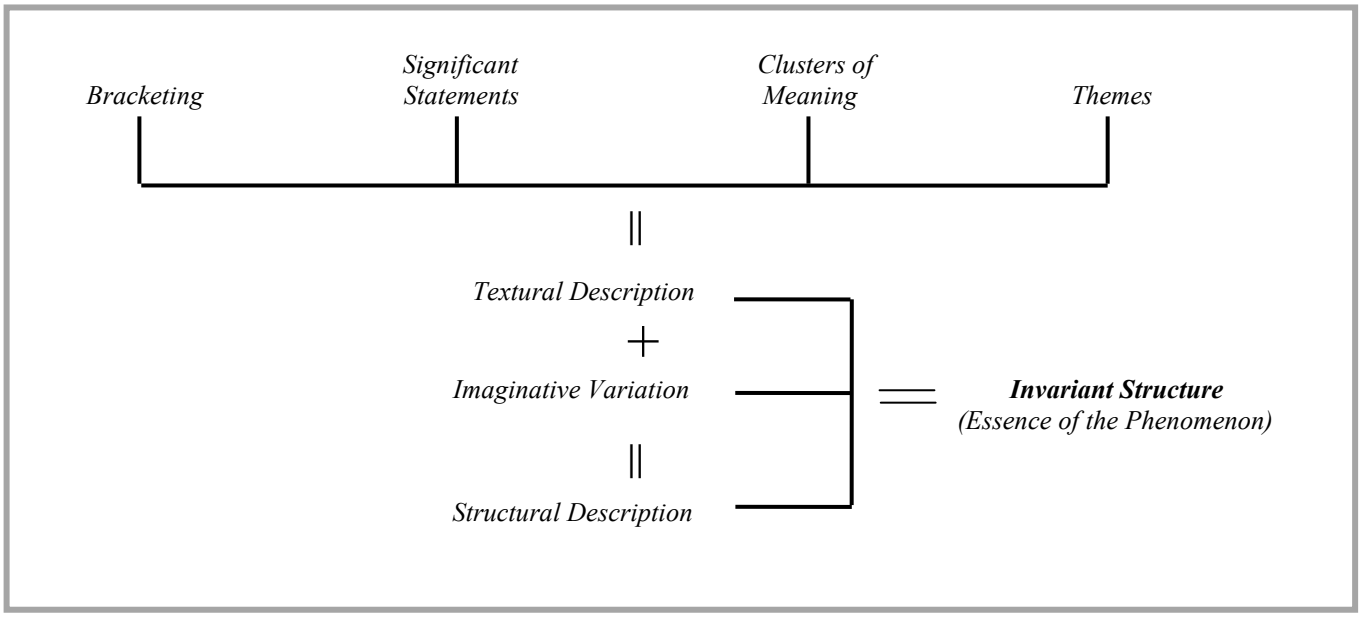

Figure adapted from Creswell, (2007, p. 170).