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# Cyberloafing and Technostress: Working From Home During a Pandemic

Rachel Hernandez
*Walden University*

# Walden University

College of Social and Behavioral Sciences

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Rachel Ann Hernandez

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Dr. Nancy Bostain, Committee Chairperson, Psychology Faculty
Dr. Marlon Sukal, Committee Member, Psychology Faculty
Dr. Derek Rohde, University Reviewer, Psychology Faculty

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Abstract

The purpose of this study was to determine the difference between cyberloafing in employees working remotely prior to the COVID-19 pandemic and those working remotely due to the pandemic and if technostress was a moderator. Bandura's social learning theory was the basis for this study. One concept of social learning theory, neutralization, may clarify why technostress may lead to cyberloafing. Blanchard and Henle defined cyberloafing as the personal use of email and the internet while working. Anandarajan et al. described the varying levels of cyberloafing- those considered recreational and those considered deviant. This study focused on the lower tier of cyberloafing behavior, such as checking personal email at work, browsing social media, and personal cell phone use. This study asked if employees working remotely due to the pandemic are engaging in cyberloafing more than employees working remotely prior to the pandemic, using a quantitative survey design. The survey was conducted online using Amazon Mechanical Turks, with 280 participants who did work remotely prior to the pandemic, and 289 participants that did not.Data were analyzed using a t-test to compare cyberloafing in both groups and the Hayes process to measure if technostress has a moderating effect. When looking at the differences in cyberloafing in remote employees, this study also looked at technostress as a moderator. The data analysis found no significant difference between employees working remotely due to the pandemic and those working remotely prior to the pandemic. Additional knowledge on the remote employees' experience can help inspire positive social change to support this new generation of employees working from home.

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Chapter 1: Introduction to the Study

**Introduction**

Million-dollar office meetings and 3rd-grade Spanish class were held at the same kitchen table during the quarantine period of the COVID-19 pandemic. The usual watercooler talk was replaced with Zoom calls with colleagues from the comforts and confines of home, with awkward waving at the end. Employees took to working remotely, when possible, to meet social distancing standards set for the COVID-19 pandemic (Nimrod, 2020). Working from home meant more screen time and less face-to-face contact with supervisors and colleagues (Majumdar et al., 2020). To get the job done, employees began relying heavily on new communication platforms, reliable internet connections at home, and learning new ways of working from home (Soto-Acosta, 2020).

Many organizations quickly shifted to remote work to survive the COVID-19 pandemic and its effects. Many traditional brick-and-mortar workspaces did not meet social distancing standards' needs. Some organizations had a foundation of remote work and utilized video conferencing software, but some began from scratch. Employees set up home offices and learned how to telecommute full time (FT). Technostress can arise from significant changes and a new reliance on technology (Nimrod, 2020). Monitoring cyberloafing is different when employees work remotely versus in a traditional brick-and-mortar workplace (Güğerçin 2020). This study measured cyberloafing and technology stress experienced by employees working remotely prior to the pandemic compared to employees working remotely due to the pandemic. The outcome of this

research could help guide organizations to support remote employees better. Chapter 1 introduces the variables of interest, the gap in the literature leading to this study, and the theoretical foundation and research questions.

**Background**

The COVID-19 pandemic called for social distancing and altogether redefining the workplace. The COVID-19 pandemic has led to a drastic shift in life and day-to-day activities. The workplace was just one aspect of life greatly affected by the pandemic (Nimrod, 2020). The social problem of adjusting to work from home has been forced upon the workforce during 2020 and the foreseeable future with no previous framework to pull from (Majumdar et al., 2020). Organizations shifted from uncertainty around allowing employees to work remotely to relying on remote work to remain afloat (Majumdar et al., 2020).

Teams shifted to meetings using new platforms, and employees created new workspaces in their homes (Nimrod, 2020). More employees are working from home than ever before. The year 2021 saw an increase of 120% in videoconference traffic in May from December 2019 (Majumdar et al., 2020). Organizations consider adopting these practices long-term as the workplace shifts into digitization (Soto- Acosta, 2020). Technology and means to prevent cyberloafing do not reach the confines of employees' homes, working remotely in most cases (O'Neill et al., 2014). Previous cyberloafing studies looked at employees in traditional brick-and-mortar offices, while some looked at employees teleworking a few days a week (Mercado et al., 2017).

There is a split consensus on whether cyberloafing is deviant behavior that costs organizations money or is necessary and a form of reprieve for employees (Mercado et a;., 2017). The pandemic has created a more substantial reliance on technology, and this study looks at how technology stress may moderate cyberloafing in employees working remotely post-pandemic. As employees spend more screen time than ever, organizations can benefit from a better understanding of technostress and its prevalence among remote employees (Majumdar et al., 2020; Nimrod, 2020).

Supervisors can no longer monitor employees' cyberloafing by walking by their office when they work remotely(Askew et al., 2019). The social norms that could have led to more or less cyberloafing are now different (Askew et al., 2019). Organizations are concerned about cyberloafing (Mercado et al., 2016). Cyberloafing can decrease productivity and result in security and privacy breaches (Glassman et al., 2015). Cyberloafing varies from checking personal emails while working to browsing YouTube and social media sites (Askew et al., 2019). Organizations have adopted new remote work policies, and some plan to continue working remotely to cut down costs on brick-and-mortar workspaces. This transition has been difficult for many, coupled with the added stress of the pandemic and other social distancing practices leading to more screen time. Previous studies have found that employees' attitudes around cyberloafing and opportunities are solid predictors of cyberloafing (Mercado et al., 2017). Employees transitioning to teleworking have to incorporate new information and communication technology (ICT) into the workplace and, in turn, experience higher rates of screen time (Dey et al., 2020). Technology programs were also not previously designed with the

pandemic in mind, which can create difficulties for users they have not previously faced (Dey et al., 2020).

In some cases, employees adapt to a new work model, different ICT use, and increased screen times (Dey et al., 2020). Some employees early on during the pandemic were self-reporting decreased productivity while working from home (Morikawa, 2020). Assessing employees experiencing technostress during the pandemic can also help organizations better understand how to support their employees teleworking (Morikawa, 2020; Nimrod, 2020).

As more employees continue to work remotely, organizations must provide the technological and managerial support needed to keep employees engaged and productive (Mercado et al., 2017). ICT is catching up to the new needs of the workforce created by the pandemic, and with ICT changes come structural changes, new responsibilities, and training needs for employees (Tarafdar et al., 2007). Organizations are adapting, and a better understanding of cyberloafing and technostress in teleworking employees can help inform policy and supports needed (Nimrod, 2020).

O'Neil et al. (2014) defined telecommuting or teleworking as employees working outside a conventional office. The employees surveyed worked remotely FT prior to or due to the pandemic. Majumdar et al. (2020) framed the pandemic and the increased screen time experienced by office workers and students due to social distancing orders. Güğerçin (2020) defined technostress as an inability to cope with new computer technologies healthily. This study focuses on the difference between cyberloafing when working from home and if technostress is a moderator.

This study will focus on five technostress-creating conditions: techno overload, techno invasion, techno complexity, techno insecurity, and techno insecurity (Tarafdar et al., 2007).

## Problem Statement

Organizations are adopting new approaches and technology to stay open during the pandemic (Soto-Acosta, 2020). Learning new technology while transitioning from a brick-and-mortar workplace is complex. Some employees are experiencing technology stress, also known as technostress, due to these changes and few coping strategies (Güğerçin 2020). Studies show that employees now report longer screen times and increased stress due to social distancing practices, but the long-term effects are unknown (Majumdar et al., 2020; Nimrod, 2020; Soto-Acosta, 2020).

Employees working from home may be engaging in cyberloafing, or voluntary web usage during work hours, which some employers see as deviant and counterproductive (Blanchard & Henle, 2008). When working in an office, certain websites are blocked in some companies to mitigate cyberloafing (König & Caner De La Guardia, 2013). Other organizations use supervisors and managers to hold employees accountable and reprimand cyberloafing (König & Caner De La Guardia, 2013). However, all these options are not applicable when employees are working remotely. Employers may try to mitigate this technostress by providing employee training, but in some studies, employees report that this support is insufficient (Nimrod, 2020).

Consequently, employees may engage in cyberloafing to cope with these workspace stressors in this new working-from-home environment (Güğerçin, 2020). The

specific problem is little is known about cyberloafing and technostress in employees working remotely, especially post-pandemic. More specifically, I sought to compare cyberloafing in both employees working remotely prior to the pandemic and those working remotely due to the pandemic. Technostress was also measured as a moderator to cyberloafing in both groups.

## Purpose of the Study

The purpose of this study quantitative study was to examine any differences in cyberloafing between employees working remotely due to the pandemic and those employees working remotely prior to the pandemic. The independent variable was whether employees worked remotely prior to the pandemic or if they worked remotely due to the pandemic. The dependent variable was their likelihood to cyberloaf. The intent of this study was to compare the means of employees working remotely due to the pandemic to those working remotely prior to the pandemic and if technostress was a moderator to cyberloafing these two groups. The predictor variable in this study was whether employees worked remotely prior to the pandemic or if they worked remotely due to the pandemic. The criterion variable was employee likelihood to cyberloaf, and technostress was the moderator.

## Theoretical Framework

Bandura's social learning theory includes neutralization and the principle of reciprocity which relate to why employees may engage in cyberloafing (Bandura & Walters, 1963; Khansa et al., 2017). Aker's social learning theory postulates that deviant behavior is not innate but learned through one's environment. This behavior is picked up

from one's environment- in this case, the office culture ( Khansa et al., 2017). Many studies on cyberloafing use various aspects of social learning theory as their theoretical foundation (Güğerçin, 2020; Mercado et al., 2017). Organizational leaders consider these theories when implementing policy to help mitigate cyberloafing behaviors in the workplace (Khansa et al., 2018). Practitioners can keep these antecedents in mind when seeking guidance on implementing policy or practice to prevent cyberloafing (Khasa et al., 2018).

Studies of organizations' use of information technology to complete everyday tasks apply the concept of technostress (Güğerçin, 2020). The idea of technostress is relevant for this study addresses aspects of information technology that could lead to cyberloafing in employees working from home (Tarafdar et al., 2007). A model generated by Tarafdar et al. (2008) proposed there are both technostress creators (the stimuli) and technostress inhibitors (which help reduce levels of technostress). The five technostress creators addressed by Tarafdar et al. (2007) are overload, invasion of personal lives, complexity, uncertainty, and insecurity. Nimrod (2018) defined overload as performing tasks more slowly due to the inability to cope with more problems. Invasion refers to blurred boundaries between home and work-life (Nimrod, 2018). Techno-complexity is stress created by the constant changing of ICT and difficulty keeping up with continuing education and practice (Nimrod, 2018). Privacy is due to personal information being at risk by external factors (Nimrod, 2018). Inclusion refers to feeling inferior to younger peers and technology users and wanting to keep up with the latest technology advancements (Nimrod, 2018).

As work culture shifts due to an increase in remote work post-pandemic, more employees are experiencing stress at the expense of their increased screen times (Majumdar et al., 2020). Stressed employees may engage in cyberloafing behaviors in order to cope with these stressors in a new work environment (Güğerçin, 2020). If previously it was understood that cyberloafing behaviors are learned from the work environment, this study looked at the difference in populations of employees who have worked remotely prior to the pandemic compared to those who work remotely due to the pandemic (Khansa et al., 2017).

## Research Questions

RQ1: Do tech employees working remotely because of COVID- 19 (the pandemic) cyberloaf more than those pre-pandemic remote FT non-managerial tech employees?

> $H_0$1: There is no difference in cyberloafing in non-managerial tech employees working from home prior to the pandemic FT and those working from home FT due to the pandemic.

> $H_A$1: There is a difference in cyberloafing in employees working from home prior to the pandemic FT and those working from home FT due to the pandemic.

RQ2: Does technostress moderate the difference between FT remote non-managerial tech employees (pandemic / non-pandemic) and cyberloafing?

> $H_0$2: Technostress does not moderate the difference between cyberloafing and remote working (pre-pandemic vs. pandemic instigated).

$H_A2$: Technostress moderates the difference between cyberloafing and remote

working (pre-pandemic vs. pandemic instigated).

**Nature of the Study**

This study used a quantitative research design. This specific research design

included a survey design to empirically evaluate whether working from home prior to the

pandemic relates to the likelihood of cyberloafing (Agogo & Hess, 2018). Participants of

this study needed to have been working in their current role for more than 3 months and

spend at least 80% of their day using technology for their daily job tasks. This study

included a demographics questionnaire to gather information about the employee's role

(position), amount of time on the job, amount of time spent using technology, and

technology types (Tarafdar et al., 2007). This study included a t-test to understand

whether there was a difference in cyberloafing in employees working from home prior to

the pandemic rather than post-pandemic (Urgin & Pearson, 2013). This study used the

Hayes process on SPSS to examine whether there was a difference between working

from home prior to versus post the pandemic and the likelihood to cyberloaf with

technostress as a moderator (Alharti et al., 2019). The Hayes process in SPSS was used to

determine if technostress has a moderating effect on the difference between the likelihood

to engage in cyberloafing by employees working remotely prior to or due to the

pandemic. A moderator effect was not found to exist, and the interaction effect's

significance and value were determined and reported in the following chapters.

**Study Significance**

This study is essential to developing research concerning cyberloafing, its antecedents, and what employers can do to support their staff members while working remotely, and more specifically during the pandemic. This study could significantly contribute to research by demonstrating that employees would be less likely to cyberloaf if they are experiencing technostress while working remotely. Specifically, this study should aid employers in planning for transitioning teleworking employees and inform the training offered to employees to understand further technostress and technology supports to help mitigate it. If employees who are stressed or do not have enough support resort to cyberloafing, sustaining them could decrease employees' cyberloafing and possibly save the company money (Lim & Chen, 2008). Cutting costs is beneficial to both the organization and its stakeholders, and the funds generated can be reinvested in training employees and supervisors. Organizations can invest in their employees, leaving employees better equipped to handle work stressors that improve work-life balance. Better work practices that can lead to more work-life balance for employees result in positive social change ( (Rodríguez-Modroño & López-Igual, 2021; Shao et al., 2021).

**Definition of Terms**

*COVID-19 (the pandemic):* The Coronavirus disease drastically affected the world beginning in early 2020 (Dey et al., 2020). Otherwise known as the pandemic, COVID-19 led to state social distancing mandates within the United States. To adapt, organizations began allowing employees to work remotely (telecommuting) when

appropriate and quickly adopted new technology to accommodate these changes (Kamal, 2020).

*Cyberloafing:* The personal use of the internet while at work (Henle, 2008). Cyberloafing can include browsing the web, online shopping, checking personal email, checking social media, texting, and other non-work-related online activities (Glassman et al., 2014). It is also known as non-work-related computing, cyber deviance, internet abuse, and cyberslacking (Vitak et al., 2011). There are higher levels of deviant behaviors online included in the definition of cyberloafing, which I did not include for the sake of this study, including online gambling and pornography (Vitak et al., 2011).

*Information and communication technology (ICT):* Technology including work computers, cellular devices, and tablets. ICT can also include programs and communication tools used within the workspace, such as Zoom and Microsoft teams (Nimrod, 2020).

*Technology stress (technostress):* Stimuli produced by technology use that induces stress (Ragu- Nathan et al., 2008). Technostress includes *technostress creators*, the events or demands leading to stress, and *technostress inhibitors*, variables that can reduce technostress and its consequences (Nimrod, 2020; Ragu-Nathan et al., 2008). The five technostress creators this study focuses on include: techno overload, techno invasion, techno complexity, techno insecurity, and techno insecurity (Tarafdar et al., 2007).

*Telecommuting:* A form of teleworking, or working virtually (Golden, 2007). Employees work part-time or FT away from the office (Golden, 2007). In 2020, due to the pandemic, many employees began telecommuting, and due to social distancing, many

had to start working from home (Kamal, 2020). Another term for telecommuting is work from home (Golden, 2010).

<center>**Assumptions, Limitations, Scope, and Delimitations**</center>

**Assumptions**

There was an assumption that participants responded honestly to the survey questions. Another assumption was that participants were non-managerial employees who work in the technology industry. The data collection methods ensured participants' privacy, allowing participants to be honest with survey responses and reducing response bias. Another assumption was that participants would be familiar with and comfortable enough with the technology to engage in this survey online without researcher intervention. It was assumed that participants would adequately understand and answer questions without researcher intervention.

**Limitations**

The study was conducted using online surveys to ask employees questions about their experiences working from home during the pandemic. A convenience sample was obtained using Amazon Mechanical Turks to seek employees working from home due to the pandemic and employees working from home prior to the pandemic in non-managerial tech company positions. Issues that may arise include employees being fearful of honestly answering survey questions due to fear of repercussions about cyberloafing, as many organizations have a policy against this. To mitigate the fear of information returning to an employer, the survey was not tied to the organization,

promised to protect participants' privacy, and ensured it is evident in recruitment information.

**Scope and Delimitations**

The scope of this study included employees working actively in the technology industry in non-managerial positions who telecommute for work. Participants were employees working in the technology industry. Participants were in non-managerial positions, which they had held for over 6 months (prior to the pandemic). Participants may have teleworked prior to the pandemic or have been teleworking now due to the pandemic.

There were multiple research delimitations. Participants were not managers. Participants were working in their position for 6 months before the pandemic. Participants also needed to be teleworking FT.  The focus was also on participants who have access to and utilize ITC to fulfill work duties.

The research depth was limited to the questionaries selected to assess variables chosen for this study. This study design called for self-reporting due to respondents' perceptions during the survey response time. The survey population was not considered a vulnerable population, and the topic of interest was not sensitive.

<div align="center">

**Summary**

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Chapter 1 introduced the variables of interest, the gap in the literature leading to this study, and presents the theoretical foundation and research questions. This chapter looked at the pandemic's increase of ICT usage, technostress creators, and forms of cyberloafing. As organizations adapted to comply with social distancing mandates, ICT

use increased as employees were teleworking ( Kamal, 2020). Chapter 1 established the framework for examining the difference between these variables and demonstrates the importance of the further investigation.

Chapter 2 addresses recent research relating to cyberloafing, technology stress, and ICT use during the pandemic. In Chapter 2, these variables are discussed more broadly, and the scope of focus is narrowed to the topic of this study. After completing Chapter 2, readers should understand cyberloafing, how it compares and relates to technostress, and how the pandemic led to significant ICT changes in organizations. Readers will further understand these variables, why this study is relevant, and how it ties to today's social problems.

Chapter 2: Literature Review

## Introduction

The COVID-19 pandemic led to social distancing mandates which drastically changed the workplace, and in some cases, for good (Rudolph et al., 2021). Organizations were required to adapt to survive and find new ways of functioning under social distancing mandates set state by state in response to COVID-19 quickly. Companies adopted new ICTs to allow their employees to work remotely using various telecommunication programs and devices. Employees had to embrace a unique work environment: at home. Teleworking brought to light a new work-life balance for some. Those with families struggled with everyone at home, while those living alone dealt with a new type of isolation. Schools were closed, and students took on virtual learning in some states. Some people adapted quicker than others to new ICT in the workplace, but no one was prepared for the increased screen time that was now part of day-to-day life. With the increased reliance on technology, employees may experience frustrations when ICT does not function as expected and work tasks may take longer to complete. Technology stress (technostress) can occur due to the changes and insecurities brought about by increased technology reliance in the workplace (La Torre et al., 2018). As the risk of technostress increases, organizations require a better understanding of technostress and teleworking barriers to address it (Nimrod, 2020).

## Search Strategy

Multiple search strategies were engaged for this study. All terms were first searched through Walden University Library's Thoreau. Those terms specifically were:

*cyberloafing, cyberslacking, personal web usage, technostress*, and *technology stress*.

After reading some articles, other terminologies were discovered and searched using

more specific databases. Another database searched with little results included the

national bureau of economic research using the terms: *teleworking, pandemic*, and

*technostress*. APA Psych info was used to search: *cyberslacking, non-work-related*

*computing, personal web usage*, and *technostress.* The Sage Journal database was used to

search *cyberloafing, technostress,* and *cyberslacking*. From the preliminary articles

found, many references were listed that were also employed. New terminology or

previous terminology used for cyberloafing or technostress or relating to teleworking

were applied in future searches in Thoreau, including problematic web usage,

teleworking, work-from-home, telecommuting, remote work, remote work/

telecommuting/ teleworking/ work from home during pandemic. This literature review

primarily contains empirical, peer-reviewed research from the last 5 years, except for

seminal literature focusing on cyberloafing, technostress, and teleworking during the

pandemic.

**Theoretical Foundation**

**Aker's Social Learning Theory- Deviant Behavior**

In order to better understand cyberloafing and its causes, studies look at behaviors

and theories cited in the past that postulate reasons why employees may engage in certain

activities at work. Bandura's social learning theory was adapted by Akers, who looked at

behavior through a criminology lens (Khansa et al., 2017). Some studies cite Aker's

social learning theory when studying antecedents of cyberloafing (Anandarajan &

Simmers, 2004; Askew et al., 2019; Glassman et al., 2014; Khansa et al., 2017). Aker's social learning theory applies when looking at deviant web use or cyberloafing in the workplace (Anandarajan & Simmers, 2004). Social learning theory postulates that deviant behavior is learned through significant peers. Employees may pick up on this modeled behavior. Social learning theory states that employees engaged in cyberloafing are more likely to associate with peers who share these values, engage in similar behaviors, and reinforce these behaviors (Anandarajan & Simmers, 2004). This behavior is picked up from one's environment- in this case, the office culture (Anandarajan & Simmers, 2004; Khansa et al., 2017).

For this study, some employees may be teleworking prior to the pandemic, while some are teleworking due to social distancing mandates set. Organizations generally have a policy on cyberloafing and what is and is not acceptable (Khansa et al., 2017). Teleworking does not allow for the same monitoring programs some organizations have implemented and does not account for personal device usage, which cannot be monitored while teleworking (Khansa et al., 2017). For employees previously working in the brick-and-mortar workplace, social learning theory postulates that if this was acceptable behavior prior to teleworking, it might carry on to work from home (Khansa et al., 2017). Other frequently cited theories relating to cyberloafing are social exchange theory and perceived justice (Blau et al., 2006; Khansa et al., 2017; Lim, 2002). Lim (2002) approached cyberloafing from a social theorist lens.

In the focus of social economics, employees hone in on the ratio of their work input and its outcome (i.e., recognition, income). This social exchange theory focuses on

the reciprocal relationship between employees and organizations. Employees who perceive that they have been treated unfairly by their organization may be motivated to cyberloaf (Lim, 2002). This perception of justice can take many forms. There are three different types of organizational justice cited by Lim (2002), including distributive justice, procedural justice, and interactional justice.

Distributive justice refers to employees perceiving fairness in allocations. This can be violated if employees feel they are not paid what they deserve for their work. Procedural justice refers to the perception of procedures used by organizations in allocations. Procedural justice refers to practices within the organization and their perceived fairness by employees. Interpersonal justice refers to the perception of justice in interpersonal situations in the workplace. Interpersonal justice can refer to situations involving employees and management or handling situations between peers. Studies have found that employees who believe they have been treated fairly by their organization are less likely to cyberloaf (Blau et al., 2006). Employees with little choice in working remotely due to work policy change may have differing opinions on whether this is a positive or negative change for them (Morikawa, 2020). Workloads have changed for some employees due to needing to learn new ICT technology to complete work tasks, and work tasks may look very different when teleworking (Tarafdar et al., 2007). Employees who do not have access to the technical support they need due to high demand during the pandemic and ever-changing ICT may also experience differing levels of procedural justice (Lim, 2002).

**Minor Cyberloafing**

Cyberloafing is considered an act of deviance and can lead to less productivity in employees and can be a cyber security risk for organizations (Askew et al., 2019; Kim, 2002). There are varying levels of risk and deviance within cyberloafing, and there is also a broad spectrum of activities defined under cyberloafing (Jeong et al., 2020; Son & Park, 2006; Stratton, 2010; Urgin & Pearson, 2013; Weatherbee, 2010). Minor cyberloafing refers to cyberloafing activities considered less deviant by the cyberloafing scale, including online shopping, checking personal email, logging into social media, messaging, and reading the news online (Blanchard & Henle, 2008). Major cyberloafing activities include more deviant behaviors like visiting adult websites at work and online gambling (Blanchard & Henle, 2008).

**Technostress Creators**

Stress is a response experienced by individuals whose workload may be more than what they perceive they are capable of (Tarafdar, 2007). Technostress is the stress experienced by individuals due to ICT use. The concept of technostress has evolved, as has ICT and its role in the workplace (Agogo & Hess, 2018). Early citations of employees' uneasy attitudes included "computer anxiety" (Masters, 1967). Technophobia originated in 1974, coined by Paschen and Gesser (1974), referring to fear of ICT use. Brod, in 1984, defined technostress, and the definition has since expanded with ICT use and accessibility (Agogo & Hess, 2018). Brod (1984) looked at technostress due to an individual's inability to accept computers. Rosen and Weil (1997) tied technostress and technophobia together as varying degrees of a similar phenomenon. Later definitions of

computer anxiety include "the tendency of individuals to be uneasy, apprehensive, or

fearful about current or future use of computers" (Igbaria & Parasuraman, 1989, p.375;

Simonson et al., 1987; Venkatesh, 2000) Agogo and Hess (2018, p. 572) included "fears

about the implications of computer use such as the loss of important data or fear of other

possible mistakes" in their definition of computer anxiety. The factors which are the

source of technostress were referred to as technostress creators by Tarafdar et al. (2007).

For this study, employees teleworking are taking on varying roles and

responsibilities due to adopting new ICT use and workflow due to the pandemic

(Rodríguez-Modroño & López-Igual, 2021). Two of the five technostress creators include

techno-invasion and techno-complexity; the rest will be explored later in the chapter

relating to measures used for this study (Nimrod, 2020). Techno-invasion refers to the

blurred lines created by technology between home and work life due to the lack of

disconnection employees experience with mobile devices, the internet, and email

(Tarafdar et al., 2007). Techno-complexity is another technostress creator relating to the

ever-changing nature of ICT and the stress created for users who must continue to learn

new programs and processes to keep up (Tarafdar et al., 2007).

## Literature Review Related to Key Variables and Concepts

### Cyberloafing

Cyberloafing was first defined by Lim (2002) as "the act of employees using their

companies' internet access for personal purposes during work hours" (p.675). Previously,

cyberloafing was referred to as cyber deviance, workplace internet leisure browsing, junk

computing, improper internet use, unproductive internet surfing, and non-work-related

computing (Jeong et al., 2020; Son & Park, 2006; Urgin & Pearson, 2013; Weatherbee, 2010). Another popular term often used instead of cyberloafing is cyberslacking (Garrett & Danziger, 2008). Cyberloafing can lead to less productivity in employees and is categorized as a cyber security risk for organizations (Askew et al., 2019; Kim, 2002). As there are varying levels of risk and deviance within cyberloafing, there is also a broad spectrum of activities defined under cyberloafing (Jeong et al., 2020; Son & Park, 2006; Stratton, 2010; Urgin & Pearson, 2013; Weatherbee, 2010).

Stratton (2010) looked at the relationship people have with how they define their cyberloafing. This study discusses cyberloafing as personal web usage at the workplace (Stratton, 2010). Two models are presented from the data collected. The categories created were positive, negative, conflicting, or ambivalent (Stratton, 2010). Various employees were interviewed within the organization (employees, managers, executive leadership staff, and IT professionals; Stratton, 2010). The sites visited by employees were also separated by categories (news, shopping, hobbies, sport, entertainment, other; Stratton, 2010). The focus of this study is the feelings participants express about their cyberloafing (Stratton, 2010). While organizations can define cyberloafing as deviant behavior, and it may be clearly stated in workplace rule books as such, employees may not share this sentiment (Stratton, 2010). Cyberloafing is seen as a way employees seek to achieve better work-life balance (Stratton, 2010). Both feelings of guilt and pleasure have been associated with cyberloafing (Stratton, 2010). This article also discusses employees' awareness to work policy against cyberloafing and engaging in these behaviors either way (Stratton, 2010).

**Employees Working During the Pandemic**

Teleworking prior to the pandemic was organization and position-specific (Dey et al., 2020). Organizations offer the option to some employees to work from home, allowing for flexibility and ease in planning work around home life (Delanoeije et al., 2019). Employees can choose where they work and, in some cases, can choose to work within the work office or from home (Delanoeije et al., 2019). The COVID-19 pandemic changed everything and created a new normal (Dey et al., 2020). Employees in some work sectors transitioned to working fully remote and adopted new technology to facilitate this (Dey et al., 2020).

A common theme in telework literature is concern over work-life balance (Mercado et al., 2017). The benefits and difficulties overlap in identical ways. Where work-life balance may be difficult for some teleworkers, working remotely has improved work-life balance for others (Gajendran & Harrison, 2007). Some employees enjoy cooking meals at home on work breaks and enjoy spending more time with family. Working from home has allowed time for hobbies and exercise and requires less travel time for some. Telecommuting also cuts down on transportation costs for some employees, making it financially beneficial (Gajendran & Harrison, 2007). Employees find telework helpful in meeting family needs and reducing the time and cost of commuting to work (Gajendran & Harrison, 2007). Teleworking flexibility comes with its own set of pros and cons (Delanoeije et al., 2019).

Empirical evidence shows that employee engagement and retention correlate with workplace flexibility (Richman et al., 2008). Employees find they can better meet both

work and home life demands when their workplace provides flexibility. Telework

provides benefits both the organization and the employee (Richman et al., 2008). The

control employees can exhibit over how long and where they can work is key to

workplace flexibility (Richman et al., 2008). Employees who can choose how and where

they work report better work-life balance and increased levels of job satisfaction

(Rodríguez-Modroño & López-Igual, 2021). In turn, teleworking can also bear negative

consequences for the same reasons (Bathini & Kandathil, 2017). Telework is further

explored by balancing home and work roles and transitioning between the two

(Delanoeije et al., 2019).

In some professions, the line is blurred between work and home. In-office and

out-of-office hours are less clear, leading to work-life conflict (König & Caner de la

Guardia, 2013). While teleworking can be beneficial, some employees discuss

experiencing longer work hours in exchange for working remotely (Bathini & Kandathil,

2017). Employees find that being reached at home via email or phone calls leads to fewer

boundaries between work and home. Internet connection at home and access to mobile

devices can lead to supervisors extending work hours and employees feeling obligated to

respond. As work spills into employees' time off, this can lead to stress and decreased

individual productivity (Tarafdar et al., 2007).

Studies find differences in the boundaries and transitions between work-to-home

and home-to-work and conflicts that arise with either one (Delanoeije et al., 2019;

Gajendran and Harrison, 2007; Golden et al., 2006). Work-to-home conflict refers to

issues arising from an individual's work role interfering with roles and expectations from home life (Greenhaus and Beutell, 1985).

Individuals dealing with work-to-home conflicts may find that their home boundary is blurred due to completing work at home ((Delanoeije et al., 2019). Employees may find themselves having difficulty transitioning to home after work and thinking about work after working hours (Delanoeije et al., 2019). Employees thinking of work outside of work hours while working from home may engage in work activities after work hours, leading to home tasks being neglected (Voydanoff, 2005). After eating dinner, an employee might remember a task they forgot to complete earlier in the workday and take hours after work sending an additional email or completing the forgotten task. Another struggle remote employees may experience is home-to-work conflict (Delanoeije et al., 2019).

Home-to-work conflict refers to issues employees may experience when home life interferes with work tasks and responsibilities (Greenhaus and Beutell, 1985). Employees working from home are more likely to experience work interruptions by family members in the home (Allen et al., 2003). Employees may also engage in home responsibilities while working, which can lead to work responsibilities not being met (Delanoeije et al., 2019). Delanoeije et al. (2019) propose that a major contributor to these two forms of conflict comes from transitioning between roles. Another source of stress for employees during the pandemic was the abrupt switch to remote work many experienced (Dey et al., 2020).

Teleworking due to the pandemic was an abrupt change and did not allow ample time to prepare for working from home. In some cases, working from home was not optional, which became a barrier for those without the ability to create a dedicated workspace (Shao et al., 2021). Some employees may find it easier to be productive at home than with the distractions of fellow employees in the office. Others may find distractions at home more difficult to manage and choose to work in the office if that is an option (Shao et al., 2021). The ability to choose, in this case, allows employees to make decisions best fitting for their work-life balance needs (Rodríguez-Modroño & López-Igual, 2021; Shao et al., 2021). The more organizations understand how employees and organizations are impacted by telework; the better-informed decision-making can be.

Technology has transformed the workplace and has given employees the ability to work from home, utilizing internet connection, laptop computers, and video conferencing programs (Koay & Soh, 2018). The global Pandemic of COVID-19 has led organizations to shift from traditional brick-and-mortar workspaces to adopting new technology and procedures to allow employees to telework. Organizations have adjusted to working from home to allow social distancing to combat the spread of COVID-19. Unfortunately, being locked down or social distancing can negatively impact people's mental and physical health, even those working from home (Majumdar et al., 2020). Working from home leads to longer screen time and more opportunities for employees to use computer resources for personal leisure while on the clock (Majumdar et al.,2020; Ugrin et al., 2018). As organizations debate whether to adopt long-term telework policies,

the factors of technostress and cyberloafing remain areas of concern (Chang et al., 2021).

Supervisors may find that monitoring cyberloafing and accessing personal email, social

media, and other non-work-related websites during company time can be more difficult

when employees work from home (Mercado et al., 2017). Studies have found that the

pandemic has negatively impacted the health and well-being of employees working from

home. Employees report feeling isolated, experiencing work dissatisfaction, and

negatively impacting their well-being, which could lead them to be more likely to

cyberloaf (Majumdar et al., 2020). The pandemic's effects on the amount of time

employees teleworking spend dealing with technostress and cyberloafing is still unclear.

**Increased Technology Reliance in the Workplace**

Organizations have since harnessed the internet to allow businesses to expand

across borders (Kim, 2002). Technology utilization has decreased product cycle times

and redefined marketing and reach (Kim, 2002). When the internet first entered the

workplace, there was reluctance and a strong focus on all of the benefits it brought the

workforce (Kim, 2002). Soon after, the term cyberloafing was coined and deemed

deviant as employees began engaging in non-work-related activities at work (Bock & Ho,

2009). Research began to take a turn and focus on the possible benefits of cyberloafing

and the negative consequences that result from attempts to block cyberloafing in the

workplace (Bock & Ho, 2009). Technology continues to evolve, so do the means and

access points employees have to cyberloaf. Employees today often bring their personal

devices to work, including tablets, smartphones, and other technology (Alharti et al.,

2019). Cyberloafing activities include but are not limited to sending personal emails, accessing social media, and online shopping (Askew et al., 2019). Employees can check up on their fantasy football league, send texts and messages to friends on their personal devices, and even stream live shows and movies while working (Alharti et al., 2019; Kim, 2002; Mercado et al., 2017). While not all employees may utilize technology in their workday, most bring their personal devices to work and engage in cyberloafing. As our reliance on the internet for completing work tasks has increased, organizations are interested in curbing and monitoring cyberloafing (Bock & Ho, 2009; Kim, 2002; Mercado et al., 2017).

**Cyberloafing: A Historical Overview**

Previously, cyberloafing activities were limited by internet and technology access (Mercado et al., 2017). Prior to the internet, employees could not access social media, nor did it exist. Computers were not as assessable nor necessary for completing work tasks in the past. Now employees rely on technology and Internet access daily. Organizations have invested in technology in the workplace, making computers and Internet access the norm for many employees. There are benefits and costs to this increased reliance on technology. The addition of the internet to the workplace brought about quicker communication, access to vast amounts of information, and allowed employees access to recreational web use while working (Kim, 2002). Concern around employees overutilizing the internet for personal use while working dates back to the early 2000s. Surveys reported that 64 percent of employees utilized the internet for personal use while working (Kim, 2002). Menzel (1998) discussed organizations' concern on the financial

implication of employees' time being unproductive. While early surveys sought to quantify the number of employees cyberloafing and the cost on organizations, later studies began seeking a better understanding of why (Menzel, 1998; Kim, 2002).

Bock and Ho (2009) quote the same statistics of employees engaging in cyberloafing from a survey taken in 1999 but present a differing perspective- that cyberloafing may be beneficial in some ways. Organizations may seek to prevent cyberloafing through training, policy, and electronic monitoring (Bock & Ho, 2009). Organizations may use technology in order to monitor employees' web browsing while at work to deter employees from engaging in cyberloafing activities. Pieces of training can be set around the negative consequences and security breaches from accessing certain websites while working (Bock & Ho, 2009).

Koay and Soh (2018) discuss the negative and positive benefits of cyberloafing (Koay & Soh, 2018). This article focused on ways for organizations to prevent cyberloafing (Koay & Soh, 2018). Koay and Soh (2018) find that feeling bored, job stress, burnout, habit, and employees' perceptions of being treated unfairly are all factors related to employees' likelihood of cyberloafing. The negative impacts of cyberloafing observed include threats to an organization's network security, decreased employee productivity, and reduced workplace involvement (Koay & Soh, 2018). On the positive end, cyberloafing can bring about fresh perspectives in employees and help reduce stress and burnout (Koay & Soh, 2018). Ways Koay and Soah (2018) suggest for prevention and control of cyberloafing within the organization include educating employees,

assessing organization norms, and generating positive work environments (Koay & Soh, 2018).

Page (2015) looks further into what cyberloafing activities employees engage in. Teachers were found engaging in activities such as sending personal emails, checking social media, and personal banking while at work (Page, 2015). One reason employees may be engaging in cyberloafing is an intensification of work and permeability of work and home life. 96.3% of the teachers surveyed reported engaging in work activity at home. This study looked at cyberloafing on work devices and personal devices (Page, 2015). Findings suggest that most teachers do not excessively cyberloaf (Page, 2015). The study also illustrates the increased use of mobile devices in cyberloafing (Page, 2015).

Another aspect correlating with cyberloafing is the company culture and the culture of the area the company is located (Urgin et al., 2018). Urgin et al. utilized Hofstede's four-dimensional culture model and collected survey data from MBA students (Urgin et al., 2018). Culture was measured using the Hofstede model (Urgin et al., 2018). Two groups were utilized for this study, Students in different countries in Asia and students in the US at the same university (Urgin et al., 2018). Results found that individuals from more feminine cultures are more likely to cyberloaf (Urgin et al., 2018).

**Current Research**

Cyberloafing theories attempt to understand better why people engage in personal web usage during work time (Mercado et al., 2017). Organizations are interested in understanding why employees engage in these behaviors and how to intervene, as they

see it as counterproductive and, in some cases, deviant (Pindek et al., 2018). Cyberloafing

has also been observed as an act of reprieve or a way to escape work momentarily (Koay

& Soh, 2018). In some cases, cyberloafing can reduce stress and burnout in employees

(Koay & Soh, 2018). The ability to step away from work allows employees to return to

projects with a new perspective and renewed energy (Koay & Soh, 2018). Cyberloafing

has also been correlated with boredom or feeling overqualified for work (Pindek et al.,

2018). Studies have found cyberloafing has also been related to coping with workplace

aggression and is deemed a form of withdrawal (Pindek et al., 2018; Andel et al., 2019).

Andel et al. (2019) correlated cyberloafing with verbal aggression exposure,

physical aggression exposure, turnover intentions, job satisfaction, and cyberloafing. This

article highlights the positive effects of cyberloafing as a coping skill for employees

experiencing workplace aggression. This study highlighted the relationship between

cyberloafing and job satisfaction and how these variables relate to turnover intentions and

workplace aggression (Andel et al., 2019). Workplace aggression led to higher rates of

turnover intention (Andel et al., 2019). Cyberloafing was a coping skill utilized by

stressed employees rather than labeled as deviant behavior (Andel et al., 2019). This

study recommends that employers address aggressive workspaces in order to address

workplace stress and turnover (Andel et al., 2019). Andel et al. find that cyberloafing

may be happening due to dissatisfaction at work and as a way to deal with work stress

from aggressive work environments (Andel et al., 2019).

Another source of stress for employees has been the COVID-19 pandemic and its effects

on day-to-day life. Majumdar et al. (2020) measured variables including compromised

health, well-being, and sleep by self-report. Other variables measured include anxiety, worry, isolation, greater family/work stress & excessive screen time (Majumdar et al., 2020). They found that employees were experiencing negative effects on health from social confinement & increased screen times (Majumdar et al., 2020).

While technology in the workplace has contributed to increased efficiency and support task completion, it has also led to other issues- like cyberloafing (Kim, 2002; Mercado et al., 2017). Cyberloafing costs organizations billions of dollars a year due to loss in productivity from employees engaging in non-work activities (Son & Park, 2016). Aside from productivity costs, organizations also lose out on human costs due to disciplinary actions and terminations. Legal fees can also arise due to cyberloafing (Weatherbee, 2010). Employees engaged in cyberloafing may inadvertently share confidential work materials and expose the organization to security threats (Glassman et al., 2015; Weatherbee, 2010). These breaches can lead to reputational loss, personal and organizational liability costs, and ultimately legal costs (Weatherbee, 2010).

Preventative measures can be applied when employees are engaged in these activities on work devices or when connected to the network at the workplace, like blocking modules or internet monitoring (Glassman et al., 2014). When employees are at home or utilizing personal devices, this becomes more difficult (Alharti et al., 2019). Studies have applied theories about selecting employees who would be considered good candidates for teleworking based on personality traits and perceived performance (O'Neill et al., 2014). The urgency for telework that the pandemic created did not allow organizations to select better-fit employees for teleworking based on these traits (Chang

et al., 2021; O'Neill et al., 2014). Instead, employees face other factors in the home that may affect productivity due to the pandemic, including limited child supports access, consequences of increased social isolation, and technostress (Chang et al., 2021; Nimrod, 2020). A better understanding of the relationship between cyberloafing and telework is needed to support this new generation of employees. Organizations can better support employees experiencing technostress with an increased knowledge of how employees teleworking post the pandemic is faring. Organizations must also consider the different levels of deviance in cyberloafing.

**Levels of Cyberloafing**

While cyberloafing includes a wide spectrum of activities, some may be seen as more deviant than others. Blanchard and Henle (2008) categorize cyberloafing into two levels. One level is labeled as minor (web surfing, checking personal emails at work) and the other serious (online gambling, viewing pornography at work) (Blanchard & Henle, 2008). This quantitative study focuses on antecedents to cyberloafing (Blanchard & Henle, 2008). Blanchard and Henle (2008) correlate social norms, belief in chance, and belief in powerful others in this study. Recommendations for organizations were also discussed (Blanchard & Henle, 2008).

This study aimed to develop a meter of measurement of cyberloafing levels (Ghani et al., 2018). Three different levels can be identified, meaning some levels of cyberloafing are considered positive- including the development and recovery levels (Ghani et al., 2018). The third level of measurement labels cyberloafing activities as deviant (Ghani et al., 2018). This Malaysian business has noticed more issues around

cyberloafing due to employees being encouraged to bring their own devices (Ghani et al., 2018). This study is relevant because this meter can be utilized to measure the level of cyberloafing by employees (Ghani et al., 2018).

Hambley & Bercovich (2014) focus on antecedents to cyberloafing to better understand what leads employees to engage in cyberloafing behaviors. They look at the relationship between cyberslacking and procrastination, satisfaction, perceived performance (Hambley & Bercovich, 2014). Personalities are also analyzed against cyberslacking (Hambley & Bercovich, 2014). Antecedent factors to cyberloafing include: feeling bored, job stress, burnout, habit, and employees' perceptions of being treated unfairly (Koay & Soh, 2018). Negative impacts of cyberloafing within an organization include: threatening network security, decreased productivity, and reduced workplace involvement (Koay & Soh, 2018). Employees engaging in cyberloafing may browse unsecured websites or download items containing a virus or malware, which can threaten network security ( Koay & Soh, 2018). Another antecedent to cyberloafing includes personalities and other factors organizations can consider for teleworking employees (Hambley & Bercovich, 2014)

Some studies posit that personality is key to selecting remote employees (Hambley & Bercovich, 2014). The focus of this study lies in personal selection and placement systems (Hambley & Bercovich, 2014). This study looks at positive and negative effects and gender differences in beliefs around cyberloafing (Lim & Chen, 2012). Browsing activities versus emailing activities have differing effects on employees (Lim & Chen, 2012). The pandemic did not allow for employee selection prior to

teleworking due to the pandemic, leaving a gap in the literature to explore. Another area studies focus on for cyberloafing includes preventing employees from engaging in cyberloafing activities or consequences.

Organizations have taken different approaches to prevent cyberloafing. Bock and Ho (2009) discuss varying measures organizations may place to prevent cyberloafing, including training, policy, and electronic monitoring (Bock & Ho, 2009). When employees are onboarded, they learn about the expectations of the organization- or social norms (Askew et al., 2019). During this time, some organizations discuss the topic of cyberloafing and clarify to their employees their tolerance level to such activities. Some organizations may take it a step further, with supervisors reminding employees to remain on task and can reprimand employees regularly partaking in cyberloafing activities- as per policy (Bock & Ho, 2009). Some organizations explicitly prohibit cyberloafing- which could lead to more consequences if an employee is found to be engaging in cyberloafing activities. A higher level of cyberloafing restriction includes blocked websites and programs while on the organization's network, preventing access to common sites for cyberloafing (Glassman et al., 2014). Some organizations allow for a limited amount of cyberloafing and utilize a quota module which results in employee empowerment and better use of the internet in the workplace (Glassman et al., 2014). The differing levels of cyberloafing prevention all carry their own consequences. For example, employees of organizations with blocked websites and programs report higher levels of distrust of management staff (Khansa et al., 2017).

**Technostress**

Information and communication technologies (ICTs) have become an integral part of many workplaces, especially during the COVID pandemic. To reduce human contact and prevent the spread of COVID, many businesses adopted new technology practices. Restaurants placed QR codes at tables and introduced ordering from a mobile device at the table, reducing face-to-face contact with servers. Grocery shopping can be done from the comfort of home and delivered to one's doorstep through contactless delivery. Take-out can now be delivered and ordered straight from a phone without leaving one's home. Working remotely has become the new norm for many, and some organizations plan to continue using this working model post-COVID pandemic. Prior to the pandemic, many workplaces did not have a strong model for remote employees, let alone the whole organization working remotely. This transition was unexpected and quickly executed due to the nature of the COVID pandemic and state mandates implemented to promote social distancing. ICT changes can be a source of stress.

Technology allows for improved productivity and efficiency in the workplace (Lim, 2002). While there have been some benefits to technology in the workplace, it is also impacting employees in the workplace. Stress is a familiar concept relating to the workplace. Stress is a human response to the dissonance between one's environment and capacity expectations. Stress is also an adaptation or reaction in response to stressors or variables that alter an organisms' homeostasis (La Torre et al., 2018). Tarafdar et al. (2007) define stress as a human cognitive response when individuals anticipate the response they are capable of will fall short of the perceived demands. Stress also relates

to the negative consequence that proceeds an inadequate response (Tarafdar et al., 2007). Nimrod (2017) defines technostress as stress-induced from computer information and communication technology (ICT) use. Technostress can result from employees struggling to cope and adapt to ICT use (Tarafdar et al., 2007).

Being a subset of stress, there are physiological consequences of experiencing technostress like worrying about work tasks, difficulty sleeping, and fatigue (Billhart, 2004). Similarly, multitasking, which is aided by ICT use, can negatively affect productivity. Prolonged multi-tasking ultimately can lead to burnout if not addressed, which negatively affects employee productivity (Tarafdar et al., 2007). Employees may take on many tasks simultaneously due to ease of communication via ICT use, which can result in consequences that are not beneficial to the employee or the organization.

Employees having difficulty coping with new ICT in a healthy manner are referred to as experiencing technostress. Technology continues to change and adapt, and employees are expected to keep up (Nimrod, 2017). Brod introduced early definitions of technology stress in 1984 (Agogo & Hess, 2018). That definition was broadened later by Rosen and Weil in 1997, including negative impacts on attitude, thoughts, and behaviors.

Technostress can lead to an aversion to or phobia of technology, called technophobia (La Torre et al., 2018). Technophobia refers to the fear of using technologies and their effects on society (La Torre et al., 2018). Technology users can feel helpless or struggle to grasp technology use leading to high levels of stress around technology use. Stress around technology can be seen as a spectrum with technophobia resulting on the higher end of the spectrum (Agogo & Hess, 2018). Brosnan (2002)

further posits that technophobia relates to both anxieties around the use of ICT and negative attitudes towards computer use. Agogo and Hess (2018) generated a literature review to clarify the difference between technostress and technophobia. Technophobia is indeed a psychological disorder categorized as a specific phobia or an irrational, grandiose response to a fear of a specific object or situation an individual may avoid in order to avoid excessive amounts of distress (Agogo & Hess, 2018). Another concept related to ICT use often discussed in the literature pertaining to technostress is technoaddiction (Nimrod, 2017).

Technoaddiction is another component of ICT use related to technostress, referring to technology use at levels that are considered problematic (Nimrod, 2017). Technoaddiction refers to the negative feelings users experience due to excessive and compulsive technology use (Saranova et al., 2013). Caplan (2010) refers to problematic internet use, including compulsive internet use. With internet use, there is a fine line between using it as a tool to cope with stress and anxiety and when it becomes compulsive and begins to interfere with normal activities of daily living (Caplan, 2010).

ICT use has been cited to induce anxiety and tension in some of its users. Users who do not feel confident in their ICT use can develop apprehension and aversion to technology use (Tarafdar et al., 2007). For some, technostress stemmed from almost constant connection due to increased technology use and decreased home/work-life barriers (Tarafdar et al., 2007). Technostress is associated with reduced job satisfaction, productivity, innovation, and organizational commitment of employees. There are many factors considered to be technostress creators, and this study focuses on these five.

There are five creators of technostress included in the technostress questionnaire developed by Tarafdar et al. (2007), which include: overload, invasion, complexity, insecurity, and uncertainty. Other studies have utilized this measure and adapted it in order to apply it in varying populations (Nimrod, 2020; Pirkkalainan et al., 2019; Zhao et al., 2002). Nimrod (2020) found there is a gap in the literature to address the effects of technostress in older populations and created a questionnaire specific to working with this population. Adaptations were made to the questionnaire, including privacy and inclusion as technostress creators (Nimrod, 2020). Zhao et al. (2002) used the technostress questionnaire and translated it to Chinese for their study of full-time ICT users in China.

**Techno-Overload**

One of the five types of technostress creators includes overload. Overload refers to employees dealing with multiple problems relating to ICT use, inadvertently leading to decreased performance (Nimrod, 2020). Poor connection during zoom meetings or dropped phone calls can lead to frustration, miscommunication, and stress. Employees who were previously meeting in-person weekly, for example, now all meet via a telecommunication program from home (i.e., zoom, Microsoft teams, Skype). If the internet connection is poor, or there is an error within the program, an employee may have to leave the meeting and miss important information. Employees may end up spending the time they would have been meeting with their colleagues, rebooting their computers and restarting the meeting software.

Difficulty with software can lead to losing progress on a big project, and a poor internet connection can result in missing a deadline. Reliance on technology includes

reliance on the internet connection at times, which can be less reliable depending on the

employees' location. Employees working remotely may experience troubles with the

programs they are using, internet access, and ICT complications. ICT issues can result in

the inability to complete work tasks (Tarafdar et al., 2007). Stress experienced due to

these ICT errors is referred to as technostress. Other technostress creators include

invasion.

**Techno-Invasion**

Invasion refers to the stress induced by the lack of work-life boundaries

experienced by employees utilizing ICT (Nimrod, 2020). When measuring invasion,

Nimrod asks if individuals feel technology blurs their work-home boundaries or if

technology interrupts their personal lives (Nimrod, 2020). Employees cite being always

reachable due to email, texting, and other mobile forms of telecommunication being a

source of stress for them (Tarafdar et al., 2007). Receiving an email from a supervisor

after work hours about an important deadline can create stress for employees still

connected to work via their work email on their mobile devices. Mobile devices and

working from home can lead to blurred lines between work and home, especially when

work has transitioned to home. With increased use and availability of technology also

comes updates and changes, which can also be a source of stress for ICT users.

**Techno-Complexity**

Complexity as a technostress creator refers to the regularly changing nature of

ICT and the stress experienced trying to maintain competency (Nimrod, 2020).

Complexity measures ask if individuals feel technology may be too complex to use or if

they do not know enough about their current ICT to use it as intended (Nimrod, 2020).

Many organizations adopted new software in order to transition to remote work due to the

COVID pandemic (Dey et al., 2020). Employees adjusted to a new work environment

and new technology in order to work from home (Dey et al., 2020). Technology supports

usually available were less available due to the large-scale adoption of new

telecommunication software globally, adding difficulty of access for some to the stress

experienced due to complexity (Dey et al., 2020).

**Techno-Insecurity**

Employees experiencing techno-insecurity may experience stress due to feeling

their jobs will be replaced by ICT or users who may be better ICT users (Tarafdar et al.,

2007). Technology has aided in streamlining tasks in the past and, in some cases, has

replaced positions previously employed by people. Due to the constantly changing nature

of ICT, employees have to continue to refresh their skills in order for their skills to

remain relevant in the field. New programs implemented within organizations generally

lead to changes in roles and responsibilities and restructuring (Tarafdar et al., 2007). The

stress around techno-insecurity can lead to a decrease in confidence in ICT use by

employees and feelings of helplessness (Tarafdar et al., 2007). Questions to measure

technostress creator techno-insecurity include: "I feel constant threat to my job security

due to new technologies" and "I have to constantly update my skills to avoid being

replaced" (Tarafdar et al., 2007, p.314).

**Techno-Uncertainty**

Techno-uncertainty refers to the stress creator experienced by ICT users when changes occur in ICT, and they are required to learn new technology or programs (Tarafdar et al., 2007). For example, employees may finally reach a point where they are comfortable with ICT use to complete their tasks, and a change occurs, and now part of their time working on completing tasks will now be spent learning new ICT. Questions to measure technostress creator techno-uncertainty include: "There are always new developments in the technologies we use in our organization" and "There are constant changes in computer software in our organization" (Tarafdar et al., 2007, p.314). Some studies have adapted the original five technostress creators in order to measure technostress in other populations (Nimrod, 2020; Pirkkalainen et al., 2019; Zhao et al., 2002). Privacy and Inclusion as technostress creators were modified in order to measure technostress amongst older populations by Nimrod (2020) and adapted from Tarafdar et al. (2007) original technostress creators: insecurity and uncertainty.

**Techno-Privacy**

Both techno-privacy and techno inclusion will not be measures used in this study but outline other variations of this measure applied in different populations also experiencing technostress. Techno-privacy refers to the stress created by the risk of personal and protected information being exposed or exploited by external parties when using ICT (Nimrod, 2020). With security breaches and personal data being leaked by various organizations seen in the news, users may be skeptical of placing personal information into ICT (Nimrod, 2020). Questions measuring privacy include asking

individuals if they feel uncomfortable knowing their technology can easily be monitored. Nimrod (2020) also asks if individuals feel that their ICT use makes it easier for their privacy to be invaded.

**Techno-Inclusion**

Nimrod (2020) adapted the Technostress questionnaire in order to measure technostress in older adults. Techno-inclusion as a stress creator refers to what users may experience in the workplace with younger colleagues. Techno-Inclusion is a stress-inducing situation in which some users may feel inferior to younger or more experienced ICT users (Nimrod, 2020). An older adult may feel difficulty and pressure to feel included in the present-day technology field (Nimrod, 2020). Nimrod (2020) asks individuals to compare their experience with ICT to younger peers to measure inclusion in older adults.

## Summary and Conclusion

In summary, employees supported by their organizations and offered the option of flexibility in where they work are more engaged (Richman et al., 2008). Technostress has been known by many names, and technology has evolved immensely since the coining of the term, but the stress response remains the same. Technology has afforded the opportunity for remote work, but the pandemic has pushed organizations to a new remote work model with little time for preparation and transition. Further studies are needed exploring technostress experienced by employees working remotely due to the pandemic in order to provide proper support to those organizations who will continue working remotely.  Cyberloafing can further be explored in relation to remote work and with

technostress as a moderator. More studies are needed to understand better cyberloafing in employees working remotely. Cyberloafing studies have mainly been focused on brick-and-mortar workplaces and do not adequately address the use of more personal mobile devices. A better grasp of stressors and possible coping employees working remotely may be engaging in can help organizations provide the support needed to their employees. Chapter 3 discusses the measures and research design selected to address these concerns.

Chapter 3 contains a discussion of the research design, survey instruments, population, and data collection procedure. Chapter 3 also provides a description of the methods to ensure participants' privacy, protection of participants, and data analysis.

Chapter 3: Research Method

**Introduction**

The purpose of this quantitative study was to investigate any differences between workers required to work FT remotely because of pandemic versus those working FT pre-pandemic and the degree of cyberloafing. This study also considered technostress as a moderator to working remotely and cyberloafing. This study focused on the differences between employees working from home prior to the pandemic versus those working from home due to the pandemic and their likelihood to engage in cyberloafing with technostress as a moderator. Chapters 1 and 2 discussed antecedents to cyberloafing and technostress and the relationship and differences between both variables in employees working in brick-and-mortar workplaces. Further investigation is needed to understand the differences between cyberloafing and technostress in employees working from home. Therefore, by applying a method generated from prior related studies, this study planned to examine the differences between remote employees experiencing cyberloafing and technostress.

Chapter 3 includes an overview of the study design, reasoning and detail behind the study design, and the data collection approach. Chapter 3 discusses the target population for this study, privacy practices to protect participants' confidentiality, data collection, and analysis. The summary connects the method and data to the identified gap in research on the subject and population.

**Research Design and Rationale**

A non-experimental quantitative research design was selected for this study. This specific research design included a survey design to empirically evaluate whether there was a difference in cyberloafing in employees working from home prior to the pandemic and those working from home due to the pandemic, with technostress as a moderator (Agogo & Hess, 2018). Various studies used a similar design to study the difference between cyberloafing and Technostress (Agogo & Hess, 2018, Güğerçin, 2020, Urgin & Pearson, 2013). Previous researchers examining the difference between cyberloafing and other variables used a similar research design (Lim & Chen, 2012; Lim & Teo, 2005). Studies focusing on technostress also used a similar research design (Güğerçin,2020; Nimrod, 2020; Tarafdar et al., 2007). A qualitative research design was not selected because this study quantified the difference between these variables rather than describing phenomena. Standard restraints to survey design include employees being fearful of honestly answering survey questions due to fear of repercussions about cyberloafing, as many organizations have a policy against this. To mitigate this, the survey was not disseminated by an organization; there was a promise to protect participants' privacy and ensure that it was evident in the recruitment information. There were no time or resource constraints noted at this time.

The research questions and related hypotheses were as follows:

RQ1: Do tech employees working remotely because of COVID-19 (the pandemic) cyberloaf more than those pre-pandemic remote FT non-managerial tech employees?

$H_0$1: There is a difference in cyberloafing in non-managerial tech employees

working from home prior to the pandemic FT and those working from home FT

due to the pandemic.

$H_A$1: There is no difference in cyberloafing in employees working from home

prior to the pandemic FT and those working from home FT due to the pandemic.

RQ2: Does technostress moderate the difference between FT remote non-

managerial tech employees (pandemic / non-pandemic) and cyberloafing?

$H_0$2: Technostress does not moderate the difference between cyberloafing and

remote working (pre-pandemic vs. pandemic instigated).

$H_A$2: Technostress moderates the difference between cyberloafing and remote

working (pre-pandemic vs. pandemic instigated).

A t-test was performed to understand the difference between working from home

prior to the pandemic rather than post-pandemic remote employees' likelihood to

cyberloaf (Urgin & Pearson, 2013). The Hayes process was performed to examine

whether technostress was a moderator to the difference in likelihood to cyberloafing

between working from home prior versus post the pandemic (Alharti et al., 2019). The

Hayes process in SPSS determined whether the difference between likelihood to engage

in cyberloafing was moderated by technostress as perceived by the employee. The Hayes

process in SPSS determined there was no moderator effect. Restated, the effect of

technostress, if determined to be significant, can have a weak or strong effect on

employees; likelihood to cyberloaf, which in this case was not determined to be

significant. Examining the differences between these variables may inform better practices for organizational leadership to support employees working remotely.

Participants of this study needed to have been working in their current role for more than 3 months and spend at least 80% of their day using technology for their daily job tasks. This study included a demographics questionnaire to gather information about the employee's role (position), amount of time on the job, amount of time spent using technology, and technology types (Tarafdar et al., 2007).

## Methodology

### Population

The target population of this study was employees working remotely for 6 months or more in their non-managerial position. Participants surveyed were employed in the field of technology. Participants either worked remotely FT from home prior to the pandemic or were working FT from home due to the pandemic. Participants must have engaged in work that uses technology for at least 80% of the work tasks. The study was conducted using online surveys to ask employees about their experiences working from home during the pandemic. The sampling frame included non-managerial employees working FT remotely in the technology industry. Exclusion criteria included employees working remotely less than FT, employees who have been working in their position for less than 6 months, and employees who used technology for less than 80% of their work tasks.

**Sampling and Sampling Procedures**

The methodology employed in this study included a non-probabilistic convenience sample. A convenience sample was used because a random sample may not accurately depict the study's population. The convenience sample was also selected due to the ease of finding participants, low cost, and speed of collecting data. There were disadvantages to using a convenience sample for research design. Convenience sample studies are difficult to replicate and do not provide representative results that can be generalized. Sample sizes recommended by G*power were 176 for the t-test. Sample sizes recommended would be at least 88 participants in each group.

**Recruitment, Participation, and Data Collection**

Amazon Mechanical Turks was used with the Cloud Research MTurk toolkit to gather data from the population selected. An overview and instructions and a link to access the surveys through a website (Qualtrics) that includes confidentiality, privacy, and disclosure terms and a survey portal were provided to participants. The participants were self-selected by opting to participate in the study via an invitation by Amazon Mechanical Turks that directed them to the survey. Prior to entering the survey questions, information was provided, including informed consent, information about privacy, and how to contact this researcher if more questions come up. Otherwise, there was no other planned follow-up post the taking of the survey. Participants were recruited via posting the survey link on LinkedIn where they can opt to take part in the survey. The data provided apply to the fields of psychology, technology, industrial and organizational

psychology, and business, and they add to the body of knowledge related to psychological factors and employees working remotely.

Demographic information that was collected from participants included time in current position (less than 6 months was excluded), gender, age (excluded if less than 18 years old), level of education, how much time is spent using technology for their work tasks (less than 80% was excluded), whether employees work fulltime remotely (employees working in brick and mortar workplaces were excluded), and if participants worked FT from home due to the pandemic of if they worked from home prior to the pandemic. These questions were included in a composite electronic survey including questions from Lim's (2002) cyberloafing scale and Tarafdar et al.'s (2007) technostress questionnaire.

**Power Analysis**

Power analysis was completed a priori to determine a minimum sample size using G*Power 3.1 software. An a priori sample size for the t-test was calculated using a medium Cohen's f squared effect size of 0.15, an alpha error probability of 0.05, and a power of 0.80. Sample sizes recommended by G*power are 176 for the t-test. Sample sizes recommended would be at least 88 participants in each group. A medium effect size with higher power would have been acceptable in this study because the goal was to determine whether a difference between the predictor variables (i.e., working remotely due to the pandemic) and the criterion variable (i.e., cyberloafing) exists and how it is moderated by technology stress.

**Instrumentation**

An online questionnaire was compiled containing sections pertaining to cyberloafing, technostress, and demographic information. Permission was requested from authors of measures prior to use. The literature supports the use of the cyberloafing scale developed by Lim (2002; Lim & Chen, 2012; Lim & Teo, 2005). The Technostress questionnaire use was also supported by literature (Güğerçin,2020; Nimrod, 2020; Tarafdar et al., 2007).

**Cyberloafing**

The 22 Cyberloafing Scale developed by Lim (2002) and supplemented by Blanchard and Henle (2008) was used for this study to measure cyberloafing activities employees engage in. The cyberloafing scale developed by Lim measures which cyberloafing activities employees may engage in while working and was published in 2005. The cyberloafing scale includes an 8-item scale ranking behaviors from 1 – 5 (1=Never to 5= constantly; Blanchard & Henle, 2008; Lim, 2002). The remainder of the 14 items were developed by Blanchard and Henle, and respondents specified using a 5-point scale the frequency in which they engaged in cyberloafing activities in the last month from 1-5 (1=Never to 5= constantly). Permission for the use of this scale can be found in the Appendix. The alpha reliability coefficient was 0.86 (Lim & Teo, 2005). Reliability scores were generated from a sample of 463 university employees with diverse occupations (Lim & Teo, 2005). No validity scores were established.

**Technostress**

For this study, technostress was measured using the Technostress Questionnaire developed by Tarafdar et al. (2007). This questionnaire measures the five creators of technostress (overload, invasion, complexity, privacy, and inclusion; Tarafdar et al., 2007). The Technostress Questionnaire, a composite scale, contains 25 questions measuring the five technostress creators, and responses are given on a 5-point scale (ranging 1-5 from strongly disagree to strongly agree; Güğerçin,2020; Tarafdar et al., 2007). Permission was requested for the use of this questionnaire. The reliability of this questionnaire was completed using measures from ICT users from universities and business organizations (Tarafdar et al., 2007). Validity measures involved interviews with ten ICT users from one university and from two business organizations (Tarafdar et al., 2007).

Techno-overload was measured using questions like "I have a higher workload because of increased technology complexity" and "I am forced by this technology to do more work than I can handle." The reliability value calculated using Cronbach's alpha for techno-overload is 0.89 (Tarafdar et al., 2007). Overload refers to employees dealing with multiple problems relating to ICT use, inadvertently leading to decreased performance (Nimrod, 2020).

Techno-invasion was measured using questions like "I spend less time with my family due to this technology" and "I have to be in touch with my work even during my vacation due to this technology." The reliability value calculated using Cronbach's alpha for techno-invasion is 0.81 (Tarafdar et al., 2007). Techno-invasion refers to the stress

induced by the lack of work-life boundaries experienced by employees using ICT (Nimrod, 2020).

Techno-complexity was measured using questions like "I often find it too complex for me to understand and use new technologies" and "I need a long time to understand and use new technologies." The reliability value calculated using Cronbach's alpha for techno- complexity is 0.84 (Tarafdar et al., 2007). Techno-complexity refers to the regularly changing nature of ICT and the stress experienced trying to maintain competency (Nimrod, 2020).

Techno-insecurity was measured using questions like "I do not know enough about this technology to handle my job satisfactorily" and "I have to constantly update my skills to avoid being replaced." The reliability value calculated using Cronbach's alpha for techno- insecurity is 0.84 (Tarafdar et al., 2007). Techno-insecurity refers to the stress created by the risk of job insecurity due to ICT (Tarafdar et al., 2007).

Techno-uncertainty was measured using questions like "There are always new developments in the technologies we use in our organization" and "There are constant changes in computer software in our organization." The reliability value calculated using Cronbach's alpha for techno- uncertainty is 0.82 (Tarafdar et al., 2007). Techno-uncertainty is stress-induced by frequent changes in ICT used by their organization (Tarafdar et al., 2007).

## Data Analysis

The following are the research questions and hypotheses for this study.

RQ1: Do tech employees working remotely because of COVID-19 (the pandemic) cyberloaf more than those pre-pandemic remote FT non-managerial tech employees?

$H_0$1: There is a difference in cyberloafing in non-managerial tech employees working from home prior to the pandemic FT and those working from home FT due to the pandemic.

$H_A$1: There is no difference in cyberloafing in employees working from home prior to the pandemic FT and those working from home FT due to the Pandemic.

RQ2: Does technostress moderate the difference between FT remote non-managerial tech employees (pandemic / non-pandemic) and cyberloafing?

$H_0$2: Technostress does not moderate the difference between cyberloafing and remote working (pre-pandemic vs. pandemic instigated).

$H_A$2: Technostress moderates the difference between cyberloafing and remote working (pre-pandemic vs. pandemic instigated).

Due to the survey being administrated electronically, participants could respond at their own convenience, and results were readily available for analysis. Data was collected using the web-based form created by Mturks. The questions from the cyberloafing scale and technostress questionnaire, along with demographic questions, were transcribed into Qualtrics and uploaded onto Mturks through CloudResearch. When analyzing data, proper data cleaning techniques were applied, and transparency of the analysis process was reported to avoid misinterpretation.

After data was collected, a t-test was performed using SPSS software to understand whether working from home prior to the pandemic rather than post-pandemic

can predict a remote employee's likelihood to cyberloaf (Urgin & Pearson, 2013). To examine whether there was a difference between working from home prior versus post the Pandemic and the likelihood to cyberloaf with technostress as a moderator, The Hayes process in SPSS was used (Alharti et al., 2019). Both analyses were completed using SPSS software. The effect of technostress, if determined to be significant, can have a weak or strong effect on employees' likelihood to cyberloaf.

<div align="center">**Threats to Validity**</div>

This study had employees self-rate their levels of cyberloafing and technostress through survey reporting. This section discusses the internal and external threats to the validity of this study. Due to the convenience sampling utilized for this study, participants were self-selected and self-reported. This analysis was not based on random sampling. Participants in this study may show interest in this study due to experiencing high levels of technostress or engaging in cyberloafing. The internal validity of the study may be threatened by experimental procedures and experiences of participants. One way to mitigate this is using participants from Mturks and linked in. Due to the electronic nature of this survey, it is possible that participants who self-select themselves for this study share commonality.

The validity of this study was threatened by external factors. External threats to validity can result from interpreting the data collected. Incorrect inferences can be made from data collected and analyzed. Generalizing can also be a possible source of external threats to validity. The instruments used for this study have been altered to fit the needs of other studies and are therefore not valid for generalizations. Generalizations about

population samples not included in this study cannot be applied.  Other threats to validity

include nonresponse error and total survey error. While steps were taken to mitigate

nonresponse error, like forced question completion on the survey and the use of

CloudResearch, there is still room for error.

## Ethical Procedures

The guidelines as set forth by the Institutional Review Board (IRB), APA ethics

guidelines, Qualtrics, Mturks (Amazon Mechanical Turks), and the guidance as

prescribed by the authors of the survey instruments used in this study were followed.

Before taking the survey, participants were directed to read a summary of the research

background and informed consent information. Additional information was available to

participants through the contact information provided at the end of the study. In the

research background, the voluntary nature of the study and the nature of participation was

included. Instructions for completing this survey were also available at the start of the

survey.

Privacy information was also outlined, in plain language, in the informed consent.

Participants' information was confidential and remained so under the scope of APA

ethical guidelines, Mturks, Qualtrics, and CloudResearchs' privacy guidelines. The

informed consent described the study, the risks and benefits of participation, and contact

information of this researcher if more questions arise. There is no expected risk to

participants from an employer or employee exposure. Due to the electronic nature of this

survey, it was accessible to the participant anywhere on a compatible internet-connected

device. The target population being surveyed is not vulnerable. The topic of interest was

not considered sensitive that an adverse influence could result due to the way that participants were being recruited for the study.

Data collected will be securely formatted and held for five years. Any hard copy of data will be stored in a secured filing cabinet. Data retention will be electronic, password protected, encrypted, and secured. Data access is expected only to be available to this researcher and dissertation committee members at Walden University. Collected data will be eligible for destruction after the five years of retention have passed. Upon five years post-collection, both physical and electronic copies will be deleted and or shredded. The survey copyright holders retain all rights associated with the respective surveys used in the study.

<h3 style="text-align:center">Summary</h3>

This quantitative survey design study investigated the difference between workers required to work (full-time) FT remotely because of pandemic versus those working FT pre-pandemic and the degree of cyberloafing, using technostress as a moderator. Sample sizes recommended by G*power are 176 for the t-test. Sample sizes recommended would be at least 88 participants in each group. SPSS software was used to analyze data collected and examined the difference and moderation effects between the variables in question. The instruments selected for this study and their reliability are all discussed in Chapter 3. The use of Qualtrics, Mturks, and CloudResearch for survey dissemination are discussed, and threats to validity are explored. Participant selection, exclusions, informed consents, and ethical considerations are also addressed in Chapter 3. Chapter 4 discusses data analysis and summarizes the research findings.

Chapter 4: Results

**Introduction**

In this chapter, the two research questions and resulting analysis of the two groups are presented. Chapter 4 restates the purpose of this study, the research questions, summarizes the data analysis, and the research findings. The purpose of this study was to examine any differences in cyberloafing between employees working remotely due to the pandemic and those employees working remotely prior to the pandemic. Organizations are considering adopting these practices long-term as the workplace shifts into digitization, and this study seeks to provide more information on the remote employees' experience (Soto-Acosta, 2020).

The independent variable was whether employees work remotely prior to the pandemic or if they work remotely due to the pandemic. The dependent variable was their likelihood to cyberloaf. The intent of this study was to compare the means of employees working remotely due to the pandemic to those working remotely prior to the pandemic and if technostress is a moderator to cyberloafing these two groups. The predictor variable in this study was whether employees work remotely prior to the pandemic or if they work remotely due to the pandemic. The criterion variable was employee likelihood to cyberloaf, and technostress is the moderator. The primary research question was, Do tech employees working remotely because of COVID-19 (the pandemic) cyberloaf more than those pre-pandemic remote FT non-managerial tech employees? The magnitude of the differences in the means was small.

This study failed to reject the null hypothesis; there was no difference in cyberloafing in non-managerial tech employees working from home prior to the pandemic FT and those working from home FT due to the pandemic. The alternative hypothesis, there was a difference in cyberloafing in employees working from home prior to the pandemic FT and those working from home FT due to the pandemic, was rejected.

The second research question was, Does technostress moderate the difference between FT remote non-managerial tech employees (pre-pandemic vs. pandemic instigated) and cyberloafing? The results revealed no significant moderating effect of technostress on the relationship between cyberloafing and remote non-managerial tech employees who worked remotely due to the pandemic versus those working remotely prior to the pandemic. The null hypothesis was not rejected; technostress was not found to moderate the difference between cyberloafing and remote working (pre-pandemic vs. pandemic instigated). The alternative hypothesis, technostress moderates the difference between cyberloafing and remote working (pre-pandemic vs. pandemic instigated), was rejected. The tables describing the data collected for these two research questions can be found in the data collection section of this chapter.

## Data Collection

Amazon Mechanical Turks was used with the Cloud Research Mturk toolkit to gather data from the population selected. An overview and instructions and a link to access the surveys through a website (Survey Monkey) that included confidentiality, privacy, and disclosure terms and a survey portal were provided to participants. The participants were self-selected by opting to participate in the study via an invitation by

Amazon Mechanical Turks that directed them to the survey. Prior to entering the survey

questions, information was provided, including informed consent, information about

privacy, and how to contact this researcher if more questions come up. Otherwise, there

was no other planned follow-up post the taking of the survey. Participants were not

recruited via posting the survey link on LinkedIn as described in Chapter 3.

Demographic information collected included race and ethnicity, gender, education

level, relationship status, and if they worked remotely prior to the pandemic. Two

hundred eighty participants did work remotely prior to the pandemic, and 289

participants that did not work remotely prior to the pandemic constituted a convenience

sample of 569 participants, as shown in Table 1. Most of the participants were college

educated.

**Table 1**

*Number of Participants Working Remotely Prior to the Pandemic*

| Worked remotely prior to the pandemic | Number of responses |
|:---:|:---:|
| Yes | 280 |
| No | 289 |

These adults ranged from ages 18-60 or older, and 34% of participants were

between the ages of 30-39 (Table 2). When asked about gender, 50% of participants

identified as female, 48% as male, and less than 1% chose Other (Table 3). The tables

below provide demographic information about the population. The period for data

collecting occurred in June 2022. Based on the race and ethnicity make-up from the

survey, this was not a representative sample compared to the U.S. census data for 2020 as

shown in Table 4 (U.S. Census Bureau, 2021).

**Table 2**

*Age of Participants*

| Age | Number of responses | % |
|---|---|---|
| 18 – 20 | 9 | 1.59 |
| 21 – 29 | 149 | 26.15 |
| 30 – 39 | 198 | 34.98 |
| 40 – 49 | 130 | 22.97 |
| 50 – 59 | 65 | 11.48 |
| 60 and older | 16 | 2.83 |

**Table 3**

*Gender of Participants*

| Gender | Number of responses | % |
|---|---|---|
| Male | 274 | 48.41 |
| Female | 288 | 50.88 |
| Other | 4 | 0.71 |

**Table 4**

*Race and Ethnicity of Participants*

| Race or Ethnicity | Number of responses | % |
|---|---|---|
| Asian | 35 | 6.17 |
| Black or African American | 60 | 10.58 |
| Hispanic or Latino | 45 | 7.94 |
| Middle Eastern or North African | 1 | 0.18 |
| Multiracial or Multiethnic | 15 | 2.65 |
| Native American or Alaska Native | 3 | 0.53 |
| Native Hawaiian or other Pacific Islander | 1 | 0.18 |
| White | 401 | 70.72 |
| Another race or ethnicity | 6 | 1.06 |

**Results**

**Preliminary Analysis**

Outliers in the data can lead to type I and type II errors. The preliminary analysis run was focused on mean scores for the cyberloafing scales and technostress scales. After examining the mean scores no cases were identified and eliminated. Mean scores were calculated for a few responses from two participants. Prior to interpreting the t-test results, the assumptions were evaluated. The assumptions that both variables are continuous was met. Our analysis includes two variables being compared. Both groups being compared are independent of one another. Shapiro-Wilk test was completed to confirm the dataset was normally distributed (p= .44). Levene's test for equal variances was completed and equal variance was confirmed (p=.36).

Prior to interpreting the moderating effect results, the assumptions were evaluated. The assumptions of linearity and homoscedasticity were not met (see Figure 1). Our analysis includes two variables being compared, and the dependent variable is continuous while the independent scale is categorical. Both groups being compared are independent of one another. The data did not show multicollinearity (VIF= 1.00). The Durbin-Watson statistic test was completed to confirm independence of residuals signaling normally distributed residuals (Durbin-Watson=1.96). There were no significant outliers in the data collected.

Data were analyzed in three different steps. First, the mean and standard deviation scores of the overall scale and subscales were assessed for the Technostress Questionnaire (Table 5) and cyberloafing scale (Table 6 & Table 7). The mean was

achieved by averaging the scores for each of the sub-scales of the technostress questionnaire. Second, an independent-samples t-test was conducted to compare cyberloafing in both groups. Third, the moderating role of Technostress (TS) was analyzed on the relationship between cyberloafing in both groups.

**Table 5**

*Mean Scores, t Values, and p Values of TS (Moderator) Subscales for All Participants*

| TS subscales | Mean score for pre-pandemic remote employees | Mean for post-pandemic remote employees | t | p |
|---|---|---|---|---|
| Overload | 3.16 | 2.99 | 2.20 | 0.03 |
| Invasion | 2.77 | 2.60 | 1.93 | 0.05 |
| Complexity | 2.34 | 2.32 | 0.35 | 0.73 |
| Insecurity | 2.54 | 2.47 | 0.97 | 0.33 |
| Uncertainty | 3.42 | 3.30 | 1.77 | 0.08 |
| Total mean score | 2.85 | 2.74 | 1.96 | 0.05 |

**Table 6**

*Mean Scores, t Values, and p Values of Cyberloafing for All Participants – Browsing Activities*

| Browsing activities | Mean for pre-pandemic remote employees | Mean for post-pandemic remote employees | t | p |
|---|---|---|---|---|
| Non-job-related websites | 4.45 | 4.40 | 0.47 | .64 |
| General news websites | 4.01 | 3.88 | 1.23 | .22 |
| General entertainment websites | 3.61 | 3.69 | -0.64 | .53 |
| Sports related websites | 2.66 | 2.53 | 0.97 | .33 |
| Instant messaging | 3.96 | 4.03 | -0.50 | .62 |
| Downloading non-work-related info | 3.18 | 3.19 | -0.07 | .95 |
| Looking for employment | 2.53 | 2.40 | 1.13 | .26 |
| Online shopping | 3.01 | 3.12 | -0.97 | .33 |
| Playing online games | 3.01 | 2.88 | 0.94 | .35 |

**Table 7**

*Mean Scores, t Values, and p Values of Cyberloafing for All Participants – Emailing Activities*

| Emailing activities | Mean for pre-pandemic remote employees | Mean for post-pandemic remote employees | t | p |
|---|---|---|---|---|
| Checking non-work email | 4.18 | 4.33 | -1.35 | .18 |
| Sending non-work email | | | | |
| Receive non-work email | 3.47 | 3.44 | 0.26 | .80 |
| | 4.18 | 4.37 | -1.59 | .13 |

**Independent t-Test**

An independent-samples t-test was conducted to compare cyberloafing for employees in tech who worked remotely due to the pandemic and employees in tech who worked remotely prior to the pandemic. There were no significant differences (t(567)= .467, p= .641) in the scores for employees in tech who worked remotely due to the pandemic( M=4.40, SD=1.319) and employees in tech who worked remotely prior to the pandemic ( M=4.45, SD=1.340). The magnitude of the differences in the means (mean difference=.052, 95% Cl:-.167 to 271 ) was very small; hence H0 was not rejected (see Table 6 & 7).

**Table 8**

*Difference in Cyberloafing in Employees Working Remotely Prior to the Pandemic and Due to the Pandemic*

| | | Mean | SD | Levene's Test for Equality of Variances | | | | t-test of equality of means | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | F | Sig | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95 % Confidence Interval of the Difference | |
| | | | | | | | | | | | Lower | Upper |
| Worked remote prior to the pandemic | Yes | 4.45 | 1.340 | .001 | .981 | .467 | 567 | .641 | .052 | .112 | -.167 | .271 |
| | No | 4.40 | 1.319 | | | | | | | | | |

**Hayes Method**

The study assessed the moderating role of Technostress (TS) on the relationship between Cyberloafing(CL) and employees working remotely prior to the pandemic or due to the pandemic (PP). The results revealed no significant moderating effect of TS on the relationship between CL and PP (b= .0704, t = .6471, p = .5178), hence H0 failed to be rejected (see Figure 1).

**Table 9**

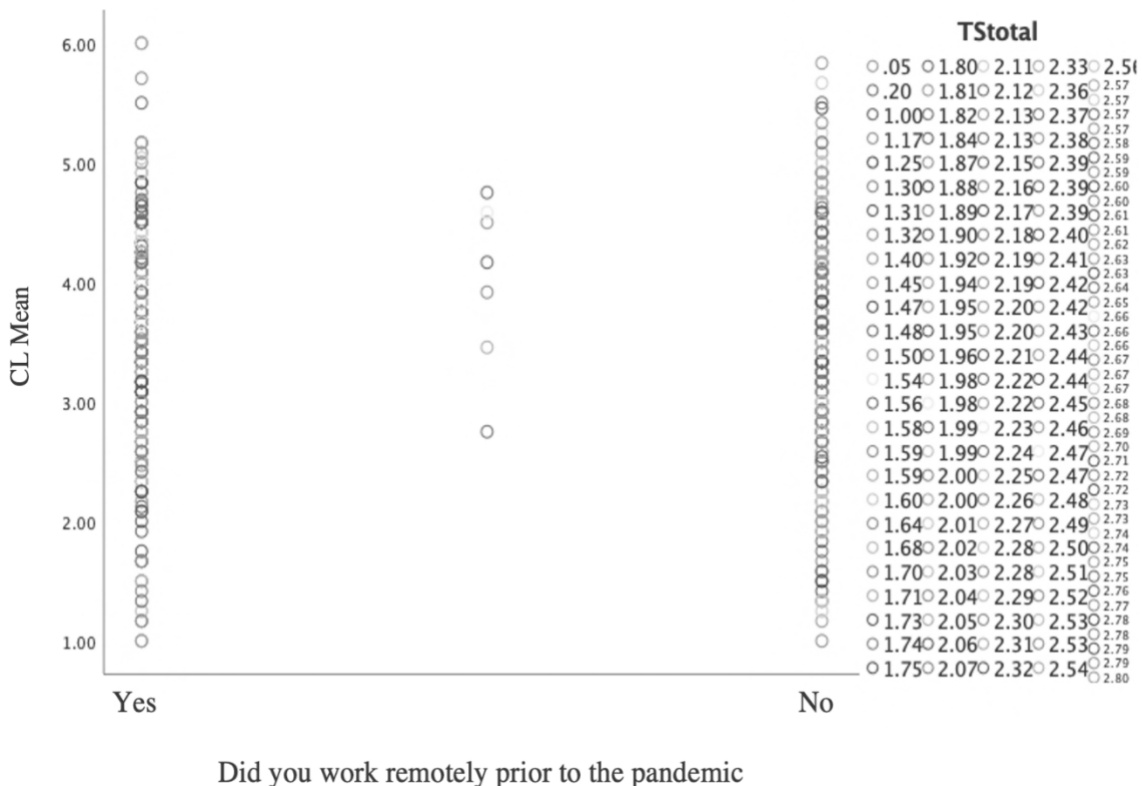*CL in Employees Working Remotely (Pre-Pandemic vs. Pandemic Instigated) Moderated by TS*

| | Coeff | Se | T | P | LLCI | ULCI |
|---|---|---|---|---|---|---|
| Interaction | .0704 | .1088 | .6471 | .5178 | -.1433 | .2840 |

**Figure 1**

*CL in Employees Working Remotely (Pre-Pandemic vs. Pandemic Instigated) Moderated by TS*

TStotal

.05  1.80  2.11  2.33  2.56
.20  1.81  2.12  2.36  2.57
1.00  1.82  2.13  2.37  2.57
1.17  1.84  2.13  2.38  2.57
1.25  1.87  2.15  2.39  2.58
1.30  1.88  2.16  2.39  2.59
1.31  1.89  2.17  2.39  2.60
1.32  1.90  2.18  2.40  2.61
1.40  1.92  2.19  2.41  2.62
1.45  1.94  2.19  2.42  2.63
1.47  1.95  2.20  2.42  2.64
1.48  1.95  2.20  2.43  2.66
1.50  1.96  2.21  2.44  2.67
1.54  1.98  2.22  2.44  2.67
1.56  1.98  2.22  2.45  2.68
1.58  1.99  2.23  2.46  2.69
1.59  1.99  2.24  2.47  2.70
1.59  2.00  2.25  2.47  2.72
1.60  2.00  2.26  2.48  2.73
1.64  2.01  2.27  2.49  2.73
1.68  2.02  2.28  2.50  2.74
1.70  2.03  2.28  2.51  2.75
1.71  2.04  2.29  2.52  2.76
1.73  2.05  2.30  2.53  2.78
1.74  2.06  2.31  2.53  2.79
1.75  2.07  2.32  2.54  2.80

CL Mean (y-axis: 1.00, 2.00, 3.00, 4.00, 5.00, 6.00)

Did you work remotely prior to the pandemic (x-axis: Yes, No)

**Summary**

The primary research question was, Do tech employees working remotely because of COVID-19 (the pandemic) cyberloaf more than those pre-pandemic remote FT non-managerial tech employees? The magnitude of the differences in the means was very small; hence, the null hypothesis failed to be rejected. The second research question is, Does TS moderate the difference between FT remote non-managerial tech employees (pre-pandemic vs. pandemic instigated) and cyberloafing? The results revealed no significant moderating effect of TS on the relationship between cyberloafing and remote

non-managerial tech employees who worked remotely due to the pandemic versus those

working remotely prior to the pandemic. The null hypothesis was not rejected; TS was

not found to moderate the difference between cyberloafing and remote working (pre-

pandemic vs. pandemic instigated). There was no significant difference in cyberloafing in

employees working remotely pre-pandemic versus pandemic instigated, and no

significant moderation was found. Chapter 5 further explores the implications of these

results.

Chapter 5: Discussion, Conclusions, and Recommendations

**Introduction**

The COVID-19 pandemic called for social distancing and a complete redefining of the workplace. Remote employees' screen time was greatly affected by the pandemic (Nimrod, 2020). Organizations shifted from uncertainty around allowing employees to work remotely to relying on remote work to remain afloat (Majumdar et al., 2020). Many organizations are looking to permanently adopt remote work practices, and more information about the remote work experience is needed to provide employees with what they need to be successful in their work (Soto-Acosta, 2020). The purpose of this study was to examine any differences in cyberloafing between employees working remotely due to the pandemic and those employees working remotely prior to the pandemic and if TS is a moderator to this relationship. The results concluded that there is no significant difference between cyberloafing employees working remotely due to the pandemic and those working remotely prior to the pandemic, and TS does not moderate this relationship. Chapter 5 includes an interpretation of the findings of this study, its limitations, future recommendations, and implications.

**Interpretation of the Findings**

Studies have found that the pandemic has negatively affected the health and well-being of employees working from home. Employees report feeling isolated, experiencing work dissatisfaction, and negatively impacting their well-being, which could lead them to be more likely to cyberloaf (Majumdar et al., 2020). The pandemic's effects on the amount of time employees teleworking spend dealing with TS and cyberloafing is still

unclear, but what has been clarified is that there is no significant difference in cyberloafing in employees working remotely prior to the pandemic versus those working remotely due to the pandemic.

Aker's social learning theory postulates that deviant behavior is not innate but learned through one's environment. This behavior is picked up from one's environment-in this case, the office culture (Khansa et al., 2017). As employees begin their employment as remote employees, what influences them to engage in cyberloafing behaviors? While many remote employees in this study report engaging in cyberloafing activities, the motive remains unclear. Previous studies have found a relationship between cyberloafing and procrastination, satisfaction, and perceived performance (Hambley & Bercovich, 2014). This study finds there is no significant difference in cyberloafing between employees working remotely prior to the pandemic versus those working remotely due to the pandemic. The mean scores for techno-invasion (1.91 Tarafdar et al., 2007; 2.68 for this study) and tehno-insecurity (2.00 Tarafdar et al., 2007; 2.50 for this study) are higher for this population compared to the study completed by Tarafdar et al., (2007). The populations are similar ICT users, but during different times, as the Terafdar et al. study was completed in 2007. This increase in techno-invasion can relate to the introduction of FT remote work for this study. The increase in techno-insecurity can be due to the everchanging nature of ICT use these users' experience. Similarly, Nimrod (2020) found an increase in techno-invasion in older adults comparing scores collected in 2016 and 2020 (before and during the pandemic). Further studies are recommended

looking at techno-invasion and how remote employees can achieve better work-life balance in this new remote work environment.

## Limitations of the Study

After reviewing the existing body of research as well as the results of this quantitative archival study, I have identified the following limitations which arose during my investigation. The sample size collected is not representative of the U.S. population and is not readily generalizable. It also focuses on employees working in the tech industry and not other industries of work. The sample size should reflect the target population.

Another limitation is that the study was conducted using online surveys to ask employees questions about their experiences working from home during the pandemic. Participants may have answered less accurately due to feeling fearful of honestly answering survey questions due to fear of repercussions of cyberloafing. Another limitation is the timing of the survey. The lack of difference in the two groups could be due to employees adjusting to this new work-from-home environment. Social distance mandates went into place in 2020 in the United States (Rudolph et al., 2021). Gathering data 2 years later in 2022 allowed for employees who have been working remotely time to adjust.

## Recommendations

ICT use has been cited to induce anxiety and tension in some of its users. Users who do not feel confident in their ICT use can develop apprehension and aversion to technology use (Tarafdar et al., 2007). For some, TS stemmed from almost constant

connection due to increased technology use and decreased home/work-life barriers (Tarafdar et al., 2007). TS is associated with reduced job satisfaction, productivity, innovation, and organizational commitment of employees. As organizations look to adopt these practices long-term, it is important to better understand the remote employees' experience and help mitigate this technology-induced stress (Soto-Acosta, 2020). Future studies can explore the relationship between TS and cyberloafing in remote employees of different industries. Future qualitative studies can also help us better understand the remote employee experience. Qualitative studies to better understand these increased experiences of techno-invasion and techno-uncertainty can also help educate needed supports for remote employees.

Employees working from home may be engaging in cyberloafing, or voluntary web usage during work hours, which some employers see as deviant and counterproductive (Blanchard & Henle, 2008). Other studies conclude cyberloafing is a form of reprieve and needed (Mercado et al., 2017). This study doesn't look at other moderators for cyberloafing. Future studies can look at the differences between parents who work from home and are primary caretakers of children and TS and cyberloafing. Participants from this study live in the United States; future studies can expand to look at different countries and cultures in relation to cyberloafing and TS. Specific questions about workplace environment and company culture are not explored in this study. A qualitative study or mixed methods study would be beneficial to further explore factors impacting remote employees relating to TS and cyberloafing. Future studies can build on this information and gather more qualitative data on remote employees experiencing TS

and cyberloafing and its antecedents to better inform future pieces of training and structural supports to mitigate it.

## Implications

This study further develops research concerning cyberloafing, its moderators, and employees working remotely during the pandemic. Specifically, this study aids employers in planning for continued remote work as employees are still experiencing TS and engaging in cyberloafing behaviors, and employers can provide support to help mitigate it. If employees who are stressed or do not have enough support resort to cyberloafing, providing them with proper tools and training to mitigate this could decrease employees' cyberloafing and possibly save the company money (Lim & Chen, 2008). Reducing costs is beneficial to both the organization and its stakeholders, and the funds generated can be reinvested in training and professional development. Organizations can invest in their employees, leaving employees better equipped to handle work stressors that improve work-life balance (Rodríguez-Modroño & López-Igual, 2021). Better work practices that can lead to more work-life balance for employees result in positive social change (Rodríguez-Modroño & López-Igual, 2021; Shao et al., 2021).

## Conclusion

The COVID-19 pandemic forever changed the workplace, and organizations can benefit from learning more about remote work and technology use, and work-life balance. Organizations took the plunge and shifted to working from home during the pandemic without a previous framework to draw from. Additional knowledge on the

remote employees' experience can help inspire future studies to support this new generation of employees working from home.

The purpose of this study was to determine the difference between cyberloafing in employees working remotely prior to the pandemic and those working remotely due to the pandemic and if TS is a moderator. While this study found that there is no significant difference in these two groups, nor a moderation of TS, what is clear is that employees working remotely due to the pandemic have adjusted.

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Appendix: Cyberloafing Scale Permission

**‹PsycTESTS**®

**Cyberloafing Scale**

PsycTESTS Citation:
Lim, V. K. G., & Teo, T. S. H. (2005). Cyberloafing Scale [Database record]. Retrieved from PsycTESTS. doi: https://dx.doi.org/10.1037/t68491-000

Instrument Type: Rating Scale

Test Format:
All 12 items are measured using a 6-point scale ranging from Never to Constantly, with the following mid-point labels: A few times a month, A few times a week, Once a day, and A few times a day.

Source:
Pindek, Shani, Krajcevska, Alexandra, & Spector, Paul E. (2018). Cyberloafing as a coping mechanism: Dealing with workplace boredom. Computers in Human Behavior, Vol 86, 147-152. doi: https://dx.doi.org/10.1016/j.chb.2018.04.040, © 2018 by Elsevier. Reproduced by Permission of Elsevier.