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# Examining the Relationship between Technostress and the Effectiveness of Organizational Communication

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Examining the Relationship between Technostress  
and the Effectiveness of Organizational Communication

Lisa K. Hajdasz

A thesis submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

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May 2019

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## **Dedication**

To my beautiful girls, Samantha and Emma.

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## Table of Contents

<i>Dedication</i> .....	<i>ii</i>
<i>Acknowledgements</i> .....	<i>iii</i>
<i>Table of Contents</i> .....	<i>iv</i>
<i>List of Tables</i> .....	<i>vi</i>
<i>List of Figures</i> .....	<i>vii</i>
<i>Abstract</i> .....	<i>viii</i>
<b>Chapter 1: Introduction</b> .....	<b>1</b>
Problem Statement .....	3
Purpose of the study .....	3
Research question(s) and Hypotheses .....	4
Assumptions, Limitations, and Scope .....	5
Significance .....	6
Key Term Definitions .....	7
<b>Chapter 2: Literature Review</b> .....	<b>8</b>
Conceptual Framework .....	8
Theoretical Framework .....	9
Cognitivism.....	9
Connectivism.....	10
Organizational Communication .....	11
Technostress .....	15
Communication overload.....	15
Information overload.....	17
Technology overload and technostress.....	18
Work-Life Balance .....	19
Research Gap .....	21
<b>Chapter 3: Methodology</b> .....	<b>24</b>
Research Design .....	24
Population and Sample .....	26
Instrumentation .....	27
Data Collection and Procedures .....	30
Data Analysis .....	30
Protection of Human Subjects.....	32
<b>Chapter 4: Findings</b> .....	<b>33</b>

Demographics .....	36
Quantitative Methods.....	37
Qualitative Methods .....	47
Mixed Methods .....	51
<i>Chapter 5: Discussion and Conclusion.....</i>	<i>54</i>
Overview of Key Findings.....	55
Implications for Practice.....	57
Recommendations for Future Study.....	58
Conclusion .....	59
<i>References .....</i>	<i>61</i>
<i>Appendix A: IRB Application and Approval .....</i>	<i>68</i>
<i>Appendix B: Survey Instrument.....</i>	<i>89</i>
<i>Appendix C: JMU Publications.....</i>	<i>102</i>

## **List of Tables**

Table 1: Key Terms and Definitions.....	7
Table 2: Survey Instrument Examples.....	29
Table 3: Connecting Research Questions to Survey Questions.....	31
Table 4: Survey Demographics.....	36
Table 5: Survey Subscale Reliability.....	37
Table 6: Responses of “Strongly agree” and “Somewhat agree” to constructs of Technostress.....	40
Table 7: One-Way Analysis of Variance Summary Table Comparing Amount of Emails Received on a Typical Business Day Groups on Average Information Overload and Communication Overload Scores .....	41
Table 8: One-way Analysis of Variance Summary Table Comparing 5 Generational Levels on Average Information Overload and Communication Overload Scores .....	43
Table 9: Means and Standard Deviations Comparing 5 Generational Levels .....	44
Table 10: One-way Analysis of Variance Summary Table Comparing Gender Identities on Average Information Overload and Communication Overload Scores.....	45
Table 11: One-way Analysis of Variance Summary Table Comparing Employee Job Roles on Average Information Overload and Communication Overload Scores.....	46
Table 12: Coding Frequency Table: Email Strategies .....	48
Table 13: Coding Frequency Table: Email Prioritization.....	49
Table 14: Coding Frequency: Open comments .....	51

## **List of Figures**

Figure 1. Depiction of research framework .....	9
Figure 2. Convergent Parallel Mixed-Methods Model .....	26
Figure 3: Simple Scatter of Average Information Overload Scores by "On a typical business day I receive the following number of emails" .....	42
Figure 4: Generations Means Plot.....	43



## **Abstract**

Research has shown that organizational communication plays a pivotal role in both employee engagement and commitment to the organization. However, in today's business world, employees are required to process ever increasing amounts of information through a growing number of communication channels using various information and communication technologies (ICT). This leads to a phenomenon termed technostress. The purpose of this study was to determine if the quantity of communication disseminated by James Madison University (JMU) had any impact on the stress levels of its faculty and staff. The study utilized an anonymous online Qualtrics survey which was disseminated to all active faculty and staff at James Madison University (JMU). Taking a mixed-methods approach, the survey asked a series of questions related to employee demographics, use of JMU communication channels, and email management practices using a stress related instrument. Overall, both quantitative and qualitative survey responses indicated that a majority of the participating faculty and staff at JMU felt impacted by both information and communication overload. Unfortunately, qualitative data indicated that several employees are trying to self-manage this overload by either responding to emails outside of work hours or by trying to circumvent email by turning to alternative communication platforms. By understanding how JMU employees manage their email and what leads to stress, this research provides insight on alternative ways that organizations can disseminate necessary information without adding to an employee's level of stress.

## **Chapter 1: Introduction**

It is estimated that US companies lose over five hundred billion dollars every year on decreased worker productivity due to interruptions from technology (Spira & Goldes, 2007, p. 10). Interruptions come in the form of email, text message, social media, instant messaging, voicemails, phone calls, etc. These are all examples of Information and Communication Technologies (ICT). Onivehu, Adegunju, Ohawuiro and Oyeniran (2018) define ICT as, “an umbrella term that covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form” (p. 70). Knowing that effective communication is vital to the success of any organization, when these technologies were first introduced, they were developed for the purpose of making it easier for us to communicate. By providing a means to quickly and efficiently disseminate information to employees at all levels, organizations that communicate well can significantly impact employee engagement, organizational commitment, and positive organizational citizenship behavior (Bray & Williams, 2017; Men, 2014a; Tkalac Verčič & Poloski Vokić, 2017; Yildiz, 2016).

As communication became more complicated and the amount of available information grew, companies, in an effort to help us cope, added additional technologies to assist in processing it all. Tarafdar, Tu, and Ragu-Nathan (2010) state that “organizational use of information and communications technologies (ICTs) has become complex, real-time, ubiquitous, and functionally pervasive, often requiring users to process information simultaneously and continually from different applications and devices” (p. 304). This growth in ICT use has led to a phenomenon of technostress - increasing stress levels for employees resulting from the individual’s limited ability to

process the continually increasing amount of information being distributed via different and constantly changing ICT (Tarafdar, et al., 2010). We are overwhelmed; our brains just simply do not have the bandwidth to process the massive amounts of information being delivered through so many different communication channels (Cho, Ramgolam, Schaefer, & Sandlin, 2011; Kalman & Ravid, 2015; Ledzińska & Postek 2017; Mark, Iqbal, Czerwinski, Johns, Sano, & Lutchyn, 2016).

Technostress is not just isolated to our offices, we bring it home with us when we check email on our phones or answer text messages after hours. A recent Wall Street Journal article (Kitchen, 2018) not only chronicled the rise of the ‘Always On’ culture, but also provided readers strategies on ways to disconnect, even if only temporarily. With current ICTs providing ever faster and easier ways to connect, Kitchen (2018) offers a caution to readers... “It just takes a second, right? But those rapidly accumulating seconds are just technology’s version of death by 1,000 cuts, expanding the workday’s boundaries until it seamlessly blurs with the rest of civilian life” (para. 3). In some extreme circumstances, policies are being implemented to help mitigate the deluge of organizational communication outside of working hours, helping employees on their quest for better work-life balance (Jones, 2018; Kitchen, 2018; Stich, Tarafdar, & Copper, 2018; Volkswagen turns off Blackberry, 2012). Sadder still is that research has shown this stress not only impacts our well-being, but the well-being of other members in our household (Becker, Belkin, & Tuskey, 2018; Cecchinato, Cox, & Bird, 2015).

While ICTs are intended to help employees be more effective in their jobs, they actually lead to potential stress and ineffective communication. With technostress putting employees in an almost desperate position, the burden, it seems, falls to the organization

to step in and provide employees with the tools needed to better manage information and communication overload.

### **Problem Statement**

There is no denying that communication plays a vital role in the success of any organization. However, with the channels of communication constantly open and a demonstrated effect of information and communication technologies on the stress levels of workers, a problem begins to emerge. The problem is organizations do not know the best strategies to communicate with an employee in a way that does not add stress, does not decrease productivity and does not get lost in the noise of all the other communication and information an employee is receiving and processing.

### **Purpose of the study**

The purpose of this study was to determine if the quantity of communication disseminated by James Madison University (JMU) had any impact on the stress levels of its faculty and staff. The study took several approaches to answer this question. First, the study attempted to audit the number of communication channels utilized by employees at James Madison University. Next, the study looked at the effects of information and communication technology use on stress levels of employees of James Madison University. Lastly, the study attempted to determine whether a correlation exists between the number of emails an employee receives each day and their level of stress as measured by information overload and communication overload subscales.

To explore these questions, an anonymous online Qualtrics survey was disseminated via email to all active faculty and staff at James Madison University, a higher education institution located in Harrisonburg, Virginia. The survey measured

employee's levels of information overload, communication overload, and performance utilizing a tool initially developed by Karr-Wisniewski & Lu (2010) to measure technology overload. Additionally, the survey asked a series of questions related to employee demographics, use of JMU communication channels, and email management practices. By understanding how JMU employees manage their email and what leads to stress, this research can add to a discussion on alternative ways that organizations can disseminate necessary information without adding to an employee's level of stress. This information can then inform departments across campus on how to improve their communications and ensure that messages are heard by the ones who need to hear them most.

### **Research question(s) and Hypotheses**

The study seeks to answer the following questions:

RQ1. How many communication methods are used by the university to disseminate information to employees?

RQ2. Do JMU employees report experiencing the phenomenon of technostress as measured by information overload, communication overload and personal performance subscales?

RQ3. Is there a statistically significant difference between the number of emails an employee receives on a daily basis and employee's level of technostress?

RQ4. Are there statistically significant differences between the 5 generational levels in regard to average information overload scores?

RQ5. Are there statistically significant differences between the 5 generational levels in regard to average communication overload scores?

RQ6. Are there statistically significant differences between gender identities in regard to average information overload scores?

RQ7. Are there statistically significant differences between gender identities in regard to average communication overload scores?

RQ8. Are there statistically significant differences between job roles in regard to average information overload scores?

RQ9. Are there statistically significant differences between job roles in regard to average communication overload scores?

RQ10. Is there a statistically significant association between information overload and communication overload?

RQ11. What strategies do faculty and staff at JMU employ to manage information and communication overload as evidenced by their email inbox?

RQ12. Does the qualitative data on email inbox management converge with the quantitative data on technostress as measured by information overload and communication overload subscales?

This research project has several hypotheses:

1. As the number of communications to employees increases, so does the stress levels of JMU employees.
2. Increased stress leads to a decrease in the effectiveness of communication as workers try to avoid stress inducing communication channels.

### **Assumptions, Limitations, and Scope**

The scope of this research is limited to only the active faculty and staff of James Madison University thus the generalizability of this study is limited to the borders of this

campus. It also needs to be stated that due to the fact the study was disseminated via email, it may have missed those most affected by the very technostress the study is attempting to assess. This may have an unintended impact on the results of the survey, skewing the results towards those employees less effected by technostress. This study also assumes that all participants answered the survey honestly using self-report methods.

### **Significance**

While much of the literature reviewed confirms and supports the theory of technostress (Karr-Wisniewski & Lu, 2010; Ledzińska & Postek 2017; Tarafdar, et. al, 2010), there is very little in the way of recommendations specifically aimed at the organizational level. Much of the literature tends to focus on the end-user, the consumer of information through ICT, and makes recommendations on how they might better manage utilizing various tools and resources. However, these recommendations do not necessarily address the sender or source of the information. Anecdotal evidence, gathered through discussions with employees in communication roles within the university, has suggested that JMU employees tend to avoid communication distributed via JMU's bulk email service – a mass communication tool utilized by various departments across campus to disseminate information to faculty, staff and students. Departments sending communications in this manner to all university employees have reported low readership and limited engagement with their publications. The purpose of this study is to fill a gap in the literature by providing potential strategies that an organization, in this case JMU, can use to improve communications so that messaging becomes more effective at reaching its target audience.

## Key Term Definitions

The following table identifies and defines key terms used throughout the study.

Table 1

### *Key Terms and Definitions*

Term	Definition	Citation
Technology overload	The point at which a person's use of technology passes an optimal level and begins to show a negative gain in productivity.	(Karr-Wisniewski & Lu, 2010)
Information overload	The point at which the amount of information a person is required to process exceeds the individual's processing ability.	(Eppler & Mengis, 2004)
Technostress	Stress caused by an inability to cope with the demands of organizational computer usage.	(Tarafdar et al., 2010, p. 304)
Communication overload	When an individual begins to experience decreased productivity due to an increase in unsolicited communication.	(Karr-Wisniewski & Lu, 2010)
Information and Communication Technologies (ICT)	The technologies, such as email, that deliver communication and information through various channels.	(Burns & Bossaller, 2013)

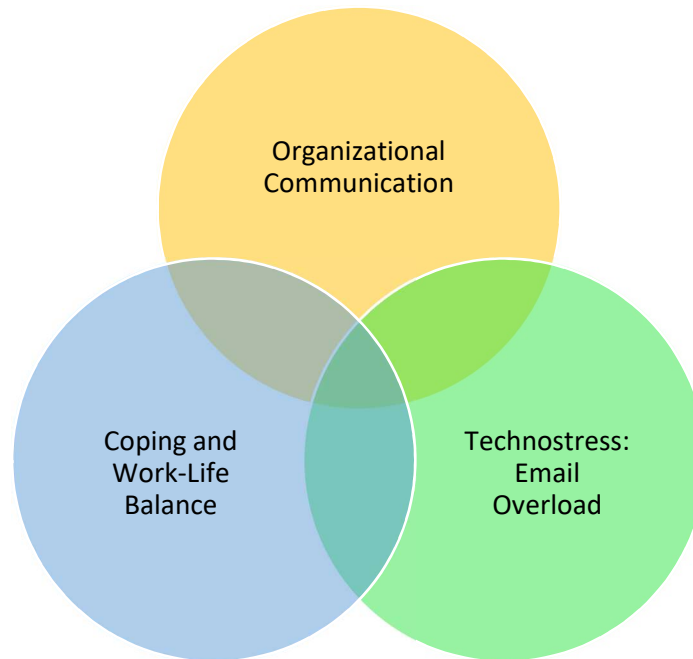


## Chapter 2: Literature Review

This literature review provides a foundation to explore current issues and research related to organizational communication, the rise of “technostress” (Tarafdar, et al., 2010) and the resulting pushback among employees as they work to achieve better work-life balance. The following keywords were utilized in the literature review process to include: “information overload”, “communication overload”; “organizational communication”; and “communication in organizations”. Databases such as ERIC, Education Research Complete, and Business Source Complete were all referenced during the compilation of subject literature. In addition to these databases, peer-reviewed and scholarly journals such as *Computers in Human Behavior*, *Journal of Information Science*, *Journal of Management Information Systems*, and the *Journal of Organizational Effectiveness: People and Performance* were reviewed for articles published within the last ten years. This chapter will review the conceptual framework of this study, the theoretical foundations, and the relevant literature which is comprised of three subject areas: Organizational Communication, Technostress, and Work-Life Balance.

### Conceptual Framework

Below is a visual representation of the conceptual framework for the research that emerged from the literature review. It identifies the various components of the study, identified through a review of the relevant literature, and their hypothesized correlation.



*Figure 1.* Depiction of research framework

### **Theoretical Framework**

Cognitivism and Connectivism both play a role as the theoretical frameworks for this study. Both concern themselves with how information is processed, however, one focuses on learning as it occurs within the individual and the other focuses on learning as it occurs outside the individual.

**Cognitivism.** This study is grounded, in part, within the domain of cognitivism. Cognitivism concerns itself with how information is processed, stored, and retrieved during problem solving (Gredler, 2009). Specifically, the study utilizes John Sweller's Cognitive Load Theory. In his explanation of Cognitive Load Theory, Sweller (1988) states that, "a problem solver whose cognitive processing capacity is entirely devoted to goal attainment is attending to this aspect of the problem to the exclusion of those features of the problem necessary for schema acquisition" (p. 262). In other words, the

amount of working memory needed to process high quantities of information leaves a person with little leftover to fully comprehend and learn from the information. For their research on human task interruption, both Foroughi, Werner, McKendrick, Cades, and Boehm-Davis (2016) and Karr-Wisniewski and Lu (2010) make use of cognitive load theory as a basis for why productivity decreases in situations of constant interruption. Through the lens of cognitive load theory, the hypothesis of the study is that as an employee tries to manage the copious amounts of emails they receive each day, they may miss vital organizational communications. To speak to John Sweller's (1988) definition the employees are trying to solve the problems of their daily operation tasks to the exclusion of information they might deem as unnecessary or superfluous.

**Connectivism.** In addition to cognitivism, connectivism plays a significant role in this study. Connectivism believes that learning takes place as information is shared between participants within a network (Kop & Hill, 2008). This concept frames learning as a "cyclical" process in that individuals draw information from the network, acquire new learning and submit that back to the network for others to draw from (Kop & Hill, 2008, p. 2). Siemens (2005) states:

Connectivism is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical (p. 7).

The ability to distinguish between necessary and unnecessary information is a key factor in this study. Understanding how participants make this distinction and what

methods they use in prioritizing which emails to open speaks directly to a core principle of connectivism as outlined by Siemens (2005) which states, “Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality” (p. 7). The “shifting reality” can be seen as stemming from the increasing rate on communication, aided by continuously evolving information and communication technologies. The cyclical nature of connectivism is evident in the email process as one individual is both sender and receiver of information, taking from and adding to the network simultaneously.

The following sections provide a review of the current literature as it pertains to this study. The review is divided into the following categories: Organizational Communication, Technostress, and Work-life Balance.

### **Organizational Communication**

Throughout the literature, organizational communication is referred to in many different ways: organizational communication, corporate communication, internal communication, internal marketing, and more. For the purposes of this study, organizational communication is defined simply as the means by which an organization delivers its messaging to its internal employees. This communication comes in many forms and through a variety of channels. Effective communication is at the center of every productive, thriving organization. Research has shown that communication is a significant factor in employee engagement (Tkalac Verčič & Poloski Vokić, 2017), organizational commitment (Bray & Williams, 2017), and positive organizational citizenship behavior (Men, 2014a; Yildiz, 2016).

For their study, Tkalac Verčič and Poloski Vokić (2017) surveyed employees working at a subsidiary of a multinational corporation with the purpose of further understanding the relationship between internal communication and employee engagement. Of the 511 employees invited to participate in the online survey, n=104 volunteered to participate in the survey, resulting in a 20.4% response rate (p. 888). The study tested eight dimensions of internal communication and three dimensions of employee engagement and found a statistically significant positive association existed between all dimensions (p. 891). Tkalac Verčič and Poloski Vokić (2017) explained the value of the results stating, “our study confirmed that internal communication satisfaction has a significant role in high employee engagement both as an intercorrelated concept and the antecedent” (p.891). This finding explains the symbiotic nature of the relationship between the two variables in that internal communication fosters positive engagement and positive engagement fosters effective internal communication. While the research of Tkalac Verčič and Poloski Vokić (2017) determined a statistically strong positive relationship, their study did not address a causal relationship between the two variables (p. 892).

According to Bray and Williams (2017), “in higher education, the role of internal communication is to produce employee buy-in regarding the institution’s mission and vision” (p. 490). To that extent, their research aimed to understand the association between communication satisfaction and organizational commitment in professional staff at a higher education institution. Using two pre-constructed questionnaires, the study was conducted via an online survey sent to 635 employees at a Master’s level institution resulting in 168 completed surveys to be analyzed (p. 493). The study intended to

determine a correlation between eight constructs of communication satisfaction and 3 constructs of organizational commitment. Much like Tkalac Verčič and Poloski Vokić (2017), Bray and Williams (2017) were not able to determine a causal relationship between their variables, but were able to demonstrate a statistically significant positive relationship between communication satisfaction and both affective and normative organizational commitment. The study was not able to determine any statistically significant relationship between communication satisfaction and continuance organizational commitment. For their part, the research conducted by Bray and Williams (2017) added to the existing body of literature highlighting the importance of the relationship between these two variables and the potential impact that relationship could have on the success of an organization.

In the same higher education context as Bray and Williams (2017), Yildiz (2016) sought to understand the impact of internal marketing on organizational citizenship behavior. For this study, internal marketing is framed as a focus on the internal customer, one dimension of which is transparent communication. As such, internal marketing becomes a “powerful tool increasing the motivation and satisfaction of employees” (p. 1122). Organizational citizenship behavior is defined in this study as “the concept creating the contribution to the organization by the employees’ extra-role behaviors” (p. 1122), in other words, this is the expectation that employees exhibit positive support for the organization outside of working hours. This construct is further broken down into 5 dimensions: Altruism, conscientiousness, courtesy, sportsmanship, and civic virtue. Using a combination of “electronic communication” and “pollsters” 214 surveys were collected from volunteers at a Turkish higher education institution (p.1124). As a result

of this study, a statistically significant positive relationship between internal marketing and organizational citizenship behavior was found. Yildiz presents the findings as a circular relationship between the variables: as an organization applies internal marketing, organization citizenship behaviors increase leading the organization to “offer better quality internal and external services” (p.1127).

Given the role that leadership plays in establishing communication in an organization and the impact that good communication has on the employer-employee relationship (Northouse, 2018), it is imperative that organizations equip leaders with the tools and training needed to disseminate information in a manner that is consistent with the organization’s values and in such a way that fosters positive employee experiences (Men, 2014b). Research conducted by Men (2014a), set out to determine if a correlation exists between transformational leadership, symmetrical communication, employee-organizational relationships, and employee organizational advocacy. Men (2014a) defined symmetrical communication as “how individuals, organizations, and the public use communication to adjust their thinking and behavior” (p. 260). Symmetrical communication is two-way form of communication that fosters collaboration, understanding, and ultimately trust between leaders and followers. The study found that a strong positive relationship exists between all tested dimensions. According to the study, transformational leadership plays an integral role in establishing symmetrical communication within an organization as well as fostering a positive employee-organizational relationship through the leader’s focus on employee needs. For its role, symmetrical communication was established to have a strong positive relationship to both employee-organizational relationships and employee advocacy, creating an environment

where employees are so bonded to their organization, they are willing to advocate publicly for the organization without prompting. Studies completed by Men and Stacks (2014) found that the addition of transparency adds another layer to an organization's communication with its employees, bolstering the relationship between employee and organization.

### **Technostress**

So, when does good communication become communication overload? Karr-Wisniewski and Lu (2010) explain:

Communication overload occurs when a third party solicits the attention of the knowledge worker through such means as email, instant messaging, or mobile devices that causes excessive interruptions in his or her job to the point the knowledge worker becomes less productive (p. 1063).

Early literature on the subject thought overload to be a myth (Savolainen, 2007), however more recent studies have accepted that overload is real and has a real impact on the stress levels of end-users. Some of the more current literature has begun to distinguish between technology overload, information overload, and communication overload. Before we can understand the concept of technostress, we must understand the differences between these three constructs.

**Communication overload.** Burns and Bossaller (2013) state that communication is the vehicle that delivers information; that is to say that communication is the channel or method through which organizational messages are delivered. Given its relatively low cost and mass distribution capabilities, organizations have more recently begun to utilize email as the communication channel of choice to deliver information to their employees.



Due to this extensive use, research has begun to emerge specifically focused on the phenomenon of email overload (Kalman & Ravid, 2013; Mark et al. 2016; Pignata, Lushington, Sloan, & Buchanan, 2015). One of the most alarming results of this line of research is the identification of worker interruption throughout the work day. To understand the relationship between working memory capacity and task resumption, Foroughi et al. (2016) designed an experiment to test how varying lengths of interruption impact the resumption of computer-based procedural tasks. For their study, 229 students from George Mason University were recruited to participate in an experiment that asked students to complete an online financial form while being periodically interrupted by multiple-choice math problems. The researchers found a positive correlation between resumption lag and the length of the interruption (Foroughi et al., 2016, p. 1485). In other words, the longer the interruption, the longer it takes an employee to resume the task they were initially working on before the interruption. Employees find themselves frequently checking email to in order to mitigate the stress associated with managing excessive quantities of emails and meeting implied response times creating numerous interruptions to their workday (Chase & Clegg, 2011; Mark et al. 2016; Pignata et al., 2015).

In an effort to determine the other factors at play in regards to communication overload, Cho et al. (2011) examined the combined impact that both quantity and rate of communication have on stress levels. The study was conducted via survey with 348 participants from a large governmental organization. By determining that synchronicity “strongly and positively predicted communication overload” (p. 46), the study found that channels of communication that delay response and feedback such as email, websites, etc. (known as low synchronous channels) had a higher impact on the sensation of being

overloaded. These particular channels were also found to play less of a role in helping employees establish identities within the organization. When it came to job satisfaction, it was found that overload actually had a positive impact as employees preferred to have more information rather than less as it aided in the feeling of being more connected to the organization.

**Information overload.** While Edmunds and Morris (2000) referred to information overload in the sense of unwanted mail, the paper kind, and excessive choices on cable TV, the concept is still the same, a person gets more information than they need whether they have requested it or not. It has been documented in much of the research that this constant flow of excessive information can lead to stress for those on the receiving end. In support of this, Ledzińska and Postek (2017) explain “everyday existence in an information-rich environment, therefore in a state of perpetual overload, can (and often does) lead to discomfort, which in turn can be construed as a new type of stress” (p. 785). Based on a collective of studies, each focusing on different variables as they relate to “infostress”, their research found that as the amount of information a manager must process increases, the manager’s ability to make a decision based on that information decreases. The findings also highlighted a correlation between a user’s ability to distinguish useful and relevant information from the scores of information sources available and stress, noting that the more an individual was able to focus on necessary information, the lower stress they reported feeling. Ironically, Edmunds and Morris (2000) point out that, along with the inherent stress of information overload, comes the fear that one may possibly have missed a vital piece of information in the deluge. “It is apparent that an abundance of information, instead of better enabling a

person to do their job, threatens to engulf and diminish his or her control over the situation” (Edmunds & Morris, 2000, p.18). The research of Ligeti and Oravecz (2009) further cautions that as organizations disseminate information, there is a tipping point whereby employees start to become desensitized and risk becoming disengaged (p.148).

**Technology overload and technostress.** As much of the literature is based on information and communication technologies (ICTs), and these have been constantly growing and changing over the last decade, the research is varied on language, context, and application. This has resulted in an overlap and sometime blurred distinction between the definitions of technology overload and technostress. Tarafdar et al. (2010) define technostress as “the stress that users experience as a result of application multi-tasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, continual relearning and consequent job-related insecurities, and technical problems associated with the organization usage of ICT” (p. 305). Regardless of the term used, both refer to the stress felt by end users as they attempt to manage an increasing number of information and communication technologies (ICT) which bring with them faster paced communication and ever-increasing amounts of information. The constant interruptions from ICT is costing approximately five hundred eighty-eight billion dollars annually, yet companies are adding even more technology in an effort to make it easier for employees to manage information, leading to what Karr-Wisniewski and Lu (2010) refer to as the “Productivity Paradox”. The Productivity Paradox is a phenomenon in which an increase in technology does not lead to an increase in productivity. Using data collected through a series of surveys, Karr-Wisniewski and Lu (2010) developed and tested an instrument to measure technology overload using the subscales of information

overload, communication overload and systems overload. Using this instrument, the researchers were able to demonstrate a relationship between technology overload and productivity losses (p.1069). Technology overload represented not just by technology hardware but also by the ever-increasing number of software applications utilized by organizations and available to employees (Stich et al. 2018). Each new iteration requires new training and understanding for each employee and investments of time and money on the part of the organization. A study of 233 ICT end-users at two mid-sized corporations conducted by Tarafdar et al. (2010) aimed to understand the relationship between technostress, end-user satisfaction and end-user performance. The research confirmed that factors such as changing ICT and ease of ICT use impact satisfaction and productivity among end-users. In their research, Fieseler, Grubenmann, Meckel and Muller (2014) surveyed 491 sales employees on their ICT usage in order to determine if leadership played any type of role in mitigating the effects of technostress. The results of this study confirmed that technostress has a positive relationship with work exhaustion, which in turn has a negative relationship with job satisfaction. While the study showed no effect of supervisor influence on both technostress and work exhaustion, it did find that general leadership did have a significant impact on both work exhaustion and job satisfaction.

### **Work-Life Balance**

Savolainen (2007) found that individuals who were faced with an overwhelming amount of information, used filtering and withdrawal as two strategies for coping with information overload. Filtering is employed when an individual uses selective sources to seek information. Withdrawal, on the other hand, is an avoidance of communication

channels in an effort to block unwanted communication. As technology begins to blur the lines between home and work-life, it is becoming harder for employees to set boundaries on unwanted communication (Lee, Lee, & Suh, 2014; Stich et al. 2018). In a 2014 study that specifically evaluated after-hours work communication, Lee et al. (2014) found that work related text messages outside of established work hours led to strain which in turn led to decreased life satisfaction. In fact, Becker, Belkin, and Tuskey (2018) found that simply the expectation to check email at home caused stress not only in the employee but in family members as well. Cecchinato, Cox, and Bird (2015) present an additional study exploring blurred boundaries between work and home life. Their investigation into how professionals handled work and personal email differently found that not only does an individual's work role have an impact on how email is managed, their role also played a factor in how well they integrate boundaries between work and home. Their results also found that work interruptions at home have an impact on other household members, this is in line with the findings of Becker et al. (2018).

As a response to a growing sense of overload, employees have begun to try to turn the tide by disconnecting from electronic communication when possible, choosing withdrawal as a coping strategy (Guyard & Kraun, 2018; Morrison & Gomez, 2014). Through their review of the available literature, Morison and Gomez (2014) found that "technology users around the world, express deep concern about the technology tools that have become integral to their lives" (Discussion and conclusions section, para. 2). Morrison and Gomez have termed this dissatisfaction "pushback" defining it as "a reaction against the overload of information and changing relationships brought about by

communication technologies such as smart phones, tablets and computers connected to the internet” (Introduction section, para. 3).

An organizational answer to this pushback is explored by Guyard and Kraun (2018) in their study of Workfulness. As they describe it, Workfulness is a training program that combines facets of communication disconnect with time management, the aim of the program is to aid employees in finding a healthy medium when it comes to the use of technology in the workplace. Their conclusion points out that while the intention of the Workfulness program is to introduce healthy technology habits, it is also an attempt to keep interventions at an organizational level rather than experience government intervention. While training programs are one solution to the problem of constant connectivity, some organizations are taking measures one step further. Recognizing the need for their employees to disconnect from time to time, organizations such as Volkswagen and Henkel have also made attempts to control the overload that their employees’ experience by limiting the timing of work communications so that employees are blocked from receiving work messages outside of working hours (Volkswagen turns off Blackberry, 2012). In some cases, organizational intervention has not been enough, and governments are beginning to step in, with both France and Germany already enacting policies to limit organizational communication outside of working hours (Jones, 2018).

### **Research Gap**

Effective organizational communication has been strongly correlated with increased job satisfaction, increased employee engagement and increased loyalty to the organizational brand (Bray & Williams, 2017; Tkalac Verčič & Poloski Vokić, 2017;

Yildiz, 2016). Where communication goes wrong is the overabundant quantity of communication available to employees. With more information that can possibly be processed delivered through a multitude of channels aided by the growth of information and communication technologies (ICTs), it all culminates in a perfect storm termed technostress (Tarafdar et al. 2010). Technological advances such as the web and email, which were initially utilized in an effort to make communication faster and more efficient, now invade our every waking moments both at work and at home adding stress not only to employees but their families as well (Becker et al. 2018, Cecchinato et al. 2015; Lee et al. 2014).

At present, much of the literature cites training as a solution to mitigate the stress the employees feel or perceive to feel (Guyard & Kraun, 2018; Karr-Wisniewski & Lu, 2010; Ledzińska & Postek 2017; McMurtry, 2014; Men 2014b; Stich et al. 2018). This is an end-user focused solution that seeks to improve the way employees manage and interact with information, communication and ICTs. Some companies have taken the more drastic measure of establishing policies to block communication during non-working hours in an effort to stem the overload (Jones, 2018; Kitchen, 2018; Stich et al. 2018; Volkswagen turns off Blackberry, 2012). This is only part of the solution.

Other than training or the extreme measure of blocking communication, there seems to be a scarcity in the literature of alternative interventions that organizations can employ to mitigate the feelings of technostress being reported by employees. This study seeks to fill that gap by understanding what organizational communication an employee chooses to read and what they choose to disregard. This would help in determining whether employees are getting the information they need or the information they want.

These answers could then inform a practice for the organization to be able to address employees in a method that does not add to their levels of experienced technostress, to get them necessary information in a manner that the employee prefers and hence would be more likely to read.



### **Chapter 3: Methodology**

The current study utilizes a mixed methods approach to determine if a correlation exists between technostress and the effectiveness of organizational communication at James Madison University (JMU). To gather the data needed, a voluntary, anonymous Qualtrics survey was disseminated via email to all active faculty and staff at James Madison University. First, the survey sought to understand the number of information and communication technologies currently in use at JMU. Next, utilizing technostress subscales utilized on a survey constructed by Karr-Wisniewski and Lu (2010), the current study sought to measure stress levels of faculty and staff related to the use of information and communication technologies (ICT). Finally, the survey asked faculty and staff to discuss their methods of managing ICT, specifically focusing on email. In this chapter, I will review the design of research, the population and sample utilized, the instrumentation, the data collection and analysis, and lastly the steps taken to protect the research subjects.

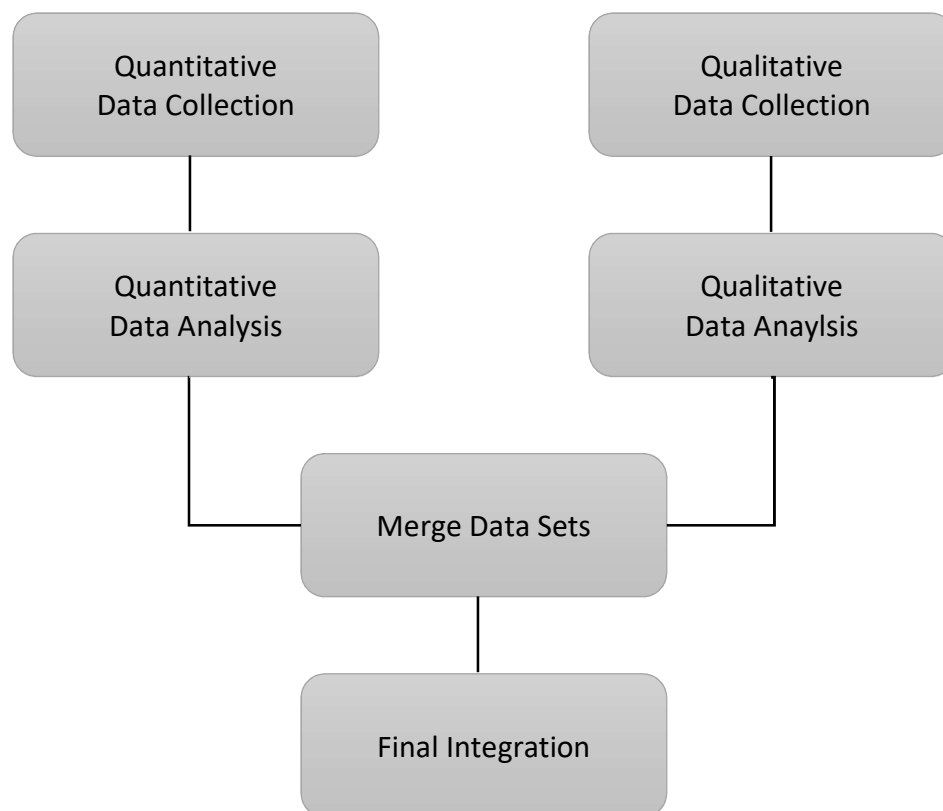
#### **Research Design**

In order to gain a deeper understanding of whether technostress may or may not have an impact on organizational communication, a mixed methods approach was used. Mixed-methods research combines a blend of both quantitative and qualitative approaches to develop a more complete picture of the relationships between variables within a particular study (Fraenkel, Wallen, & Hyun, 2013). By comparing both the qualitative and quantitative data against each other, contrasts and overlaps appear highlighting connections between the data sets (Fraenkel et. al., 2013, p. 556). For this study, I used a parallel convergent design (Fetters, Curry, & Creswell, 2013, p. 2137). In

this design, while the quantitative and qualitative data are gathered simultaneously through the use of both direct and open-ended questions, they are analyzed separately before being brought together for interpretation of the results. Using a mixed methods research approach, Hart, Plemmons, Stulz, and Vroman (2017) completed an audit of communication at a higher education institution as part of their research. The researchers used a combination of surveys, interviews and focus groups to assess both the method and effectiveness of various communication channels across the university.

Onwuegbuzie, Gerber, and Schamroth Abrams (2017) advocate for the use of a mixed-methods approach to communication research, stating that a strictly quantitative or strictly qualitative approach may miss some of the inherent complexities found in communication research. In short, a complex subject requires a more robust, more complex assessment and a mixed-mixed methods research approach provides the researcher with the tools needed for presenting and analyzing “multiple, multifaceted, multilayered, multiliterate, multimodal, and highly complex questions” (p.1231).

Below, Figure 2 is a graphical depiction of a mixed-methods parallel convergent design, illustrating how the quantitative and qualitative data are collected, analyzed and interpreted. This study utilized a combination of both direct quantitative items and open-ended qualitative items.



*Figure 2. Convergent Parallel Mixed-Methods Model*

### **Population and Sample**

For the purposes of this study, a purposive sample was used, limiting participants to current actively employed faculty and staff at James Madison University (JMU), a publicly funded higher education institution located in Harrisonburg, VA. While data available from JMU's Office of Institutional Research is focused almost exclusively on full-time faculty and staff, this information was able to inform expectations for the population and sample size for the survey. The Office of Institutional Research's Statistical Summary 2017 Table 4-8 showed that JMU had 1,386 full-time classified staff, comprised of 42% males to 58% females, a majority of the population were categorized as "Office & Clerical". In terms of faculty, the Office of Institutional Research (2018)

reports that as of 2017, JMU was comprised of 1044 Instructional Faculty and 568 Administrative & Professional Faculty. The demographic data in the same report shows that gender for instructional faculty breaks down to 511 females to 533 males. Utilizing this information, the minimum sample size was set at 80, and the maximum sample size was set at 800. Working with JMU's Office of Human Resources to distribute the survey, the invitation to participate went to 4,116 individuals, of which 204 consented responded to the survey.

### **Instrumentation**

Data was collected via an online anonymous survey developed in Qualtrics and sent via email to all active faculty and staff at James Madison University in December 2018. The survey contained a total of 22 questions (see Appendix A). Of those questions, 3 questions focused on demographic data: job role at JMU, gender, and age. These data points have the potential to provide insight into whether technostress differs between these demographic categories and as such are independent variables in this study. The age ranges selected for this study were selected based on the Pew Research Center's (Dimock, 2018) definition of the generations: Post-Millennials (ages 21 and younger), Millennials (ages 22-37), Generation X (ages 38-53), Boomers (54-72), and the Silent generation (ages 73-90). Fifteen of the 22 questions gathered quantitative data through direct questions. Ten of these were based on a 5-point Likert scale and assessed various components of technostress and also email management among participants. Three questions open-ended and gathered qualitative data. These questions asked participants to share details on how they managed their emails on a daily basis by explaining their

thought process and describing the strategies they employ. The remaining question asked participants if they would be willing to participate in follow-up focus groups.

A review of the current research resulted in finding no suitable instrument that assessed enough criteria to demonstrate an overlap between technostress and organizational communication so the instrument for this survey was constructed using components of various other instruments. In their research, Karr-Wisniewski and Lu (2010) developed an instrument to measure technology overload. The instrument measures multiple dimensions of technology overload, 3 of which were of particular interest: information overload, communication overload and personal performance (p. 1064). Using a 9-point Likert scale, Karr-Wisniewski and Lu (2010) used the instrument to measure the impact of technology overload on knowledge worker productivity. Due to the rigorous testing the tool has already been through to confirm its reliability, I used components of the same tool, reducing the Likert scale slightly, to create a general assessment of technology overload on participants. Reducing the Likert scale from 9 points to 5 points made the survey more manageable in terms of data and ease of participation for survey respondents.

Validity of an instrument ensures that it measures what the researcher is intending to measure (Fraenkel et. al., 2013). Using components of Karr-Wisniewski and Lu's (2010) instrument, along with review of the instrument by faculty within the AHRD program, added to the validity of the survey. Since this instrument was only administered once, reliability of the survey becomes more difficult to assess. Reliability is used as a measure of consistency of an instrument's results over time (Frankel et. al., 2013). Again, I relied on the components of Karr-Wisniewski and Lu's (2010) instrument to increase

internal reliability. In constructing my instrument, I utilized the following subscales from Karr-Wisniewski and Lu's (2010) instrument: Information Overload (*Cronbach's  $\alpha = 0.72$* ), Communication Overload (*Cronbach's  $\alpha = 0.73$* ), and Personal performance (*Cronbach's  $\alpha = 0.88$* ). Cronbach's alpha is used to measure reliability in surveys where there no right or wrong answer (Frankel, et. al., 2013, p. 159). According to Frankel, et al. (2013), reliability coefficients should, as a rule of thumb, be at least .70 if not higher.

The following table shows examples of questions used in the survey instrument and their corresponding data categories.

Table 2

*Survey Instrument Examples*

Category	Example Question	Citation
Demographic Data	Please identify your age range: <ul style="list-style-type: none"> <li>• 18 - 21 years</li> <li>• 22 - 37 years</li> <li>• 38 - 53 years</li> <li>• 54 - 72 years</li> <li>• 72 years and older</li> </ul>	Age ranges based on generational categories identified by the Pew Research Center (2018).
Quantitative Data	Information Overload ( <i>Cronbach's <math>\alpha = 0.72</math></i> )	Karr-Wisniewski and Lu (2010)
	I am often distracted by the excessive amount of information available to me for business decision making.	
	Communication Overload ( <i>Cronbach's <math>\alpha = 0.73</math></i> )	
	I feel that in a less connected environment, my attention would be less divided allowing me to be more productive.	
	Personal performance ( <i>Cronbach's <math>\alpha = 0.88</math></i> )	
	Overall, I feel JMU as an organization communicates with me effectively.	
Qualitative Data	Please describe how you prioritize which emails to open and which to discard:	NA

## **Data Collection and Procedures**

Once the research was approved by the Institutional Research Board, a link to an anonymous online Qualtrics survey was sent to all active faculty and staff at James Madison University using the Bulk Email Request process through the Office of Human Resources (see Appendix C). For those that clicked on the link within the email, the first question of the survey asked participants to read the informed consent, which included information on the confidentiality of the survey, and indicate their agreement before proceeding to the remainder of the survey. The survey was open from December 2018 to February 2019, during which time 205 faculty and staff participated in the survey. At the close of the survey period, Qualtrics was used to generate summative reports and begin analysis of the descriptive data to include means, frequencies and counts.

## **Data Analysis**

In order to begin the data analysis, it is important to understand how each survey question corresponds to the study's underlying research questions. To clarify the relationships, the following table outlines the research questions being studied and the corresponding survey questions.

Table 3

*Connecting Research Questions to Survey Questions*

<b>Research Question</b>	<b>Corresponding Survey Questions</b>	<b>Analysis Techniques</b>
RQ1: How many communication methods are used by the university to disseminate information to employees?	Q11	Frequency
RQ2: Do JMU employees report experiencing the phenomenon of technostress as measured by information overload, communication overload and personal performance subscales?	Q4 – Q10, Q12, Q13	Frequency
RQ3. Is there a statistically significant difference between the number of emails an employee receives on a daily basis and employee's level of technostress?	Q4 – Q10, Q16	One-Way Analysis of Variance (ANVOA)
RQ4. Are there statistically significant differences between the 5 generational levels in regard to average information overload scores?	Q1, Q4-Q6	One-Way Analysis of Variance (ANVOA)
RQ5. Are there statistically significant differences between the 5 generational levels in regard to average communication overload scores?	Q1, Q7-Q10	One-Way Analysis of Variance (ANVOA)
RQ6. Are there statistically significant differences between gender identities in regard to average information overload scores?	Q2, Q4-Q6	One-Way Analysis of Variance (ANVOA)
RQ7. Are there statistically significant differences between gender identities in regard to average communication overload scores?	Q2, Q7-Q10	One-Way Analysis of Variance (ANVOA)
RQ8. Are there statistically significant differences between job roles in regard to average information overload scores?	Q3, Q4-Q6	One-Way Analysis of Variance (ANVOA)
RQ9. Are there statistically significant differences between job roles in regard to average communication overload scores?	Q3, Q7-10	One-Way Analysis of Variance (ANVOA)
RQ10. Is there a statistically significant association between information overload and communication overload?	Q4-Q10	Pearson correlation
RQ11. What strategies do faculty and staff at JMU employ to manage information and communication overload as evidenced by their email inbox?	Q19, Q20	Qualitative, thematic analysis
RQ12. Does the qualitative data on email inbox management converge with the quantitative data on technostress as measured by information overload and communication overload subscales?	Q4-Q10, Q19-Q21	Mixed method comparison



Given the mixed-methods approach to this survey, both qualitative and quantitative analysis were conducted on the gathered data. The quantitative data were analyzed using both descriptive statistics, such as frequency tables, and inferential statistics, such as one-way analysis of variance (ANOVA) and Pearson correlation, with the use of IBM's SPSS software. Responses to the qualitative open-ended questions were coded through thematic analysis. Coding attempts to pull out major themes or ideas represented in the responses that help chunk the data into meaningful parts (Frankel et. al., 2013). Emergent coding was conducted with the assistance of peer graduate students and my research chair to mitigate any bias in the coding process. After completing the coding process, results were further analyzed using frequency distribution tables and presenting the results in graph form.

### **Protection of Human Subjects**

To ensure compliance with ethical standards and procedures, an application was submitted and subsequently approved by the Institutional Review Board (See Appendix A) prior to the commencement of the research. As a completely voluntary and anonymous survey, I expected minimal to no risk to those volunteers who wished to participate. Prior to completing the survey, participants were presented with a consent form that outlined the stipulations for confidentiality, potential risk, and possible benefits, along with contact information, should they have questions about the survey and the use of the resulting data. Participants were asked to read the form and give their consent before they could begin the survey. No deception was used in the completion of the research.

## **Chapter 4: Findings**

In this chapter I will review and present the analyzed data from the survey as they relate to each of the research questions that were presented in chapter one. Below is a review of those research questions:

RQ1. How many communication methods are used by the university to disseminate information to employees?

RQ2. Do JMU employees report experiencing the phenomenon of technostress as measured by information overload, communication overload and personal performance subscales?

RQ3. Is there a statistically significant difference between the number of emails an employee receives on a daily basis and employee's level of technostress?

RQ4. Are there statistically significant differences between the 5 generational levels in regard to average information overload scores?

RQ5. Are there statistically significant differences between the 5 generational levels in regard to average communication overload scores?

RQ6. Are there statistically significant differences between gender identities in regard to average information overload scores?

RQ7. Are there statistically significant differences between gender identities in regard to average communication overload scores?

RQ8. Are there statistically significant differences between job roles in regard to average information overload scores?

RQ9. Are there statistically significant differences between job roles in regard to average communication overload scores?

RQ10. Is there a statistically significant association between information overload and communication overload?

RQ11. What strategies do faculty and staff at JMU employ to manage information and communication overload as evidenced by their email inbox?

RQ12. Does the qualitative data on email inbox management converge with the quantitative data on technostress as measured by information overload and communication overload subscales?

The twenty-three question Qualtrics survey was based on a mixed-methods research approach, utilizing a parallel convergent design. Of those questions, one question asked participants for consent before proceeding with the remainder of the survey; three quantitative questions focused on demographic profiles of respondents; seven quantitative questions measured subscales of information overload and communication overload; one question gathered quantitative data on JMU publications and readership; two questions took a quantitative approach to measure the efficiency and effectiveness of JMU communications; five quantitative questions gathered data on respondents' email usage; two qualitative questions asked respondents about their strategies for managing email; one qualitative question asked respondents to share any additional thoughts on technostress and communication; and the last question invited respondents to volunteer for a follow-up focus group.

Of the 4,116 employees invited to participate in the study, 204 responded which resulted in a 4.9% response rate. As stated in chapter one, one reason for the low response rate could be attributed to the fact that the survey was distributed via email which may have been missed by those most impacted by technostress, the very

phenomenon this study is trying to measure. Another reason for the low response rate could be due to the timing of the distribution of the survey. The bulk email was distributed to all active employees two days into the start of the spring semester, an extremely busy time for everyone on campus. Though the sample size was lower than expected, the study's findings are strengthened with the inclusion of both quantitative and qualitative data.

After the survey was distributed and the resulting data were analyzed, it was determined that there was enough information collected through the qualitative portion of the survey that a follow-up focus group was not warranted and potentially outside of the scope of this study. However, it should be stated that of the 204 survey respondents, 65 participants responded to the request for focus group volunteers which equates to a 31% response rate to question 22. This high response rate should be noted as a potential for future research as there is clearly an interest in this topic. This issue will be discussed in more detail in chapter 5.

In keeping with the parallel convergent design, the first section of this chapter will analyze findings from the quantitative data as they relate to the corresponding quantitative research questions. The next section will analyze the qualitative data as they relate to the qualitative research questions of the study. The last section will bring both sets of data together to determine if there is any convergence between the data and also analyze where the qualitative data shows support for the findings within the quantitative data.

## Demographics

In order to ensure a good representation amongst the sample population, respondents were asked three demographic questions in regard to their gender, age, and job classification at JMU. The number of responses to these demographic questions ranged between n=202 and n=203. While a majority, 70%, of the respondents identified as female, there was a fairly even distribution between the Millennial (22-37 years), Generation X (38-53 years), and Baby Boomer (54-72 years) generations. Respondents came from a variety of job roles: n=88 were classified staff; n=58 were administrative and professional faculty; n=35 were full-time instructional faculty; and the remaining response were comprised of wage staff, adjunct faculty, and others. The following table further breaks down the demographic differences of the responding sample.

Table 4

### *Survey Demographics*

Characteristics	N	%
<b>Age Range</b>		
18 – 21 years	1	0.49%
22 – 37 years	65	32.02%
38 – 53 years	69	33.99%
54 – 72 years	66	32.51%
72 years and older	2	0.99%
<b>Gender</b>		
Male	54	26.73%
Female	143	70.79%
Non binary / third gender	3	1.49%
Prefer to self-describe	0	0.00%
Prefer not to say	2	0.99%
<b>Job Role</b>		
Wage Employee	13	6.40%
Classified Employee	88	43.35%
Administrative and Professional Faculty	58	28.57%
Full-time Instructional Faculty	35	17.24%
Adjunct Faculty	4	1.97%
Other	5	2.46%

## Quantitative Methods

As stated in chapter three, the survey used subscales developed by Karr-Wisniewski and Lu (2010) to measure information overload, communication overload, and personal performance as indicators of technostress. To measure the internal consistency of these constructs, SPSS was used to measure the Cronbach's alpha for each subscale. The results can be seen below in the table below.

Table 5

### *Survey Subscale Reliability*

Subscale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	# of Items
Information Overload	.795	.795	3
Communication Overload	.815	.814	4
Personal Performance	.845	.846	2

While each individual subscale returned a high level of internal consistency, when all three subscales were analyzed to determine an overall construct to measure technostress, the addition of the personal performance subscale to the information overload and communication overload subscales reduced the Cronbach's alpha of the overall construct from 0.866 to 0.779. This could be due to the fact that the personal performance questions were modified slightly to measure the university's efficiency and effectiveness rather than the respondent's. For this reason, the personal performance subscale was eliminated from further analysis in this study. A principal components analysis was run on Q4-Q10 to ensure the remaining questions had strong loadings on their respective components (Laerd Statistics, 2015). The findings of this analysis were consistent with Karr-Wisniewski and Lu (2010)'s subscales of information and

communication overload. Composite average scores were generated for both information overload ( $\alpha = 0.72$ ) and communication overload ( $\alpha = 0.73$ ) resulting in new variables that allowed analysis of each construct as a whole rather than individual parts (Morgan, Leech, Gloeckner, & Barrett, 2013).

**RQ1. How many communication methods are used by the university to disseminate information to employees?**

Question 11 of the survey asked respondents to assess their readership of various JMU publications as well as add any publications that were not currently listed in the survey. This question provided some insight as to where employees primarily source their information and determined a loose hierarchy of publications across campus from the perspective of the responding employees. The overall results of the question are reported in Table 1 *Readership of JMU Publications* in Appendix C. Below, Figure 2 illustrates those publications and are indicated as being read *Always* and *Most of the time*. This figure shows that employees place a higher emphasis on information coming directly from their immediate departmental areas than they do information coming from the broader JMU community.

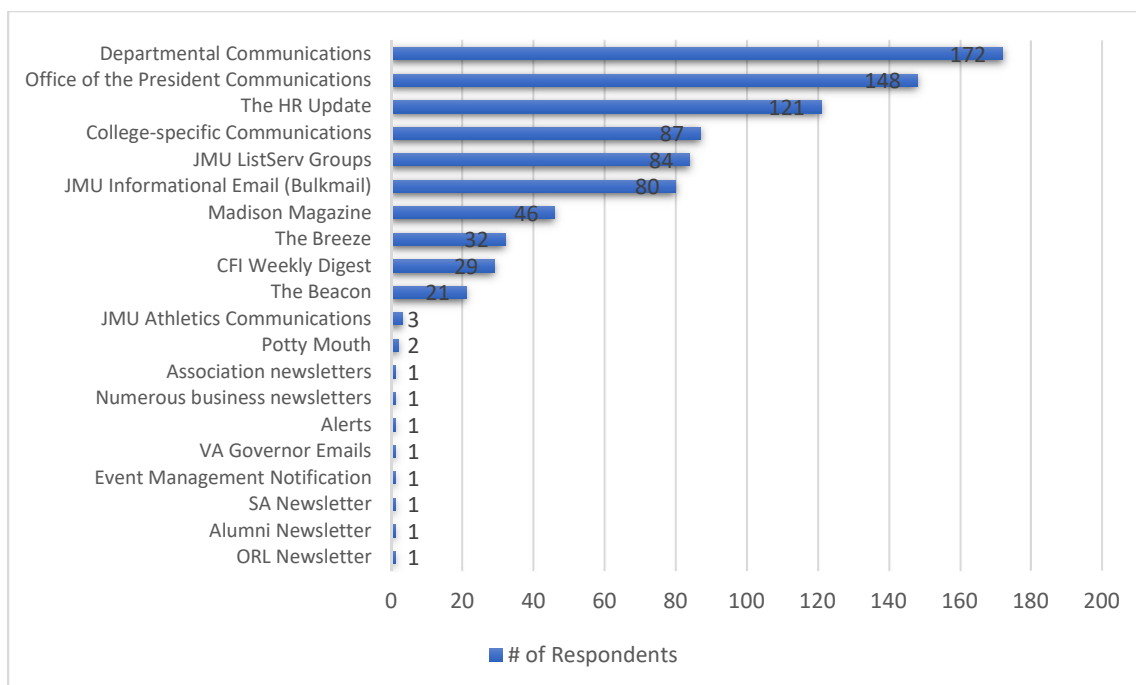


Figure 2: JMU Publications indicated as being read “Always” and “Most of the Time”

**RQ2. Do JMU employees report experiencing the phenomenon of technostress as measured by information overload, communication overload and personal performance subscales?**

Table 6, below, shows the number of survey respondents that selected an answer of *Strongly agree* and *Somewhat agree* to each of the questions that make up the constructs of technostress: information overload, communication overload, and personal performance. The data shows that for eight out of the nine questions measuring technostress, a majority of the respondents indicate that they either strongly or somewhat agree to experiencing feelings of information overload and communication overload. As stated earlier in the chapter, after the personal performance subscale was removed from the construct of technostress, over 70% of respondents to questions twelve and thirteen, either strongly or somewhat agree that JMU, as an institution, communicates with employees both efficiently and effectively.



Table 6

*Responses of “Strongly agree” and “Somewhat agree” to constructs of Technostress*

Construct	n	%
<b>Information Overload</b>		
Q4 I am often distracted by the excessive amount of information available to me for business decision making.	122	63.21%
Q5 I find that I am overwhelmed by the amount of information I have to process on a daily basis.	121	62.69%
Q6 I find that I am overwhelmed by the amount of information I have to process on a daily basis.	112	58.33%
<b>Communication Overload</b>		
Q7 I feel that in a less connected environment, my attention would be less divided allowing me to be more productive.	119	61.98%
Q8 I often find myself overwhelmed because technology has allowed too many other people to have access to my time.	121	62.69%
Q9 I waste a lot of my time responding to emails and voicemails that are business-related but not directly related to what I need to get done.	124	64.25%
Q10 The availability of electronic communication has created more of an interruption than it has improved communications.	84	43.52%
<b>Personal Performance</b>		
Q12 Overall, I feel JMU as an organization communicates with me efficiently.	136	70.83%
Q13 Overall, I feel JMU as an organization communicates with me effectively.	142	73.96%

**RQ3. Is there a statistically significant difference between the number of emails an employee receives on a daily basis and employee’s level of technostress?**

Questions sixteen of the survey asked respondents to indicate on an ordinal scale, how many emails they receive on a typical business day. Using a one-way analysis of variance (ANOVA), those responses were measured against both information overload and communication overload to determine if there is a statistically significant difference between the number of emails an employee receives each business day. The table below shows that while there was no statistical difference in regard to communication overload

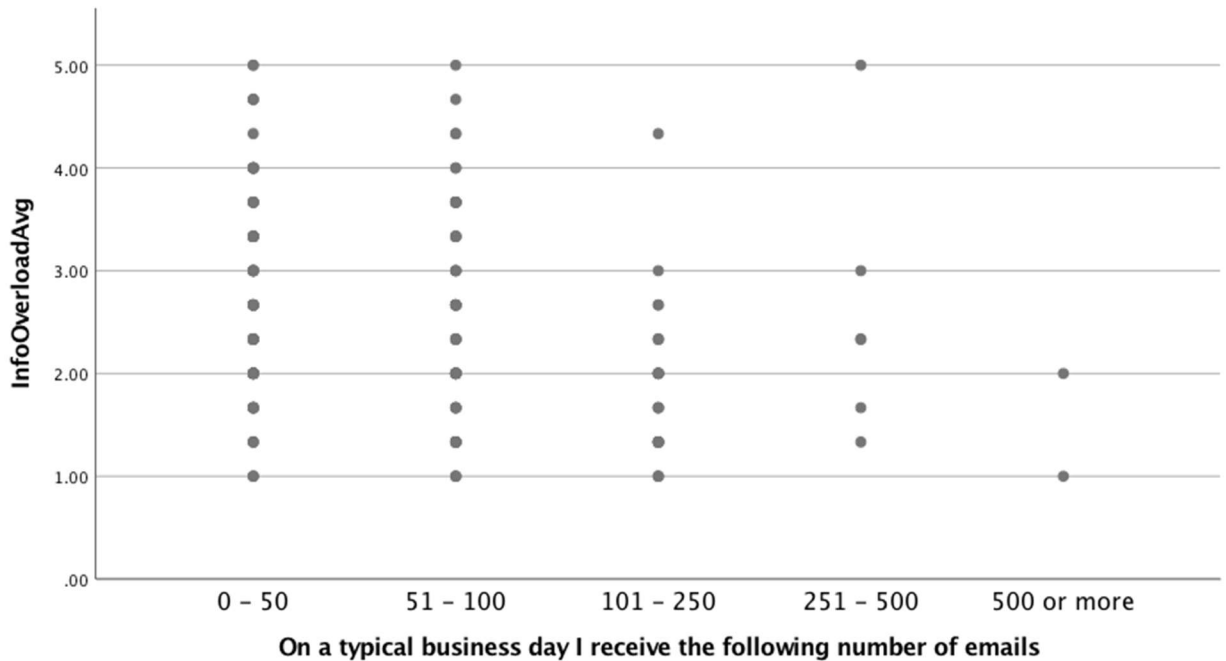
( $p = 0.068$ ), there was a significant statistical difference in regard to information overload ( $p = .001$ ). These findings support Burns and Bossaller's (2013) statement that information is transmitted through communication in that we are only measuring a singular communication method, email, so it stands to reason that a singular communication method would not result in communication overload, however, the amount of information that method is transmitting would result in information overload at a certain point.

Table 7

*One-way Analysis of Variance Summary Table Comparing Amount of Emails Received on a Typical Business Day Groups on Average Information Overload and Communication Overload Scores.*

		Sum of Squares	df	Mean Square	F	Sig.
Information Overload	Between Groups	17.222	4	4.305	4.898	.001
	Within Groups	160.851	183	.879		
	Total	178.073	187			
Communication Overload	Between groups	8.799	4	2.200	2.223	.68
	Within Groups	181.058	183	.989		
	Total	189.857	187			

The relationship between average information overload scores and the number of emails received on a typical business day was analyzed further utilizing a Spearman correlation analysis. As evidenced in the figure below, there was a statistically significant, moderate negative correlation between average information overload scores and the number of emails received on a typical business day,  $r_s = -.278$ .



*Figure 3: Simple Scatter of Average Information Overload Scores by "On a typical business day I receive the following number of emails"*

**Age.** With the exception of age range “18 - 21 years” where  $n=1$  and age range “72 years and older” where  $n=2$ , the distribution among the three remaining generations were nearly equal. The table below shows a one-way ANOVA analyzing 5 generational levels as they relate to average information overload scores and average communication overload scores. The information contained in this table will be used to address research questions four and five.

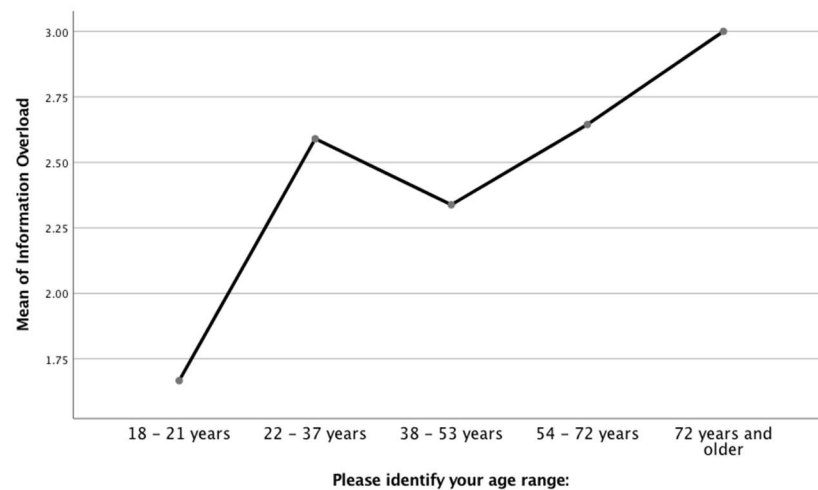
Table 8

*One-way Analysis of Variance Summary Table Comparing 5 Generational Levels on Average Information Overload and Communication Overload Scores.*

		Sum of Squares	df	Mean Square	F	Sig.
Information Overload	Between Groups	4.664	4	1.166	1.224	.302
	Within Groups	178.167	187	.953		
	Total	182.831	191			
Communication Overload	Between groups	2.463	4	.616	.605	.660
	Within Groups	190.286	187	1.018		
	Total	192.749	191			

**RQ4. Are there statistically significant differences between the 5 generational levels in regard to average information overload scores?**

When analyzed against average information overload scores using a one-way ANOVA, the result showed that there was no statistically significant difference between the generations in regard to average information overload scores,  $p = .302$ . The mean scores for information overload amongst Millennials, Generation X, and Baby Boomers ranged from 2.338 to 2.644. Figure 1 below shows the variance of mean scores between the generations as they relate to information overload.



*Figure 4: Generations Means Plot*

**RQ5. Are there statistically significant differences between the 5 generational levels in regard to average communication overload scores?**

As in research question 4, no statistically significant difference,  $p = .660$ , was found between the 5 generational levels in regard to average communication overload scores. Table 9, below, compares the mean communication overload score for each generational level.

Table 9

*Means and Standard Deviations Comparing 5 Generational Levels*

Generational Level	n	Mean	Std. Deviation
18 – 21 years	1	3.2500	-
22 – 37 years	61	2.5902	1.01861
38 – 53 years	67	2.4888	.98322
54 – 72 years	61	2.6352	1.03438
72 years and older	2	3.3750	.17678
Total	192	2.5807	2.5807

**Gender.** As Table 4: Survey Demographics showed earlier in the chapter, a majority of the respondents,  $n=137$ , identified as female. The table below shows a one-way ANOVA analyzing gender identities as they relate to average information overload scores and average communication overload scores. The information contained in this table will be used to address research questions six and seven.

Table 10

*One-way Analysis of Variance Summary Table Comparing Gender Identities on Average Information Overload and Communication Overload Scores.*

		Sum of Squares	df	Mean Square	F	Sig.
Information Overload	Between Groups	9.448	3	3.149	3.402	.019
	Within Groups	173.114	187	.926		
	Total	182.562	190			
Communication Overload	Between groups	5.699	3	1.900	1.906	.130
	Within Groups	186.356	187	.997		
	Total	192.055	190			

**RQ6. Are there statistically significant differences between gender identities in regard to average information overload scores?**

A one-way ANVOA comparing gender identity groups on information overload showed a statistically significant difference amongst the group,  $p = .019$ . Further analysis revealed that there was no statistically significant difference in regard to Q4 or Q6,  $p = .141$  and  $p = .162$  respectively; however, Q5 showed a statistically significant difference between gender identities,  $p = .006$ .

**RQ7. Are there statistically significant differences between gender identities in regard to average communication overload scores?**

With a significance score of  $p = .130$ , the one-way ANOVA comparing gender identity groups on average communication overload scores showed no statistically significant differences between the groups.

**Job Roles.** While a majority of the respondents identified themselves as Classified ( $n=88$ ), there was representation across all employee roles: Wage ( $n=13$ ), Administrative and Professional Faculty ( $n=58$ ), Full-time Instructional Faculty ( $n=35$ ), Adjunct Faculty ( $n=4$ ), and Other ( $n=5$ ). The table below shows a one-way ANOVA

comparing JMU job roles as they relate to average information overload scores and average communication overload scores. There information contained in this table will be used to address research questions eight and nine.

Table 11

*One-way Analysis of Variance Summary Table Comparing Employee Job Roles on Average Information Overload and Communication Overload Scores.*

		Sum of Squares	df	Mean Square	F	Sig.
Information Overload	Between Groups	6.243	5	1.249	1.315	.259
	Within Groups	176.588	186	.949		
	Total	182.831	191			
Communication Overload	Between groups	4.548	5	.910	.899	.483
	Within Groups	188.201	186	1.012		
	Total	192.749	191			

**RQ8. Are there statistically significant differences between job roles in regard to average information overload scores?**

With a significance score of  $p = .259$ , the one-way ANOVA comparing JMU job role groups on average information overload scores showed no statistically significant differences between the groups.

**RQ9. Are there statistically significant differences between job roles in regard to average communication overload scores?**

With a significance score of  $p = .483$ , the one-way ANOVA comparing JMU job role groups on average communication overload scores showed no statistically significant differences between the groups.

**RQ10. Is there a statistically significant association between information overload and communication overload?**

To answer this question, SPSS was used to run a Pearson correlation analysis to assess the relationship between information overload and communication overload (Laerd Statistics, 2018) as measured by the subscales defined by Karr-Wisniewski and Lu (2010). Results of the Pearson correlation analysis showed a statistically significant, strong positive correlation between the average information overload score and the average communication overload score,  $r = .652$ ,  $p < .001$ .

**Qualitative Methods**

**RQ11. What strategies do faculty and staff at JMU employ to manage information and communication overload as evidenced by their email inbox?**

Q19 of the survey asked respondents to share what strategies they utilize to manage their email inbox. Emergent coding was used to identify broader themes within the data. Below, Table 12 lists the codes in terms of how frequently they appeared in the responses. The use of “Folders” to sort and organize incoming email emerged as the number one cited strategy that respondents utilize, 24%. The second most cited strategy was, “Address as it comes in” or in the words of one respondent “Staying on top of it”. Fourteen percent of respondents indicated that they rely on the use of Microsoft Outlook tools such as flagging, rules, filters, and search engines. In the case of one respondent, sometimes the strategy includes the use of multiple tools as they write: “Automated sorting to folders; flag for follow-up and adding reminders with due dates to ensure follow-up”. While a lesser population of respondents, 2%, stated their email was “Unmanageable”, it is worth noting their sentiments. A respondent reflected, “I just let it



build up because I know the next day there's just going to be 100s more"; another simply stated "my inbox is out of control".

Table 12

*Coding Frequency: Email Strategies*

<b>Code</b>	<b>Frequency</b>	<b>Relative Frequency</b>	<b>Percent Frequency</b>
Folders	66	0.24	24%
Address as it comes in	39	0.14	14%
Utilize Outlook Tools	38	0.14	14%
Delete Irrelevant	37	0.13	13%
Inbox as a 'To-Do' list	31	0.11	11%
Prioritize based on sender/subject	20	0.07	7%
Time Intervals	17	0.06	6%
Out of Office access	7	0.03	3%
Periodic purge	6	0.02	2%
Unmanageable	5	0.02	2%
Zero inbox	5	0.02	2%
Calendaring	4	0.01	1%
Hard Copy Print	1	0.00	0%
Multiple email addresses	1	0.00	0%
Use alternative messaging application	1	0.00	0%
<b>TOTAL</b>	<b>278</b>	<b>1.00</b>	<b>100%</b>

Q20 asked respondents to describe how they prioritize which emails to open and which to discard. Emergent coding was again used to identify and pull out themes throughout the data. Table 13, below, lists the emergent codes revealed in the data and their relevant frequency. Based on those themes, 47% of respondents, an overwhelming majority, stated that they prioritize based on the sender of the received email. One respondent clarified this sender priority stating, "I open emails from people who can fire me first, then other known individuals". Another respondent stated they had a "VIP sender list" that they used to prioritize even further. Eighteen percent of respondents

indicated they used “Subject” as another method of prioritization. In some cases, responses indicated “Subject” based prioritization was done in conjunction with “Sender”, in other cases “Subject” was used in conjunction with “Content”, the third highest ranked priority strategy.

Table 13

*Coding Frequency: Email Prioritization*

<b>Code</b>	<b>Frequency</b>	<b>Relative frequency</b>	<b>Percent Frequency</b>
Sender	110	0.47	47%
Subject	42	0.18	18%
Content	28	0.12	12%
Open all	24	0.10	10%
Order Received	18	0.08	8%
Priority Flags	5	0.02	2%
Use filters/rules	5	0.02	2%
Delete all	1	0.00	0%
Random Selection	1	0.00	0%
Specific Criteria	1	0.00	0%
<b>TOTAL</b>	<b>235</b>	<b>1.00</b>	<b>100%</b>

Q21 asked respondents to comment on anything pertaining to electronic communication, technostress, or organizational communication that was not addressed in the survey. This provided space for respondents to provide feedback and express personal opinions about these subjects. Once again, emergent coding was used to look for themes in the responses. Of the responses received, N=103, several respondents, N=16, answered with “No”, “n/a”, or simply “>”, leaving N=87 responses to be reviewed for coding, see Table 1 below. The topic that was commented on most frequently was the use of “Alternative Communication” outside of email. This concept can best be explained by the following quote: “I use a lot of different software to accomplish a variety of

administrative tasks for my department. It seems incredibly inefficient to me that these systems are all separate and require learning 8-10 programs to use”. Some have embraced alternative communication methods as illustrated with this light-hearted comment from a respondent: “I really enjoy the text messages about snow related closings”. Another often coded theme was that of “expectations of responsiveness”. “It is most stressful that people expect an immediate reply rather than a realistic 24-48 hour window” stated one respondent. Some of the responses made “recommendations” for improvement, especially pertaining to the “JMU bulk email” process, these will be discussed further in the next chapter. Another group of respondents addressed communication in terms of “work-life balance”, asserting that “There is no need, NO NEED, to be in /constant/ communication” and another stating that “...as part of my job, I am constantly accessible by my employees, supervisors, peers, and others, and it is expected that I will communicate via email or phone outside of normal business hours and during time off. This adds a significant amount of technostress as I feel I can never really disconnect from work”.

Table 14

*Coding Frequency: Open comments*

<b>Code</b>	<b>Frequency</b>	<b>Relative Frequency</b>	<b>Percent Frequency</b>
Alternative Communication	21	0.226	22.58%
Expectations of Responsiveness	13	0.140	13.98%
Recommendations	10	0.108	10.75%
JMU Bulk Email	9	0.097	9.68%
Work-Life Balance	8	0.086	8.60%
Functionality	8	0.086	8.60%
Email not a source of stress	7	0.075	7.53%
Spam	5	0.054	5.38%
Impersonal Communication	4	0.043	4.30%
Organization of and Access to Information	4	0.043	4.30%
Duplicate Communications	2	0.022	2.15%
Time to Process	2	0.022	2.15%
<b>TOTAL</b>	<b>93</b>	<b>1.00</b>	<b>100%</b>

### Mixed Methods

**RQ12. Does the qualitative data on email inbox management converge with the quantitative data on technostress as measured by information overload and communication overload subscales?**

To answer this question, data collected from qualitative questions Q18-Q21 was compared against the quantitative data collected from Q4-Q12. Analysis from RQ1 showed that “Departmental Communications” and “Office of the President Communications” ranked highest as being read “Always” and “Most of the Time”, this was supported by the 47% of respondents of RQ11 that indicated “Sender” as their way of prioritizing which emails to open and which to discard. When responding to Q20, one participant stated “My staff first - their work often depends on my response, then my

boss, then other JMU email, then the rest of it”, another commented “department specific- open immediately”. RQ2 showed that that a majority of participants responded either “Strongly Agree” or “Somewhat agree” to the subscales measuring information overload and communication overload, Q4-Q10. This was supported by comments collected in Q21 which state “Email is terrible! It causes a ton of stress but I also can't offer any alternative method and can't image the workplace without it”. This feeling was further confirmed by responses in Q19 which asked participants about strategies they use to manage email. One respondent commented, “I don't feel efficient or effective, most of the time, but it's the best I can do with the volume of email coming from a variety of sources”. Another respondent stated “No strategies help. Volume is unmanageable”. This was further corroborated by data from RQ3 which showed a statistically significant difference in the number of emails received daily in regard to average information overload scores, where  $p = .001$ . However, some respondents stated they would prefer email over other types of stress inducing communication: “I don't think technostress is a thing for me. Having face-to-face meetings and phone calls are far more stressful and cause more disruption for me” and another who stated “it's easier to manage (or ignore) electronic communication; harder to put a stop to face-to-face interruptions”.

One area where the data seemingly did not converge was on the topic of organizational communication from JMU. Data from Q12 and Q13 showed that over 70% of faculty and staff believe the university communicates with its employees both effectively and efficiently as evidenced in this quote from Q21:

“You asked a couple of questions that related to how well the university communicates. I believe that email communication is realistic for our

organization and it's on each of us to take responsibility to at least skim communication. We don't suffer from a lack of communication as much as time to discern what pertains and what doesn't.”

Despite this agreement, several participants shared their frustration with the JMU bulk email process and shared suggestions for improvement which will be reviewed further in chapter five.

This section reviewed both the quantitative and qualitative data collected from the survey and analyzed each data set in its relation to the research questions presented in chapter one. Each data set was analyzed independently and then brought together to determine if there was convergence. In the next chapter, the findings will be discussed along with suggestions for future research.

## **Chapter 5: Discussion and Conclusion**

In an effort to understand how employees of James Madison University (JMU) manage their email and what leads to stress, an anonymous online Qualtrics survey was disseminated via email to all active faculty and staff at JMU with the purpose of determining if the quantity of communication had any impact on the stress levels of faculty and staff. To fulfill this purpose, the following research questions were presented:

RQ1. How many communication methods are used by the university to disseminate information to employees?

RQ2. Do JMU employees report experiencing the phenomenon of technostress as measured by information overload, communication overload and personal performance subscales?

RQ3. Is there a statistically significant difference between the number of emails an employee receives on a daily basis and employee's level of technostress?

RQ4. Are there statistically significant differences between the 5 generational levels in regard to average information overload scores?

RQ5. Are there statistically significant differences between the 5 generational levels in regard to average communication overload scores?

RQ6. Are there statistically significant differences between gender identities in regard to average information overload scores?

RQ7. Are there statistically significant differences between gender identities in regard to average communication overload scores?

RQ8. Are there statistically significant differences between job roles in regard to average information overload scores?

RQ9. Are there statistically significant differences between job roles in regard to average communication overload scores?

RQ10. Is there a statistically significant association between information overload and communication overload?

RQ11. What strategies do faculty and staff at JMU employ to manage information and communication overload as evidenced by their email inbox?

RQ12. Does the qualitative data on email inbox management converge with the quantitative data on technostress as measured by information overload and communication overload subscales?

The results of this study provided insight to alternative ways that an organization can disseminate necessary information without adding to an employee's level of stress. In this chapter I will review key findings of the study, implications for practice and recommendations for further research efforts.

### **Overview of Key Findings**

Overall, both quantitative and qualitative survey responses indicated that a majority of the participating faculty and staff at JMU felt impacted by both information and communication overload. Unfortunately, qualitative data indicated that several employees are trying to self-manage this overload by either responding to emails outside of work hours or by trying to circumvent email by turning to alternative communication platforms. This concern is compounded by the fact there is evidence within the qualitative data that suggests employees feel that there is an expectation that they need to be immediately responsive to communication. One participant addresses responsiveness, stating “The feeling that I should always be connected or that I have to keep notifications



on (especially on multiple devices -- cell phones etc.) in case 'important' emails arise”.

Another participant addresses both concerns stating, “Some days I find myself monitoring email, slack, basecamp, gmail, texts, social media and phone calls. Not only has the quantity of communication channels increased but the pace and expectation for a response has increased two-fold”.

Demographic data gathered during the survey showed that there were no statistically significant differences between the various groups based on age, gender or job role within JMU. However, this was itself significant in that Millennials are typically stereotyped as having a higher degree of comfort with technology but the survey showed no difference between the 5 generational levels as compared on average information overload and average communication overload scores, signaling all generational levels showed similar impact in both subscales.

Interestingly, analysis showed a moderate negative correlation between average information overload scores and the number of emails received on a typical business day. One possible explanation for this could be that once email reaches a certain point, the user becomes desensitized to the volume. As one respondent stated in response to Q19, “I've stopped trying to manage. I delete what I can immediately and use search functions to sift through email when I need to find information”.

While a number of participants agreed that JMU communicates both effectively and efficiently as an organization, several respondents commented on JMU’s mass communication method, the bulk email process. One respondent stated, “bulk email and other regularly occurring newsletters go straight into my deleted folder - allows my inbox to mostly be clutter-free”, another commented “JMU needs to find ways to create

efficiencies in their email process because I get so many emails from "JMU" that it becomes desensitizing to know what is really important". Recommendations to address these bulk email concerns are presented in the next section.

### **Implications for Practice**

With evidence of faculty and staff being impacted by information and communication overload in regard to their email usage, JMU has several options to help mitigate this overload. One option is to offer training to individuals on email usage and management, which JMU already does through the IT Training program; another option is to implement changes in the way it communicates with employees. Possible options to combat concerns around JMU's mass communication efforts arose in the data with the following recommendations made by respondents:

- "Maybe we can select which topics of JMU Informational emails we want to receive because we get SO many."
- "I would like to see the option to receive JMU bulk mail and other such broad-spectrum mailings as daily \*digests\* linking to Cascade/other web articles. Only highly timely and specific emails from the university should be sent as independent emails."
- "JMU would be better served with a wiki or blog style setup for many of the types of email that get sent out."

Acknowledging that at times, ICT usage can be self-inflicted, the results of this study show the importance of an organization clarifying its expectations, especially at the departmental level, around email usage. There is an opportunity for the university to review and address policies and expectations around communication practices. Once

these expectations are made clear, then it is incumbent on the individual to maintain self-imposed boundaries and to regulate their own ICT usage.

### **Recommendations for Future Study**

While an abundance of research provides suggestions on way employees can manage technostress, there is little in the way of research detailing suggestions for organizations to assist employees with technostress. This study explored whether a relationship exists between technostress and the effectiveness of organization communication, it is highly recommended that future studies examine a causal relationship between technostress and the effectiveness of organization communication as measured by a specific construct such as readership. With one reader stating, “I wonder how many interesting and fun events I've missed because I don't have the time to read JMU-wide emails and I just instantly delete them”, an experimental study, testing various communication channels, might shed further light on whether messages are reaching their intended audience to verify an assumption that information is being missed when these bulk emails are being deleted. It would also provide valuable information on which channels were most effective based on audience and messaging.

With the qualitative data suggesting that employees respond to emails outside of work hours and try to circumvent email by turning to alternative communication platforms, this presents two opportunities for future research. The first would be to analyze the impact of technostress on work-life balance, looking at whether constant connectivity has a measurable influence on productivity. A second opportunity would be to explore how multiple system use plays a factor in the stress levels of employees; with

alternatives such as Slack, Basecamp and Trello all being mentioned, research could determine if these channels influence communication and/or impact productivity.

Another suggestion for further research is to investigate how long employees have worked at JMU to see if there is a statistically significant difference between length of tenure at the university. A comment from one respondent seemed to support this area of research stating, “The longer a person has been in their workplace, the easier it is for them to know where to go to get the information they need. It takes time, sometimes years, to know which messages to ignore and which to read carefully and retain”.

## **Conclusion**

Using a mixed-methods design, this study explored whether a relationship exists between technostress and the effectiveness of organizational communication. While a direct correlation could not be confirmed, evidence from both the quantitative and qualitative data convergence to suggest that a relationship does indeed exist. Quantitative data shows JMU faculty and staff are impacted by both information overload and communication overload and that there is a statistically significant difference between the number of emails received a day as compared on the average information overload score. Qualitative data showed that when managing email, employees are selective in their in their strategies and prioritization of which emails to address and which communications to read indicating that some emails are deleted even before being read. It is highly suggested that future studies examine a causal relationship to confirm this convergence, assessing which methods are more effective at diminishing technostress and increasing communication effectiveness as measured by readership. Armed with the findings of this study, implications for practice and suggestions for future research, organizations will be

better equipped to implement strategies that ensure they are communicating with their employees in a manner that does not add stress, does not decrease productivity and does not get lost in the noise of all the other communication and information an employee is receiving and processing.

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## Appendix A: IRB Application and Approval

### James Madison University Human Research Review Request

FOR IRB USE ONLY:			
Exempt:	<input type="checkbox"/>	Protocol Number:	1 <sup>st</sup> Review: Reviewer: _____
Expedited:	<input type="checkbox"/>	IRB:	2 <sup>nd</sup> Review: Reviewer: _____
Full Board:	<input type="checkbox"/>	Received:	3 <sup>rd</sup> Review: Reviewer: _____
Project Title:	<u>Examining the Relationship between Technostress and the Effectiveness of Organizational Communication</u>		
Project Dates: (Not to exceed 1 year minus 1 day)	From: <u>10/15/18</u> To: <u>04/24/19</u> MM/DD/YY MM/DD/YY		
Responsible Researcher(s):	<u>Lisa K. Hajdasz</u>		
E-mail Address:	<u>hajdaslk@jmu.edu</u>		
Telephone:	<u>540-746-5472</u>		
Department:	<u>AHRD</u>		
Address (MSC):	<u>MSC 4403</u>		
Please Select:	<input type="checkbox"/> Faculty <span style="margin-left: 100px;"><input type="checkbox"/> Undergraduate Student</span> <input type="checkbox"/> Administrator/Staff Member <span style="margin-left: 100px;"><input checked="" type="checkbox"/> Graduate Student</span>		
(if Applicable):			
Research Advisor:	<u>Dr. Noorjehan K. Brantmeier</u>		
E-mail Address:	<u>brantmnk@jmu.edu</u>		
Telephone:	<u>540-568-4530</u>		
Department:	<u>AHRD/LTLE</u>		
Address (MSC):	<u>MSC 6913</u>		
Minimum # of Participants:	<u>80</u>		
Maximum # of Participants:	<u>800</u>		
Funding:	External Funding:	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	If yes, Sponsor: _____

<b>Incentives:</b>  <b>Must follow JMU Financial Policy:</b>	<b>Internal Funding:</b> Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> <b>Independently:</b> Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> <b>Will monetary incentives be offered?</b> Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> <b>If yes: How much per recipient? _____ In what form? _____</b> <a href="http://www.jmu.edu/financemanual/procedures/4205.shtml#.394IRBAprovedResearchSubjects">http://www.jmu.edu/financemanual/procedures/4205.shtml#.394IRBAprovedResearchSubjects</a>
<b>Institutional Biosafety Committee Review/Approval:</b>	<b>Use of recombinant DNA and synthetic nucleic acid molecule research:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>If “Yes,” approval received:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending <b>IBC Protocol Number(s):</b> <b>Biosafety Level(s):</b>
<b>Will research be conducted outside of the United States?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>If “Yes,” please complete and submit the International Research Form along with this review application:</b> <a href="http://www.jmu.edu/researchintegrity/irb/forms/irbinternationalresearch.docx">http://www.jmu.edu/researchintegrity/irb/forms/irbinternationalresearch.docx</a>
<b>Certain vulnerable populations are afforded additional protections under the federal regulations. Do human participants who are involved in the proposed study include any of the following special populations?</b>	<input type="checkbox"/> Minors <input type="checkbox"/> Pregnant women ( <i>Do not check unless you are specifically recruiting</i> ) <input type="checkbox"/> Prisoners <input type="checkbox"/> Fetuses <input checked="" type="checkbox"/> My research does not involve any of these populations

**Some populations may be vulnerable to coercion or undue influence. Does your research involve any of the following populations?**

- ☐ Elderly  
☐ Diminished capacity/Impaired decision-making ability  
☐ Economically disadvantaged  
☐ Other protected or potentially vulnerable population (*e.g. homeless, HIV-positive participants, terminally or seriously ill, etc.*)  
☒ My research does not involve any of these populations

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**Investigator: Please respond to the questions below. The IRB will utilize your responses to evaluate your protocol submission.**

1. ☒ **YES** ☐ **NO** Does the James Madison University Institutional Review Board define the project as **research**?

The James Madison University IRB defines "research" as a "*systematic* investigation designed to develop or contribute to *generalizable knowledge*." All research involving human participants conducted by James Madison University faculty and staff and students is subject to IRB review.

2. ☒ **YES** ☐ **NO** Are the human participants in your study **living** individuals?

"Individuals whose physiologic or behavioral characteristics and responses are the object of study in a research project. Under the federal regulations, human subjects are defined as: living individual(s) about whom an investigator conducting research obtains:

(1) data through intervention or interaction with the individual; or (2) identifiable private information."

3. ☒ **YES** ☐ **NO** Will you obtain data through **intervention** or **interaction** with these individuals?

"Intervention" includes both physical procedures by which data are gathered (*e.g.*, measurement of heart rate or venipuncture) and manipulations of the participant or the participant's environment that are performed for research purposes. "Interaction" includes communication or interpersonal contact between the investigator and participant (*e.g.*, surveying or interviewing).

4. ☒ **YES** ☐ **NO** Will you obtain **identifiable private information** about these individuals?

"Private information" includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, or information provided for specific purposes which the individual can reasonably expect will not be made public (*e.g.*, a medical record or student record). "Identifiable" means that the identity of the participant may be ascertained by the investigator or associated with the information (*e.g.*, by name, code number, pattern of answers, etc.).

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5. ☐ YES ☒ NO Does the study present *more than minimal risk* to the participants?

"Minimal risk" means that the risks of harm or discomfort anticipated in the proposed research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during performance of routine physical or psychological examinations or tests. Note that the concept of risk goes beyond physical risk and includes psychological, emotional, or behavioral risk as well as risks to employability, economic well being, social standing, and risks of civil and criminal liability.

### **CERTIFICATIONS:**

For James Madison University to obtain a Federal Wide Assurance (FWA) with the Office of Human Research Protection (OHRP), U.S. Department of Health & Human Services, **all** research staff working with human participants must sign this form and receive training in ethical guidelines and regulations. "Research staff" is defined as persons who have direct and substantive involvement in proposing, performing, reviewing, or reporting research and includes students fulfilling these roles as well as their faculty advisors. The Office of Research Integrity maintains a roster of all researchers who have completed training within the past three years.


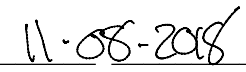
**Test module** at ORI website

<http://www.jmu.edu/researchintegrity/irb/irbtraining.shtml>

Name of Researcher(s) and Research Advisor	Training Completion Date
Lisa K. Hajdasz	01/23/2018
Dr. Noorjehan Kelsey Brantmeier	1/4/2017

For additional training interests, or to access a Spanish version, visit the National Institutes of Health Protecting Human Research Participants (PHRP) Course at:  
<http://phrp.nihtraining.com/users/login.php>.

By signing below, the Responsible Researcher(s), and the Faculty Advisor (if applicable), certifies that he/she is familiar with the ethical guidelines and regulations regarding the protection of human research participants from research risks. In addition, he/she agrees to abide by all sponsor and university policies and procedures in conducting the research. He/she further certifies that he/she has completed training regarding human participant research ethics within the last three years.

Principal Investigator Signature

Date

Principal Investigator Signature

Date



Principal Investigator Signature

Date



11/8/18

Faculty Advisor Signature

Date

Submit an electronic version (in a Word document) of your **ENTIRE** protocol to  
*researchintegrity@jmu.edu*.

Provide a **SIGNED** hard copy of the Research Review Request Form to:  
Office of Research Integrity, MSC 5738, 801 Carrier Drive  
Engineering/Geosciences (EnGeo) Building, Room # 3152

Following are the components for a complete research protocol. Please use this template to complete your protocol for submission. Each category must be addressed in order to provide the IRB sufficient information to approve the research activity. Please use as much space as you need, but adhere to the overall **10-page limitation**.

**For additional detail on each category, see:**  
<http://www.jmu.edu/researchintegrity/irb/irbsubmit.shtml>

### **Purpose and Objectives**

Please provide a lay summary of the study. Include the purpose, research questions, and hypotheses to be evaluated. (Limit to one page)

The proposed study aims to determine if there is a statically strong relationship between technostress and the effectiveness of an organization's communication efforts. The population surveyed will be the active faculty and staff of James Madison University, a large publicly funded higher education institution located in the Shenandoah Valley area of Virginia. The research will be comprised of a week-long quantitative survey of employee's use of email and organization communication tools, an assessment of technostress levels in participants, and a follow-up focus group to assess qualitatively how or why employees choose or choose not to open organizational emails. The data will be analyzed using SPSS, a statistical analysis software, to determine a correlational coefficient between the variables. It is expected that a high level of technostress will show a low level of effectiveness in an organization's communication efforts due to low readership attributed to unopened and/or unread emails.

The study seeks to answer the following questions:

- RQ1. What are the effects that technostress has on the readership of an organization's communication efforts?
- RQ2. Is there a statistically significant association between an employee's level of technostress and the amount of unread communications?
- RQ3. What strategies could an organization employ to increase the effectiveness of its communication efforts?

Hypothesis:

As the number of communications to employees increases, so does the stress levels of JMU employees. Increased stress leads to a decrease in the effectiveness of communication as workers try to avoid stress inducing communication channels.

### **Procedures/Research Design/Methodology/Timeframe**

Describe your participants. From where and how will potential participants be identified (e.g. class list, JMU bulk email request, etc.)?

Potential participants are all full time and wage employees of James Madison University, an organization with approximately 4,000 faculty, classified and wage staff. Student employees will not be included. Participants will be identified by voluntary response to a survey sent via bulk email.

How will subjects be recruited once they are identified (e.g., mail, phone, classroom presentation)? Include copies of recruitment letters, flyers, or advertisements.

Active faculty and staff of JMU will voluntarily choose whether or not to complete the survey sent through JMU bulk email services.

At the end of the survey, respondents will be asked if they would like to participate in the second stage of the study—the focus groups—in order to further support the goals of this research, and they will be asked to provide contact information if they wish to participate. This contact information and the transcribed records of the focus group discussions will be the only instances in which identifiable personal information is linked with participant responses. Transcription data will be stripped of identifiable information during the transcription process.

Describe the design and methodology, including all statistics, IN DETAIL. What exactly will be done to the subjects? If applicable, please describe what will happen if a subject declines to be audio or video-recorded.

Participants will respond to an online survey using Qualtrics. The survey consists of questions about satisfaction with aspects of organizational communication, questions about information overload, communication overload, and email usage, and questions about demographics.

The quantitative responses will be analyzed using descriptive statistical methods. Basic correlational tests will also be used to study the relationship between technostress measures, communication satisfaction, and demographics.

Participants may opt to participate in a follow-up interview as a second phase of this research. The interview protocol and participant selection will be developed based on the findings from this survey. I will submit an IRB addendum before proceeding with the second phase.

Qualitative responses obtained during the focus groups will be analyzed through open coding for common themes.

Emphasize possible risks and protection of subjects.

Respondents will be required to disclose their name and contact information in order to participate in the focus groups. All responses will be kept confidential by the researcher. The researcher will replace each name with an identification code prior to data analysis and will use the identification codes when reporting or discussing data with all others.

Qualitative responses obtained during the focus groups will be edited to ensure that personally identifiable information is not disclosed.

Anonymity will be promised to all who respond to the survey, except for those who participate in the focus groups. At most, focus group participants can be guaranteed

confidentiality of their responses, because pseudonyms will be used during all forms of presentation or publication of this study.

**What are the potential benefits to participation and the research as a whole?**

The overall results may benefit James Madison University by leading to recommendations for changes to organizational communication practices used by the organization in an effort to communication with employees.

Where a majority of the current research looks at what actions an employee can take to mitigate technostress and manage communication overload, there is little literature that addresses technostress from the organization's point of view and provide suggestions on how the organization can improve the effectiveness of its communication. This study looks to fill this gap.

**Where will research be conducted? (Be specific; if research is being conducted off of JMU's campus a site letter of permission will be needed)**

The research will take place on the JMU campus. The first stage of this research—the survey—will be distributed online for participants to complete at their own convenience, most likely in their home or on the JMU campus. In the second stage of research, the focus groups will require a definitive physical location. Leeolou Alumni Center on the campus of JMU is the proposed option, as it is where the researchers work, and thus have particular privileges to department facilities and resources.

**Will deception be used? If yes, provide the rationale for the deception. Also, please provide an explanation of how you plan to debrief the subjects regarding the deception at the end of the study.**

No deception will be used in this research.

**What is the time frame of the study? (List the dates you plan on collecting data. This cannot be more than a year, and you cannot start conducting research until you get IRB approval)**

The time frame of this study ranges from the time of pending IRB approval through May 2, 2019. It is anticipated that the research will begin, and the survey will be issued via email, no later than December 1, 2018, so as to ensure timely participation.

## **Data Analysis**

**For more information on data security, please see:**

***<http://www.jmu.edu/researchintegrity/irb/irbdatasecurity.shtml>***.

**How will data be analyzed?**

Quantitative data analysis will involve mainly inferential and descriptive statistics, as the survey has largely closed ended questions. Any answers from open text-entry options on survey questions will be analyzed for themes and coded quantitatively. The median and mode will be reported for many of the survey questions. Inferential statistics will determine whether there is a correlation between technostress and the degree of reported satisfaction of JMU's organizational communication.

The focus groups will rely solely on open-ended questions that require a qualitative data analysis process involving transcription of responses, analysis and identification of themes, and coding of these themes into data that can be summarized visually or numerically

How will you capture or create data? Physical (ex: paper or recording)? Electronic (ex: computer, mobile device, digital recording)?

The quantitative data will be collected electronically with a JMU account in Qualtrics. The qualitative data obtained during the focus groups will be captured via digital recording on a digital voice recorder. Both the recordings and transcription data will be stored electronically on the researcher's password-protected lap.

Do you anticipate transferring your data from a physical/analog format to a digital format? If so, how? (e.g. paper that is scanned, data inputted into the computer from paper, digital photos of physical/analog data, digitizing audio or video recording?)  
The collected data will be in a digital format.

How and where will data be secured/stored? (e.g. a single computer or laptop; across multiple computers; or computing devices of JMU faculty, staff or students; across multiple computers both at JMU and outside of JMU?) If subjects are being audio and/or video-recorded, file encryption is highly recommended. If signed consent forms will be obtained, please describe how these forms will be stored separately and securely from study data.

Survey data will be stored first in Qualtrics, which will strip identifying information from the responses and analyze the results into both numerical and pictorial summaries. The descriptive analyses performed by Qualtrics will later be stored on the password protected laptop of the researcher until the destruction of all records. A back-up record of this data will also be stored on a password protected external hard drive until the conclusion of the study.

Who will have access to data? (e.g. just me; me and other JMU researchers (faculty, staff, or students); or me and other non-JMU researchers?)

Myself as the researcher and my thesis advisor, Dr. Brantmeier.

If others will have access to data, how will data be securely shared?

When seeking consultation from my thesis advisory committee, the data will remain on the password-protected laptop of the researcher.

Will you keep data after the project ends? (i.e. yes, all data; yes, but only de-identified data; or no) If data is being destroyed, when will it be destroyed, and how?  
Who will destroy the data?

After the study is completed, the electronic data will be removed from Qualtrics.

The data with names replaced by identification codes and any identifiable comments within qualitative data removed will be copied to a DVD with files password protected. The data will be kept indefinitely by the researcher.

The identification key will be destroyed at the end of the research period.

### **Reporting Procedures**

Who is the audience to be reached in the report of the study?

The audience to be reached in the report of this study is the researcher's committee members, which consists of three graduate faculty members within the AHRD/LTLE graduate school. These members are as follows:

Dr. Noorjehan Kelsey Brantmeier – Committee Chair

Dr. Oris T. Griffin – Committee Member

Randy Snow – Committee Member

How will you present the results of the research? (If submitting as exempt, research cannot be published or publicly presented outside of the classroom. Also, the researcher cannot collect any identifiable information from the subjects to qualify as exempt.)

The results of this research will be presented to the committee members listed above through a “defense” of the research and the resulting findings.

How will feedback be provided to subjects?

Within the consent form contained in the email being sent to the survey participants, the researcher's email address will be printed, so as to allow the participants to contact the researcher with feedback, questions or concerns regarding the study, as well as to give them the opportunity to learn about the results of the study, if they choose to inquire.

### **Experience of the Researcher (and advisor, *if student*):**

Please provide a paragraph describing the prior relevant experience of the researcher, advisor (if applicable), and/or consultants. If you are a student researcher, please state if this is your first study. Also, please confirm that your research advisor will be guiding you through this study.

Lisa Kim Hajdasz has an undergraduate degree in Business Administration with a concentration in International Business from James Madison University. I am currently pursuing my master's degree in Adult Education and Human Resource Development at James Madison University. I have completed coursework in Research Methods (Quantitative and Qualitative), Performance Analysis, Adult Learning, Educational Technology, and Foundations of Human Resource Development.

Dr. Noorie Kelsey Brantmeier has a Ph.D. in Adult Education and Human Resource Studies with a specialization in research methods from Colorado State University. She has a master's degree in social work from Washington University in St. Louis where she conducted research on social and economic development in Naive

American communities. Dr. Brantmeier has been a principal investigator, co-principal investigator, and/or research coordinator on studies related to the measurement of student attitudes regarding diversity in higher education; youth civic engagement; and adolescent attitudes toward violence. She holds the rank of Graduate Faculty at JMU and teaches research methods courses at both the master's and doctoral levels.

Past and current research methods courses taught include:

PSY 840: Qualitative and Mixed Research Methods

AHRD/EDUC 630: Research Methods & Inquiry

AHRD 680/700: Reading & Research/Thesis

**\*Please “insert” page break here and then Insert Consent form or Cover letter here!**  
**Examining the Relationship between Technostress and the Effectiveness of Organizational Communication**

**“Web”/ “Email” Cover Letter (used in anonymous research)**

**Identification of Investigators & Purpose of Study**

You are being asked to participate in a research study conducted by Lisa K. Hajdasz from James Madison University. The purpose of this study is to evaluate the impact of technostress on the effectiveness of organizational communication. This study will contribute to the researcher’s completion of her master’s thesis.

**Research Procedures**

This study consists of an online survey that will be administered to individual participants through a link distributed via email which leads to a Qualtrics online survey. You will be asked to provide answers to a series of questions related to information overload, communication overload, email usage and satisfaction related to organizational communication..

**Time Required**

Participation in this study will require approximately 15 minutes of your time.

**Risks**

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

**Benefits**

While there is no direct benefit to participants, potential benefits from participation in this study include expanding the available research for organizations to use when evaluating the effectiveness of their communication via email distribution.

**Confidentiality**

The results of this research will be presented at the student’s thesis defense and potentially in academic publications and conferences in the following year. While individual responses are anonymously obtained and recorded online through the Qualtrics software, data is kept in the strictest confidence. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location only accessible to the researcher. The researcher retains the right to use and publish non-identifiable data. At the end of the study, all records will be destroyed. Final aggregate results will be made available to participants upon request.

**Participation & Withdrawal**

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of



any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

### **Questions about the Study**

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Researcher's Name: Lisa K. Hajdasz  
Brantmeier  
Department: Office of Annual Giving  
James Madison University  
Email Address: hajdaslk@jmu.edu  
brantmnk@jmu.edu  
Telephone: (540)-568-8918

Advisor's Name: Dr. Noorie

Department: LTLE  
James Madison University  
Email Address:

### **Questions about Your Rights as a Research Subject**

Dr. Taimi Castle  
Chair, Institutional Review Board  
James Madison University  
(540) 568-5929  
[castletl@jmu.edu](mailto:castletl@jmu.edu)

### **Giving of Consent**

I have been given the opportunity to ask questions about this study. I have read this consent and I understand what is being requested of me as a participant in this study. I certify that I am at least 18 years of age. By clicking on the link below, and completing and submitting this anonymous survey, I am consenting to participate in this research.

**Insert hyperlink here, if appropriate.**

\_\_\_\_\_  
Name of Researcher (Printed)

\_\_\_\_\_  
Date

This study has been approved by the IRB, protocol # \_\_\_\_\_.

### **Examining the Relationship between Technostress and the Effectiveness of Organizational Communication**

#### **Consent to Participate in Research**

**Identification of Investigators & Purpose of Study**

You are being asked to participate in a research study conducted by Lisa K. Hajdasz from James Madison University. The purpose of this study is to evaluate the impact of technostress on the effectiveness of organizational communication. This study will contribute to the researcher's completion of her master's thesis.

**Research Procedures**

Should you decide to participate in this research study, you will be asked to sign this consent form once all your questions have been answered to your satisfaction. This study consists of a group interview (focus group) that will be held with participants at Leeolou Alumni Center. You will be asked to provide answers to a series of questions related to the effects of technostress on the effectiveness of an organization's communication and strategies employees use to prioritize emails. The meeting will be audio taped in order to provide accurate documentation of information for later transcription and analysis. All records will be destroyed upon conclusion of the study.

**Time Required**

Participation in this study will require 1 hours of your time.

**Risks**

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

**Benefits**

While there is no direct benefit to participants, potential benefits from participation in this study include expanding the available research for organizations to use when evaluating the effectiveness of their communication via email distribution.

**Confidentiality**

The results of this research will be presented at student's thesis defense and potentially in academic publications and conferences in the following year. The results of this project will be coded in such a way that the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. While individual responses are confidential, aggregate data will be presented representing averages or generalizations about the responses as a whole. All data will be stored in a secure location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers, as well as audio/ video recordings, will be destroyed.

**Participation & Withdrawal**

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind.

### Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Researcher's Name: Lisa K. Hajdasz  
Brantmeier  
Department: Office of Annual Giving  
James Madison University  
Email Address: hajdaslk@jmu.edu  
brantmnk@jmu.edu  
Telephone: (540)-568-8918

Advisor's Name: Dr. Noorie

Department: LTLE  
James Madison University  
Email Address:

### Questions about Your Rights as a Research Subject

Dr. Taimi Castle  
Chair, Institutional Review Board  
James Madison University  
(540) 568-5929  
[castletl@jmu.edu](mailto:castletl@jmu.edu)

### Giving of Consent

I have read this consent form and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have been given satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18 years of age.

☐ I give consent to be (*video/audio*) recorded during my interview. \_\_\_\_\_ (initials)

\_\_\_\_\_  
Name of Participant (Printed)

\_\_\_\_\_  
Name of Participant (Signed)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher (Signed)

\_\_\_\_\_  
Date

***\*Please “insert” page break here and then Insert Survey/interview questions! Please also insert an active web link (url) if research is being conducted electronically online (such as using Qualtrics).***

[http://jmu.co1.qualtrics.com/jfe/form/SV\\_cAVhiULCHckbqWp](http://jmu.co1.qualtrics.com/jfe/form/SV_cAVhiULCHckbqWp)

### *Quantitative Survey Questions*

#### *Demographic Information*

1. Age
  - 18 - 21 years
  - 22 - 37 years
  - 38 - 53 years
  - 54 - 72 years
  - 72 years and older
2. Gender
  - Male
  - Female
  - Non binary / third gender
  - Prefer to self-describe:
  - Prefer not to say
3. Employment Classification at the University (Instructional Faculty, AP Faculty, Classified, Wage)
  - Wage Employee
  - Classified Employee
  - Administrative and Professional Faculty
  - Full-time Instructional Faculty
  - Adjunct Faculty
  - Other

#### *Information overload<sup>1</sup>*

##### *5pt Likert scale*

1. I am often distracted by the excessive amount of information available to me for business decision making.
2. I find that I am overwhelmed by the amount of information I have to process on a daily basis.
3. Usually, my problem is with too much information to synthesize instead of not having enough information to make decisions.

#### *Communication overload<sup>1</sup>*

##### *5pt Likert scale*

1. I feel that in a less connected environment, my attention would be less divided allowing me to be more productive.

2. I often find myself overwhelmed because technology has allowed too many other people to have access to my time.
3. I waste a lot of my time responding to emails and voicemails that are business-related but not directly related to what I need to get done.
4. The availability of electronic communication has created more of an interruption than it has improved communications.

#### *Organizational Communication*

1. Which of the following JMU Communications do you read on a regular basis
  - a. Departmental communications (ie newsletters)
  - b. CFI Weekly Digest
  - c. College specific communications
  - d. JMU Informational Email (Bulkmail)
  - e. JMU ListServ Groups
  - f. Madison Update
  - g. Office of the President Communications
  - h. The Breeze
  - i. The Beacon
  - j. The HR Update
  - k. Other:
2. Overall, I feel JMU as an organization communicates with me efficiently. <sup>1</sup>
3. Overall, I feel JMU as an organization communicates with me effectively. <sup>1</sup>

#### *Email Usage*

1. Current total number of emails in my inbox: [text entry]
2. Number of unread emails in my inbox: [text entry]
3. On a typical business day I receive the following number of emails
  - a. 0-50
  - b. 50-100
  - c. 100-250
  - d. 250-500
  - e. 500+
4. Of the emails I receive, I typically read
  - a. 25% or less
  - b. 25% - 50%
  - c. 50% - 75%
  - d. 75% - 100%
5. Of the emails I receive, the following percentage are pertinent to my work:
  - a. 25% or less
  - b. 25% - 50%
  - c. 50% - 75%
  - d. 75% - 100%

What strategies do you employ to manage your email inbox?

Please describe how you prioritize which emails to open and which to discard:

Is there anything not addressed in this survey pertaining to electronic communication, technostress, or organizational communication that you would like to comment on:

As a follow-up to this survey, a 1 hour focus group will be conducted to explore email overload and organizational communication in more detail. Would you be willing to participate in this focus group?

<sup>1</sup> Karr-Wisniewski, P., & Lu, Y. (2010). When more is too much: Operationalizing technology overload and exploring its impact on knowledge worker productivity. *Computers in Human Behavior*, 26(5), 1061-1072.

***\*Please “insert” page break here and Insert Site Letter of Permission if you are conducting research off of JMU’s campus!***

N/A

## IRB Approval Notification

Morgan, Cindy - morgancs

Thu 11/29/2018 4:51 PM

To: Hajdasz, Lisa Kim - hajdaslk <hajdaslk@jmu.edu>;

Cc: Brantmeier, Noorie - brantmnk <brantmnk@jmu.edu>;

Dear Lisa,

I wanted to let you know that your IRB Protocol entitled, "*Examining the Relationship between Technostress & the Effectiveness of Organizational Communication*" has been approved effective from 11/29/2018 through 4/24/2019. The signed action of the board form, approval memo, and close-out form will be sent to your advisor via campus mail. Your protocol has been assigned No. 19-0252. Thank you again for working with us to get your protocol approved.

All research must be conducted in accordance with this approved submission, meaning that you will follow the research plan you have outlined in your protocol, use approved materials, and follow university policies.

Please take special note of the following important aspects of your approval:

- Any changes made to your study require approval ***before*** they can be implemented as part of your study. Contact the Office of Research Integrity at [researchintegrity@jmu.edu](mailto:researchintegrity@jmu.edu) with your questions and/or proposed modifications. An addendum request form can be located at the following URL: <http://www.jmu.edu/researchintegrity/irb/forms/irbaddendum.doc>.
- As a condition of the IRB approval, your protocol is subject to annual review. Therefore, you are required to complete a Close-Out form before your project end date. You ***must*** complete the close-out form unless you intend to continue the project for another year. An electronic copy of the close-out form can be found at the following URL: <http://www.jmu.edu/researchintegrity/irb/forms/irbcloseout.doc>.
- If you wish to continue your study past the approved project end date, you must submit an Extension Request Form indicating a renewal, along with supporting information. An electronic copy of the close-out form can be found at the following URL: <http://www.jmu.edu/researchintegrity/irb/forms/irbextensionrequest.doc>.
- If there are in an adverse event and/or any unanticipated problems during your study, you must notify the Office of Research Integrity within 24 hours of the event or problem. You must also complete adverse event form, which can be located at the following URL: <http://www.jmu.edu/researchintegrity/irb/forms/irbadverseevent.doc>.

Although the IRB office sends reminders, it is ultimately ***your responsibility*** to submit the continuing review report in a timely fashion to ensure there is no lapse in IRB approval.



Thank you again for working with us to get your protocol approved. If you have any questions, please do not hesitate to contact me.

Best Wishes,  
Cindy

**Cindy Morgan**  
**IRB Coordinator**  
**Office of Research Integrity - James Madison University**  
Engineering/Geosciences Bldg., Room 3152  
MSC 5738  
Harrisonburg, VA 22807  
[morgancs@jmu.edu](mailto:morgancs@jmu.edu)  
(540) 568-7025

***We have moved!! Office of Research Integrity is now located in the Engineering/Geosciences (EnGeo) Bldg., Room 3152.***

## Appendix B: Survey Instrument

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### Start of Block: Block 1

Q23

#### **Identification of Investigators & Purpose of Study**

You are being asked to participate in a research study conducted by Lisa K. Hajdasz from James Madison University. The purpose of this study is to evaluate the impact of technostress on the effectiveness of organizational communication. This study will contribute to the researcher's completion of her master's thesis.

#### **Research Procedures**

This study consists of an online survey that will be administered to individual participants through a link distributed via email which leads to a Qualtrics online survey. You will be asked to provide answers to a series of questions related to information overload, communication overload, email usage and satisfaction related to organizational communication.

#### **Time Required**

Participation in this study will require approximately 15 minutes of your time.

#### **Risks**

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

#### **Benefits**

While there is no direct benefit to participants, potential benefits from participation in this study include expanding the available research for organizations to use when evaluating the effectiveness of their communication via email distribution.

#### **Confidentiality**

The results of this research will be presented at the student's thesis defense and potentially in academic publications and conferences in the following year. While individual responses are anonymously obtained and recorded online through the Qualtrics software, data is kept in the strictest confidence. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location only accessible to the researcher. The researcher retains the right to use and publish non-identifiable data. At the end of the study, all records will be destroyed. Final aggregate results will be made available to participants upon request.

#### **Participation & Withdrawal**

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without

consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

### **Questions about the Study**

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact: Researcher's Name: Lisa K.

Hajdasz

Advisor's Name: Dr. Noorie Brantmeier Department:

Office of Annual Giving

Department: LTLE James Madison

University

James Madison University Email

Address: hajdaslk@jmu.edu

Email Address: brantmnk@jmu.edu

Telephone: (540)-568-8918

### **Questions about Your Rights as a Research Subject**

Dr. Taimi Castle Chair, Institutional Review Board James Madison University (540) 568-5929 castletl@jmu.edu

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### **Q24 Giving of Consent**

I have been given the opportunity to ask questions about this study. I have read this consent and I understand what is being requested of me as a participant in this study. I certify that I am at least 18 years of age. By answering below question I am consenting to participate in this research.

☐ Yes

☐ No

End of Block: Block 1

---

Start of Block: Default Question Block

Q1 Please identify your age range:

- ☐ 18 - 21 years
  - ☐ 22 - 37 years
  - ☐ 38 - 53 years
  - ☐ 54 - 72 years
  - ☐ 72 years and older
- 

Q2 Please identify your gender:

- ☐ Male
  - ☐ Female
  - ☐ Non binary / third gender
  - ☐ Prefer to self-describe: \_\_\_\_\_
  - ☐ Prefer not to say
- 

Q3 What is your role at JMU?

- ☐ Wage Employee
  - ☐ Classified Employee
  - ☐ Administrative and Professional Faculty
  - ☐ Full-time Instructional Faculty
  - ☐ Adjunct Faculty
  - ☐ Other
-

Page Break

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Q4 I am often distracted by the excessive amount of information available to me for business decision making.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Q5 I find that I am overwhelmed by the amount of information I have to process on a daily basis.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
-

Q6 Usually, my problem is with too much information to synthesize instead of not having enough information to make decisions.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Q7 I feel that in a less connected environment, my attention would be less divided allowing me to be more productive.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Q8 I often find myself overwhelmed because technology has allowed too many other people to have access to my time.

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Neither agree nor disagree
- ☐ Somewhat disagree
- ☐ Strongly disagree

---

Q9 I waste a lot of my time responding to emails and voicemails that are business-related but not directly related to what I need to get done.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Q10 The availability of electronic communication has created more of an interruption than it has improved communications.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
-



Q11 How often do you read the following JMU Communications:

	Always	Most of the time	About half the time	Sometimes	Never
Departmental Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CFI Weekly Digest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
College-specific Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JMU Informational Email (Bulkmail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JMU ListServ Groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Madison Magazine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Office of the President Communications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Breeze	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Beacon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The HR Update	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q12 Overall, I feel JMU as an organization communicates with me efficiently.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Q13 Overall, I feel JMU as an organization communicates with me effectively.

- ☐ Strongly agree
  - ☐ Somewhat agree
  - ☐ Neither agree nor disagree
  - ☐ Somewhat disagree
  - ☐ Strongly disagree
- 

Page Break

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Q14 Current total number of emails in my inbox:

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Q15 Number of unread emails in my inbox:

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Q16 On a typical business day I receive the following number of emails

- ☐ 0 - 50
- ☐ 51 - 100
- ☐ 101 - 250
- ☐ 251 - 500
- ☐ 500 or more

---

Q17 Of the emails I receive, I typically read

- ☐ 25% or less
- ☐ 25% - 50%
- ☐ 50% - 75%
- ☐ 75% - 100%

---

Q18 Of the emails I receive, the following percentage are pertinent to my work:

- ☐ 25% or less
- ☐ 25% - 50%
- ☐ 50% - 75%
- ☐ 75% - 100%
- 

Q19 What strategies do you employ to manage your email inbox?

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---

---

---

Q20 Please describe how you prioritize which emails to open and which to discard:

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Q21 Is there anything not addressed in this survey pertaining to electronic communication, technostress, or organizational communication that you would like to comment on:

---

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Page Break

Q22 As a follow-up to this survey, a 1 hour focus group will be conducted to explore email overload and organizational communication in more detail. Would you be willing to participate in this focus group?

☐ Yes

☐ No

End of Block: Default Question Block

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### Appendix C: JMU Publications

Table 1

*Readership of various JMU publications*

JMU PUBLICATIONS	ALWAYS		MOST OF THE TIME		ABOUT HALF OF THE TIME		SOMETIMES		NEVER		TOTAL
	n	%	n	%	n	%	n	%	n	%	
DEPARTMENTAL COMMUNICATIONS	123	65%	49	26%	5	3%	9	5%	4	2%	190
CFI WEEKLY DIGEST	10	5%	19	10%	18	9%	38	20%	106	56%	191
COLLEGE-SPECIFIC COMMUNICATIONS	39	21%	48	25%	23	12%	44	23%	36	19%	190
JMU INFORMATIONAL EMAIL (BULKMAIL)	27	14%	53	28%	36	19%	69	36%	6	3%	191
JMU LISTSERV GROUPS	24	13%	60	32%	28	15%	45	24%	33	17%	190
MADISON MAGAZINE	18	9%	28	15%	21	11%	60	31%	64	34%	191
OFFICE OF THE PRESIDENT COMMUNICATIONS	85	45%	63	33%	16	8%	21	11%	6	3%	191
THE BREEZE	14	7%	18	9%	19	10%	78	41%	62	32%	191
THE BEACON	11	6%	10	5%	9	5%	47	25%	113	59%	190
THE HR UPDATE	68	36%	53	28%	21	11%	34	18%	14	7%	190
JMU ATHLETICS COMMUNICATIONS	2	67%	1	33%	0	0%	0	0%	0	0%	3
CIVICIST	0	0%	0	0%	1	100%	0	0%	0	0%	1
POTTY MOUTH	2	100%	0	0%	0	0%	0	0%	0	0%	2
ORL NEWSLETTER	0	0%	1	100%	0	0%	0	0%	0	0%	1
ALUMNI NEWSLETTER	0	0%	1	100%	0	0%	0	0%	0	0%	1
SA NEWSLETTER	0	0%	1	100%	0	0%	0	0%	0	0%	1
EVENT MANAGEMENT NOTIFICATION	1	100%	0	0%	0	0%	0	0%	0	0%	1
TRADE ASSOCIATION	0	0%	0	0%	0	0%	1	100%	0	0%	1
VA GOVERNOR EMAILS	1	100%	0	0%	0	0%	0	0%	0	0%	1
ALERTS	1	100%	0	0%	0	0%	0	0%	0	0%	1
FORBES CENTER	0	0%	0	0%	0	0%	1	100%	0	0%	1
NUMEROUS BUSINESS NEWSLETTERS	0	0%	1	100%	0	0%	0	0%	0	0%	1
ASSOCIATION NEWSLETTERS	0	0%	1	100%	0	0%	0	0%	0	0%	1