E-mail Overload:
Exploring the Stressors of E-mail in an Office of Admissions and Registrar

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Executive Summary

The organization examined in this work is a state community college located in Tennessee. It is a publicly supported two-year community college operated under the Tennessee Board of Regents' support. The institution has asked to remain anonymous; therefore, a pseudonym of Capstone State Community College (CSCC) will be used throughout the paper as the identifier. CSCC's goal is to understand how technology impacts overall worker productivity for "general" or "non-academic" staff housed in specific units that traditionally fall under Enrollment Affairs, Services, or Management, specifically targeting staff within the Office of Admissions and Registrar. This is essential as only nineteen staff support the work housed within the Office of Admissions and Registrar. CSCC seeks to understand the relationship between employee engagement, workload, use of technology, and e-mail volume and how they are associated with overall work productivity and the direct increases on stress.

In conducting a literature review on e-mail overload, the researcher identified critical studies conducted by Reinke and Chamorro-Premuzic (2014) and Dabbish and Kraut (2006) regarding the feelings of overload and changing landscape of communication technologies, in addition to research by Barley, Meyerson, and Grodal (2011), Karr-Wisniewski and Lu (2010), and Mehta and Mehta (2013), which explored the rapid adoption of e-mail as one of the primary methods for communication and information exchange connecting how additional technology tools create additional dependence while connecting the concept of technology overload to decreases in worker productivity, employee engagement, and stress. To frame a better understanding of the phenomenon of e-mail overload, the conceptual framework in this study was drawn from the work on information overload by Eppler and Mengis (2003), which integrated a series of topic clusters as a way to provide a visualization of the research on information overload.

Two research questions were created to connect the context, problem of practice, literature, and framework.

1. To what extent does the role of e-mail overload serve as a source of stress?
2. To what extent does the effect of e-mail overload influence overall productivity?

To investigate these questions, a within-person study using a sequential explanatory mixed-methods approach was initially targeted, looking at the use of survey data and an analysis of observations and follow-up open-interviews. Unfortunately, the COVID-19 pandemic struck during the targeted timeline when the semi-structured interviews and observations were supposed to occur. Due to travel restrictions, time-limitations set for this capstone project completion, the site's workload, and the continued health and safety concerns for the participants and the researcher, a decision was made to forgo any in-person observations as well as interviews. As a result, a cross-sectional study targeting data from this specified population was conducted. The study sought to determine if e-mail overload was related to increased stressors for staff at a post-secondary institution housed within Admissions or the Office of the Registrar. The data collection was completed via a survey adapted from "*E-mail Overload in Academia*" by Hole (2008).

Finding 1: Overall e-mail volume reflected minor to no increases for office and institutional level e-mails.

Results showed office-level e-mail volume reflected minor increases specifically in the categories in the number of e-mails received and sent in a 24-hour period. This result signaled staff may be experiencing minor changes in their overall office-level e-mail. The results at the institutional level e-mail were unanticipated where volume reflected a decrease in three of the four categories (received, read, sent, deleted).

Finding 2: Participants experienced higher levels on average of overload/stress in trying to efficiently manage e-mail, along with being able to read all important e-mails received.

Results showed that participants had a mean of 4.36 on the first survey and 4.63 on the second survey out of 5.00 when managing their office level e-mail efficiently. Additionally, participants indicated on the first survey that the ability to read important e-mail was at a mean of 4.55 and a mean of 4.25 from the second survey. These results indicated a higher level of overload/stress in these two areas specific to the participants' office level e-mail.

At the institutional level, e-mail participants indicated agreement, as seen in the results from both surveys, with a mean of 4.50, indicating close to a strong agreement that managing e-mail efficiently was difficult at times. Additionally, participants indicated reading all of the important e-mails received, with a mean of 5.00, reflecting the highest level of overload/stress.

Finding 3: Office level e-mail engagement resulted in less of a feeling and/or experience of e-mail overload

Both surveys provided results that helped answer one of the primary research questions. Specifically, question one – *To what extent does the role of e-mail overload serve as a source of stress?* The results from both surveys indicated that office-level e-mail engagement did result in less of a feeling and/or experience of e-mail overload with the average overload value being at 2.74 and 2.88 mean, compared to those participants with institutional level e-mail engagement for whom more acute feelings of overload were present being at 3.50 and 3.00 mean.

Recommendations:

Results of survey data indicated an overwhelming need to find a solution for the director and staff within the Office of Admissions and Registrar at CSCC to manage and track the office's e-mail volume. This is often a hidden statistic that is not tracked or reported in overall monthly volume. Standard data such as the number of recruits, applications received, admits/denies/incomplete applications are available and typically provided to show the admissions staff's overall workload. On the Registrar side, the standard tracking of classes scheduled, number of registration transactions in the system, number of transcripts ordered and

produced, etc., are also part of the standard fare. However, there is much-hidden work, such as the number of walk-ins, incoming phone calls, forms received and processed, major/minor program changes processed, grade changes processed, and overall e-mails both received and sent.

Recommendation 1: Formalize the use of data tracking mechanisms for all office and institutional level e-mails to monitor and track overall e-mail volume for the Office of Admissions and Registrar at CSCC.

In conversation with the Director of CSCC, the researcher learned that tracking overall e-mail volume is not a current norm. Being able to account for e-mail and additional data points already collected will allow the director quantifiable data connecting back to the workload that the staff is experiencing specific to e-mail.

Therefore, it was recommended that the site use a monthly statistics spreadsheet for both the Office of Admissions and Registrar. A sample spreadsheet, specific to Registrar duties, was provided (Appendix G) as an option for tracking different types of data typical to the office. Having monthly data around the number of e-mails sent and received at the office and institutional level will provide a means for the director to monitor the causes of overload, as referenced by Eppler and Mengis (2003).

Recommendation 2: Experiment with the use of existing e-mail client solutions that support task management and productivity support.

Data further revealed areas within e-mail, such as identifying importance, managing, and engaging with e-mails in a 24-hour period, where a tool for tracking volume is important. The MyAnalytics tool, which is an existing part of Microsoft 365, is uniquely designed to summarize data specific to the outlook tools and functionalities offered and would provide a dashboard view with four main areas of "insight" into one's overall workday - showing summary data and ways to improve focus, well-being, network, and collaboration while finding ways to work smarter.

This recommendation specifically targeted the "Collaboration" report, where data were provided on sent and read e-mails over a four-week timeframe, allowing the site to pull monthly e-mail numbers to be placed in the implemented data tracking mechanism.

Recommendation 3: Create actionable data that can determine if productivity is being adversely affected.

With the implementation of the first two recommendations, the director would be able to accurately track various pressure points connected to e-mail volume, e-mail overload, and e-mail management. Creating a specific data set that reflected additional work performed by the Office of Admissions and Registrar at CSCC while adapting to cyclical pressure points using data to show when additional support may be required.

Introduction

Over the last two decades, the world has experienced massive technological changes from the launch of the internet to the concept of e-mail (i.e., AOL), which came about in the mid-nineties (1995). Although initially adopted slowly, e-mail has become a mainstay in ordinary citizens' lives, something many people cannot imagine life without. The change in technologies and the increased usage of services like e-mail have modified how every organization handles its business. According to the Pew Research Center study in 2011, e-mail does not discriminate but instead encompasses all members of society. From our youngest to oldest, college-educated, low, high-income, and retirees, at least 92% of adults report using e-mail to communicate (Purcell, 2011). Fast forward to today, where there is even more technology usage in the workplace. As employees are often working with more than one computer monitor, laptops, iPads, work phones, and multiple e-mails, it is no wonder that the increasing volume of e-mail is widely becoming a growing source of stress and a leading cause of productivity losses (Reinke & Chamorro-Premuzic, 2014).

Organizational Context

The organization examined in this work is a state community college located in Tennessee. The organization is a publicly supported two-year community college operated under the Tennessee Board of Regents' support. CSCC has several academic divisions including Health Sciences, Nursing, Humanities, Business and Technology, Social Science and Education, and Mathematics and Science, offering associate degrees, certificates, as well as several special academic programs from continuing education, honors, international education, lecture series, online education, service learning, and work-based learning opportunities (“About Us | Capstone State Community College,” n.d.).

The community college has asked to remain anonymous; therefore, a pseudonym of Capstone State Community College (CSCC) is used throughout the paper as the identifier. CSCC sought to understand how technology impacted overall worker productivity for “general” or “non-academic” staff housed in specific units that traditionally fall under Enrollment Affairs, Services, or Management – The Office of Admissions and Registrar. It is important to note that only nineteen staff were supporting the work housed within the Office of Admissions and

Registrar. In the everyday context, understanding the direct relationship between employee engagement, workload, use of technology, and e-mail volume and how they were associated with overall work productivity and direct increases in stress was an important item for CSCC.

Definition of the Problem

This capstone study focused on information overload induced by incoming e-mails and drew on the definition and research conducted by Dabbish and Kraut (2006). The study's goal was to understand how technology impacted overall worker productivity for "general" or "non-academic" staff housed in specific units that traditionally fall under Enrollment Affairs, Services, or Management; specifically, staff affiliated with the functional areas that support or make up the Office of Admissions or Office of the Registrar as these offices historically have had an additional e-mail(s) account for inquiries and questions from the public and students.

Literature Review

Although the use of technology and increased use of e-mail have become drivers for most industries, with about 28% of an average workweek spent on reading and responding to e-mails (Reinke & Chamorro-Premuzic, 2014), there is concern that e-mail use is rapidly growing and on the brink of being out of control. The phenomenon that one cannot cope with, or process e-mails timely or effectively, has been defined as the feeling of *e-mail overload* (Reinke & Chamorro-Premuzic, 2014). Dabbish and Kraut (2006) more specifically define it as "email users' perceptions that their use of email has gotten out of control because they receive and send more email than they can handle, find, or process effectively" p. 431). The concept of email overload can be traced to the broader construct of "information overload," which may appear to be a recently added phrase used in today's society. In fact, it has been around as far back as the 1800s (Edmunds & Morris, 2000). Klapp (1986)noted that one of the first social scientists to observe this phenomenon was Simmel, who, "in 1950, wrote of the overload of sensations in the modern world" (Jackson & Farzaneh, 2012, p. 524). Information overload, similar to email overload, refers to "a state in which the receiver cannot effectively process received information without interruption, causing errors and omission of information" (Klapp, 1986, as cited in Hole, 2008). As Hole (2008) explains, "information loses its ability to inform and instead acts like noise,

preventing the receiver from performing efficiently" (p. 19).

With an ever-changing landscape of computer-mediated communication systems, it has become increasingly challenging to keep up with the volume and pace of information (Hiltz & Turoff, 1985; Kerr, Hiltz & Turoff, 1982). No place is this more evident than with the rapid adoption of e-mail that has become one of society's primary communication and information exchange methods. As the volume of information and emails increases, individuals and organizations can become overwhelmed, which as Jackson and Farzaneh note (2012), "can reduce productivity and performance, hinder learning and innovation, affect decision making and well-being and cost organizations large amounts of money" (p. 523). Tracking the volume of e-mail communications, the numbers, both received and responded to, along with the types of questions and communications or transactions handled via e-mail, has vast implications. Knowing not just the costs associated with the technology but the implications to staffing retention and mental well-being are essential. Unfortunately, organizational and technological research has not kept current with the ways in which e-mail has changed the communication and organizational landscape (Dabbish & Kraut, 2006). Based on the research and information currently available; however, it appears that the technology-related stress experienced by e-mail overload is a high-level concern for a variety of organizations.

As Hole (2008), email was initially designed as an "economical means to communicate through an asynchronous channel with similar characteristics" to what is often referred to as "snail mail." However, user behavior has dramatically altered email's original purpose and has moved toward a more synchronous communication mode in which users expect the receiver to respond to messages within minutes, or hours, and not days (Hole, 2008). In 2007, Adhoot confirmed that, in academia, faculty were on average spending 2.5 hours per day using email. For the most part, the e-mail overload phenomenon has been viewed primarily as the consequence of the volume of e-mail (Ahdoot ,2007). Research conducted by Hole (2008) and Bellotti, Ducheneaut, Howard, and Smith (2003) explain that e-mail quality and interdependence are also causes of overload. Research continues to blaze forward, continuing to connect how more technology tools can create additional dependence while also connecting the concept of technology overload to decreases in worker productivity, employee engagement, and stress (Barley, Meyerson, & Grodal, 2011; Karr-Wisniewski & Lu, 2010; Mehta & Mehta, 2013). Researchers like Francis, Holmvall, and O'Brien (Francis et al., 2015) explore the relationship

between the effects of civil versus uncivil treatment in e-mails and the human nature of how one responds to an uncivil interaction, which then perpetuates the influence on workload.

In 2006, Dabbish and Kraut questioned whether email overload was "simply media hyperbole and a backhanded expression of nostalgia for communication methods of the past" or "a real phenomenon that has consequence at the individual and organizational levels?" (p. 431). Almost 15 years later, research continues to illuminate the critical importance of the potential negative impact of email overload on employees in a multitude of settings.

As in the case with other industries, email has fundamentally changed the nature of communication within higher education institutions. In the higher education literature, there are plenty of studies and articles connected to faculty stress, supervisory stress, information technology stress, and the impact of e-mail overload; however, there is a gap on the use of e-mail within higher education, specifically for what is classified as the "professional or general" staff. Surprisingly, there are vast amounts of articles and studies in existence looking at that impact; however, the research that has been done related to post-secondary education is very faculty centric, which does not capture the actual volume or e-mail overload that might be occurring at a staff level within a post-secondary institution outside of administrative or faculty-level positions, which needs to be addressed (Pignata et al., 2015).

The existing research has shown the direct relationship between employee engagement, workload, use of technology, and e-mail volume is associated with overall work productivity and the creation of feelings or direct increases in stress (Barley et al., 2011). Other than a few studies and one or two articles from Australia discussing workload issues and environmental causes/factors for "general" or "non-academic" staff satisfaction or work engagement in higher education (Szekeres, 2004), the research is lacking. As in most industries, the emphasis on customer service and timely communication has grown, and with the invention and use of e-mail, expectations continue to expand. Acknowledging the effects of this principle technology used every day can provide insight into how the simple tools of e-mail can impact the institution, performance, and staffing. Looking beyond the faculty in higher education and targeting those in staff roles, or more accurately, higher volume work areas or functional units (e.g., Admissions or Registrar offices) within post-secondary education, is needed in order to round out the staffing structures that have already been studied.

Research Questions

Applying the existing research and building upon the knowledge base around workload issues and stressors for general staff, a within-person study using a sequential explanatory mixed-methods approach was initially targeted, looking at the use of survey data, analysis of observations, and follow-up open interviews. Unfortunately, the COVID-19 pandemic struck during the targeted timeline when the semi-structured interviews and observations were scheduled to occur. With the travel restrictions, time-limitations set for this capstone project completion, and the site's high-demand and workload, plus the continued health and safety concerns for the participants and the researcher, a decision was made to forgo any in-person observations as well as any interviews. As a result, a cross-sectional study targeting data from this specified population was conducted

This capstone study targeted a mixed office, specifically the general staff housed within the Office of Admissions and Office of Records and Registration (from this point forward, the *Office of Records and Registration* will be referred to as the Office of the Registrar), which were combined under the director and are referred to throughout the paper as the Office of Admissions and Registrar, via a survey format, observation, and interviews. Targeting an office containing both groups, as each office typically owns an institutional level, e-mail (i.e., admissions@xxxx.edu or registrar@xxxx.edu), where hundreds of questions come in daily, is why this study is limited to this group of functional staff. The hypothesis is that employee engagement, workload, use of technology, and e-mail volume are associated with overall work productivity and the creation of feelings or direct increases in stress.

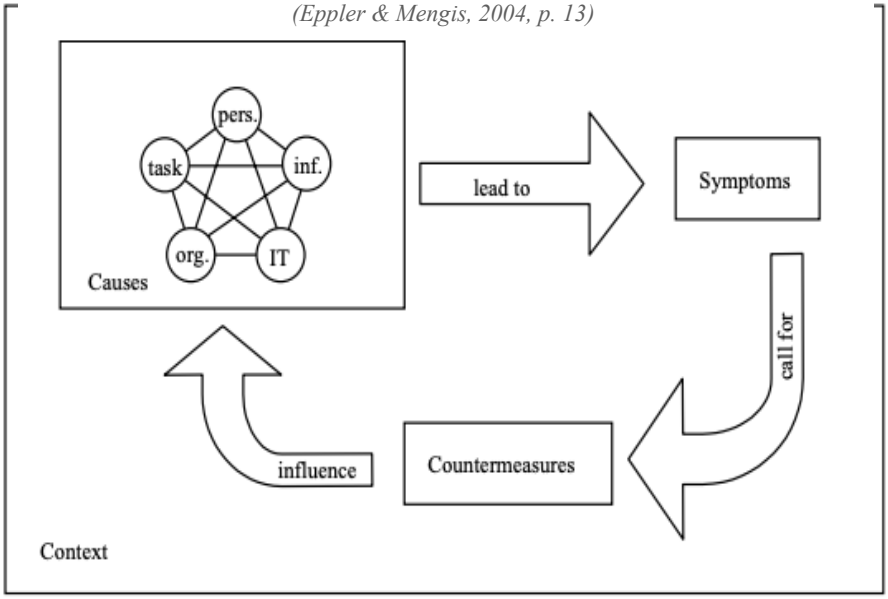
With this hypothesis and CSCC's concerns in mind, the following research questions were identified:

1. To what extent does e-mail overload serve as a source of stress?
2. To what extent does e-mail overload influence overall productivity?

Conceptual Framework

The framework selected for this project is drawn from research on information overload. The work of Reinke and Chamorro-Premuzic (2014) looked at the ability to cope with or process e-mails timely or effectively, which coined the concept of "e-mail overload," leading to the work of others like Dabbish and Kraut (2006) and others targeting the stress created by technology. The framework specifically looked at the work done by Eppler and Mengis (2004), which created a series of topic clusters to provide a visualization around the research on information overload. "These topic clusters are the main causes of information overload, the symptoms or effects as well as suitable countermeasures which help to avoid the dysfunctional effects of a heavy information load (p. 13)." This framework reflects more of a circular, interdependent relationship instead of a direct cause and effect style. Thus, the use of a countermeasure explicitly targeting the purpose of the overload can influence other effects that can cause or lead to more overload.

Figure 1: A Conceptual Framework to Structure Research on Information Overload (Eppler & Mengis, 2004, p. 13)



Narrowing in on the topic clusters, or the main causes, such as the organizational design (org.), information (inf.) itself, and information technology (I.T.), information overload does not emerge because of one of these factors, but instead from a mix of the five causes and how they influence the fundamental variables of overload. The five causes influence the information processing capacity, which is influenced by the personal characteristics (pers.) and the information processing requirements determined by the nature of the task (task). These five causes help one identify what may be at the root of an issue leading to overload symptoms or effects. The symptoms help determine what suitable countermeasures may be needed to avoid the dysfunctional effects of information load,

which then circles back to the *causes*. All of this is being driven by or affected by the context or the system of circular and interdependent relationships (Eppler & Mengis, 2004).

Although all five causes have merit, honing in on a specific cause, such as information technology, can streamline and help define the topic of e-mail overload. Information Technology is a significant reason why information overload has become a critical issue as the development and deployment of new information and communication technologies such as the internet and e-mail are universally seen as one major cause of information overload (Bawden, 2001). Targeting e-mail overload as a sub-category of the broader information overload topic, there was a need to narrow what defines e-mail overload. The quantity of e-mail sitting in one's inbox to the usage of e-mails such as task management and personal archiving to the overall time invested in responding to e-mails is critical when defining e-mail overload (Whittaker & Sidner, 1996).

Study Design

Based on the topic, time constraints, and target audience, a cross-sectional study targeting data from a specified population based on a specific point in time was conducted. The participants were selected based on variables of interest; staff affiliated with an Office of Admissions and Registrar with a connection to not only an office level e-mail but possible interaction or responsibility for an institutional level e-mail. According to Creswell (2014), collecting point-in-time data to determine the prevalence of an outcome at a particular moment in time is defined as a cross-sectional design. Utilizing this study design allowed the researcher to examine the occurrence of overall e-mail overload specifically related to CSCC.

Variable Conceptualization and Operationalization:

E-mail Usage:

The survey considered the impacts of e-mail usage and, in cases where multiple technologies are being used, look at the aggregate effects regardless of technology.

Stress:

Looking at the e-mail type (office-level e-mail versus institutional level e-mail) the survey taker holds and the feelings experienced, such as being on task or overwhelmed when it comes to

working or supporting e-mail.

Employee:

The employee or staff member (i.e., Admissions or Registrar professional staff member) as the unit of analysis considered when evaluating the data, seeking insight into the concept of e-mail overload and stress.

Baseline Data Collection:

Baseline data and background information were captured in consultation with the site director for the unit. Unfortunately, no observation processes were completed to captured additional demographic data and constructs, such as the staff member's location in the office and the typical desk style and set-up. To gain more insight, it would have been valuable to capture additional variables such as the types of technologies used by staff when answering the e-mails and how much time an individual dedicates to e-mail on a daily/weekly basis. Also, determining if other technologies are used at work might have shown a correlation to the causes and symptoms referenced in the framework. These correlations would have helped connect any challenges staff experienced around e-mail use and management based on which types of technology are used for e-mail, specifically at work versus how many other types of technologies are required to do other aspects of their job. Connecting the cause and symptoms around technology use would have also given more context to the perceived stress participants experienced. However, knowing the number of e-mails each responder was responsible for (outside of work assigned e-mail address) clarified if participants were working just their work assigned e-mail or were also responsible for monitoring other work-related e-mail accounts.

Additional areas of consideration would have been to look at staff perceptions compared to increases over time, does the employee believe an increase has occurred, and are they experiencing a decrease in overall motivation and an increase in stress? What is the relationship between e-mail usage and stress? E-mail usage can be looked at in several ways, and questions need to consider if the employee is only answering their work e-mail or being responsible for answering other e-mail boxes at work (i.e., the primary e-mail for the office, etc.). Also, looking at various factors around stress beyond the data, such as what position the responder holds in the office and how the respondent viewed e-mail interactions.

Survey Design:

An online survey was distributed to 19 individuals, including the staff and director within the Office of Admissions and Registrar. After reviewing and analyzing the survey results, the researcher would then determine if there would be a need for follow-up with semi-structured interviews with the staff to clarify the online survey responses. The instrumentation design captured data from a specific cross-section of the population, capturing a single point in time based on the survey questions and when it is administered. Construction of the survey was modeled and adapted from an e-mail overload survey created for Hole's thesis requirement (2008) (Appendix A).

Methodology

For Capstone State Community College (CSCC), a survey was the primary data collection technique (Appendix A). The survey instrument was adapted from "*E-mail Overload in Academia*" by Hole (2008). The survey was designed to be anonymous using a randomly generated response I.D. in place of tracking e-mails. The survey was composed of sixteen questions, of which the first six questions required quantitative responses about the volume of e-mail, the next seven used a five-point Likert scale to determine experiences and stress/overload with e-mails, and the last three were open-ended questions regarding users experiences and management tactics. Participants received the survey via e-mail, using the Qualtrics Survey platform provided to doctoral students via the Peabody College at Vanderbilt University. Consent to the survey was captured via the e-mail invitation to participate. A statement was added to the e-mail indicating the participant had read the information about the survey and purpose and agreed to participate in the research project and then were directed to follow the link to the survey. By clicking on the link and participating, implied consent was confirmed (Appendix B).

In consultation with the site director, the survey's timing was determined based on office priorities and when might have the best chance of response. It was determined that the best time to engage with the office staff via e-mail was just before the Thanksgiving holiday. It is a slower time for the Admissions staff's recruitment efforts and right before the Registrar's staff handles

end-of-semester processing. The survey was distributed to nineteen staff housed within the Office of Admissions and Registrar at CSCC on Wednesday, November 20, 2019, and was open for response through Monday, November 25, 2019.

The researcher also considered, based on the results from the November survey, a follow-up site visit, at which time a series of observations and follow-up open interviews would be conducted. In coordination with the director of the site, it was determined that the week of spring break in 2020 would be the best time to come to campus and engage with staff. Follow-up was scheduled for the Friday of March 14, 2020. The on-site observation would provide the researcher with an overview of the office's layout, average desk set-up, including the technology utilized and any constraints staff may experience within the office environment. Additionally, the director and researcher discussed a few follow-up open interviews with key staff, precisely one or two staff that held primary responsibility for answering the institutional level e-mails in addition to their work e-mail.

Since interviews can offer additional opportunities to explore how individuals interact within their environment and the perceptions that may underlie these actions, an open-ended interview's qualitative approach seemed most appropriate (Creswell, 2014). The open-ended nature of the interviews was intentionally built-in as a part of the research process, knowing that the results from the initial survey would drive possible follow-up questions or possibly highlight areas that could be pressure points for follow-up and discussion. By questioning participants in an open-ended format, the researcher could allow the participants to follow their train of thought and provide focus or follow-up when necessary.

This method has been utilized repeatedly in the existing e-mail overload research, from the pioneers of this research, Mackay (1988) and Whittaker and Sidner (1996). Interviews were used exclusively to discover how the multiple uses of e-mail and different e-mail clients were being used. The use of this method was repeated in additional studies and research from Bellotti, Ducheneaut, Howard, Smith, and Grinter (2005) Bellotti, Ducheneaut, Fisher, Brush, Gleave, and Smith (2006), and Hole (2008), which explored additional aspects of e-mail overload.

Unfortunately, spring break of 2020, for most post-secondary institutions nationwide, was when COVID-19 began to intersect with a need to make quick decisions about bringing students back to campuses (“Spring break forever: List of universities canceling classes or implementing remote study,” n.d.). Many institutions extended the spring break week to begin

the mitigation and spread of the virus slated to take hold of their campuses if students returned. As a result, most campuses nationwide began shutting down, and travel restrictions or concerns about traveling out-of-state began. It was decided by the researcher, due to work-related obligations and various travel concerns, travel out-of-state was not optimal.

Due to the travel restrictions, time limitations, and the continued health and safety concerns for all parties involved, a decision was made to forgo any observations and interviews. In consultation with the Director for CSCC, a decision was made to run a second survey instead of the interviews. The researcher and director felt conducting a second survey held relevance due to a context change from when the first survey was distributed prior to the COVID-19 pandemic. The second survey afforded the unique opportunity to revisit the first survey context to see if participants were experiencing e-mail overload while taking a second look to see if current world events were causing any shift to those experiences.

The conceptual framework on which this project was based discussed the information overload context, as seen in Figure 1. According to Eppler and Mengis (2004), this framework represents a system of circular, interdependent relationships where many factors from the causes, symptoms, and countermeasures aimed at overload can have significant side effects on other causes. Additionally, contextual factors like industry characteristics, staffing structures, and in this case, the argument of a global pandemic, is of crucial importance on the occurrence of overload (Eppler & Mengis, 2004). As Eppler and Mengis (2004) stated, "research methods should be applied that can capture many of these contextual factors and highlight the interdependencies between each of the clusters" (p. 13). Based on this argument, there was a change in the context of when the first survey was taken (November 2019), compared to being amid a global pandemic (August/September 2020); one could argue that this framework supported the adaptation of running a second survey. The second survey became a way to validate the participant's experiences, see how the shifting context might have changed overall responses to the survey questions, and give the site additional context and data connected to participants' experiences with the e-mail overload phenomena.

With no modifications to the questions, the same survey was sent out to participants via the Qualtrics platform. The second survey was also set up to be completely anonymous, with identical structure and tracking conditions established in the first survey, including the same sixteen questions (Appendix B).

In consultation with the director of the site, the survey's timing was again an area of concern, as the second survey would be distributed just a few weeks after the Fall 2020 semester start. The survey was sent out to the same nineteen staff housed within the Office of Admissions and Registrar at CSCC on Monday, September 14, 2020, and was open for response through Friday, September 18, 2020. The director sent a similar e-mail as referenced in Appendix B, advising participants the survey was coming and asking for their participation.

Data Analysis

A pre-interview was held with the director to understand the office's organizational structure (Appendix C) and the office's standard layout. The physical office is primarily a cubicle set-up, with each staff member having a minimum of two monitors, except for the director, who has one large monitor. All staff utilize P.C. operating systems, except for the director, who uses a MAC operating system. Additionally, CSCC uses Microsoft Office as its primary e-mail platform. The office has three primary e-mails: graduation@cscc.edu, admissions@cscc.edu, and registrar@cscc.edu (the cscc.edu is a pseudonym for showing the e-mail structure only), as well as each staff member holding responsibility for a work level e-mail. Of the nineteen positions between the Office of Admissions and Registrar, only one to two staff in each area of responsibility – Admissions and Registrar – work the institutional level e-mail, in addition to their work level e-mail.

Qualtrics, the survey system utilized, provided the ability to extract the raw data and provided a high-level report (Appendix F) showing the overall number of participants that answered questions and what e-mails they were responsible for in their jobs. From the first survey, of the eleven participants, 84.62% handled an office level e-mail, and 15.38% worked with an institutional level e-mail. In the second survey of the eight participants, 73% handled an office level e-mail, and 24% dealt with an institutional level e-mail (Appendix F).

It is important to note that not every participant completed both surveys. Surveys were distributed to nineteen individuals with a response rate of 58% (or eleven individuals) completing the first survey. Of the same nineteen individuals e-mailed in the second survey, there was a 42% (or eight individuals) response rate. Due to the small dataset available, both iterations' survey analysis goal was to limit the ability to see non-existent patterns and relationships. One possible solution to ensure that the data are useful and validated is using a

non-parametric approach. “Non-parametric techniques are based on ranks or medians. Ranks represent an individual's relative position compared to others but are not affected by extreme values (whereas a mean is sensitive to outlier values). Ranks and medians are more “robust” to outliers” (Scibilia, 2015. p. 5). Additionally, the removal of outliers was required in a few categories to ensure that the data provided were in alignment with the majority of the responses provided.

Participants eight and nine in the first survey and the participants three, four, and nine from the second survey indicated they held responsibilities for answering institutional level e-mails in addition to office level e-mails based on answers to the questions connected to only the admissions and registrar e-mails. Two outliers were removed from the categories of e-mail volume within the office e-mail questions in both surveys. Those outliers were in the same question areas in questions 5-1: current e-mails in the inbox and question 6-1: volume of folders created in the inbox.

E-mail Volume:

Q1-6_5_1: How many e-mail message(s)... - are currently in your inbox? - Your Office E-mail		*Q1-6_6_1: How many e-mail message(s) folders have you created for storing e-mail? Office E-mail*	
Mean	810.58	Mean	35.75
Median	35.5	Median	7.5
Mode	0	Mode	0
Standard Deviation	2486.30	Standard Deviation	74.84
Range	8690	Range	264
Minimum	0	Minimum	0
Maximum	8690	Maximum	264
Sum	9727	Sum	429
Count	12	Count	12
Confidence Level (95.0%)	1579.72	Confidence Level (95.0%)	47.55

Table 1: Descriptive Statistics from Microsoft Excel program before removal of Outlier Data

While removing outlier data can be a highly subjective practice, the researcher attempted to eliminate bias by identifying data points that would be an outlier and possibly skew the mean data. This review resulted in two data points in the categories of e-mail volume to be classified as outliers. The researcher utilized Microsoft Excel’s Data Analysis tool, which provided a series of analyzing options. The one chosen to determine the mean for each question on the survey was the descriptive statistics functionality. The descriptive statistics for questions five and six before removing the outlier data showed a higher mean (see Table 1) than the data after the removal (see Table 2) of the two outliers.

E-mail Volume: Descriptive Statistics

Q1-6_5_1: How many e-mail message(s)... - are currently in your inbox? - Your Office E-mail		*Q1-6_6_1: How many e-mail message(s) folders have you created for storing e-mail? Office E-mail*	
Mean	45.5455	Mean	9.5
Standard Error	22.2875	Standard Error	4.0229
Median	4	Median	3.5
Mode	0	Mode	0
Standard Deviation	73.9194	Standard Deviation	12.7214
Range	226	Range	40
Minimum	0	Minimum	0
Maximum	226	Maximum	40
Sum	501	Sum	95
Count	11	Count	10
Confidence Level (95.0%)	49.6597	Confidence Level (95.0%)	9.1003

Table 2: Descriptive Statistics from Microsoft Excel program after removal of Outlier Data

The questions regarding e-mail overload (stress) were also statistically analyzed. The questions came from the thesis of Hole (2008), which was based in part on the 2003 study by Dabbish and Kraut (2003). The questions in the survey were adapted in order to capture three e-mail categories. Questions one through fourteen asked the question three times specific to an e-mail type with the expectation that participants would answer based on the e-mails they are responsible for managing (i.e., office-level e-mail, admissions e-mail, and registrar e-mail).

A similar analysis in Hole's study and this project were performed on the e-mail overload (question seven to thirteen questions). In Hole's (2008) study, the researcher calculated the Cronbach coefficient alpha around the same questions. This statistic was used to assess the internal reliability of a set of items that addressed a single topic. To determine the Cronbach's alpha for the data in question seven through thirteen, a code set was created with a '1' assigned if the question was answered and a '0' assigned if the question was not answered (see "Cronbach's Alpha Basic Concepts | Real Statistics Using Excel," n.d.).

In Hole's study, the Cronbach coefficient alpha for the e-mail overload questions was 0.8857. In the first survey, the number was 0.8609, and for the second survey, it was 0.8727 (Appendix E). Both signified that the questions still reliably assessed a participant's experience with e-mail overload (Hole, 2008). In connection to Hole's research and Dabbish and Kraut's (2006) findings, the Cronbach alpha result demonstrated that the aggregated responses for the e-mail overload questions provided a clear indicator of the participant's experiences with e-mail overload.

Findings

Eppler and Mengis (2004) stated an effort needed to be made in research methods to capture contextual factors such as industry characteristics, the organization's development stage, and staff structure. All are of critical importance for the occurrence of overload. The survey targeted a specified population based on a specific point in time, and the participants were selected based on specific industry characteristics. Those surveyed comprised of staff affiliated with an Office of Admissions and Registrar with a connection to not only an office level e-mail but possible interaction or responsibility for an institutional level e-mail.

Finding 1:

Overall, e-mail volume reflected only minor to no increases for office and institutional level e-mails.

CSCC staff predominately managed an office level e-mail, with two to three staff taking on additional responsibilities of an institutional level e-mail. Review of the first six questions within the survey focused on quantitative responses connected directly to the volume of the e-mail reflected items like the number of e-mails currently in the inbox to how many folders in addition to the inbox were used. The participants answered not only their office level e-mails but also responded if they held responsibility for the institutional level e-mails, specifically, admissions@cscc.edu and registrar@cscc.edu.

E-mail volume at the institutional level e-mail, Chart 1 reflects the average number of e-mails participants handled in 24 hours. E-mail categories from the number of e-mails deleted, sent, read, and received were asked, and the data indicated that there were only minor to no increases in volume.

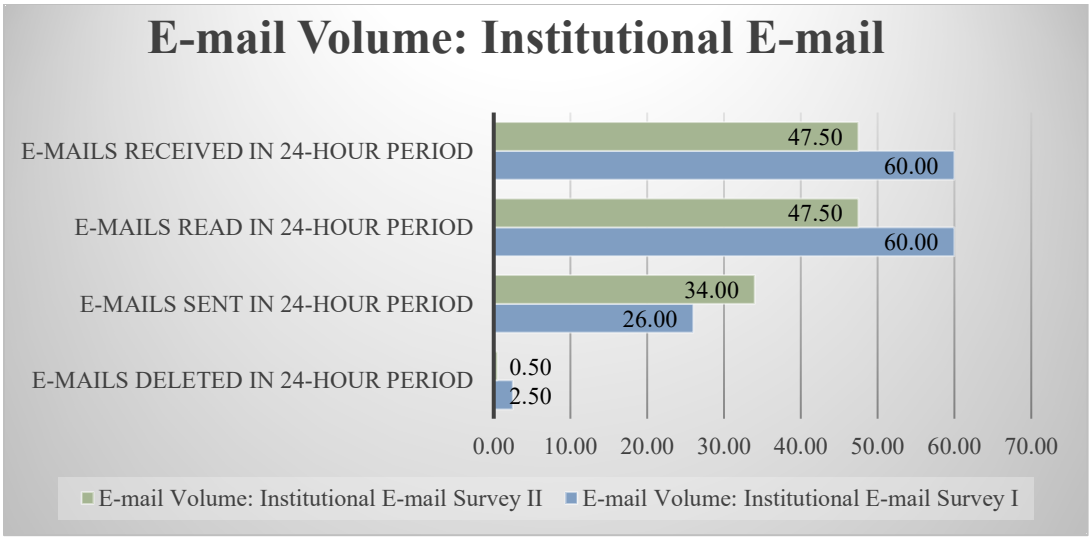


Chart 1: Average Number of Institutional Level E-mail Interactions/Volume within 24-hours

As reflected, the read and the received rate went from a mean of 60 to a mean of 47.50, which was only a 21% decrease in volume. There was a slight increase in the mean of e-mails sent by a difference in the mean of six e-mails. Participants indicated the ability to keep up with volume by reading the same amount of e-mails as the received category. Despite any increases or changes between the survey's in-total number of e-mails sitting in one's inbox (Appendix D: Chart 7), results indicated that participants still experienced minor or no increases in volume.

At the individual office type e-mail (i.e., *kelley@cscc.edu*) which included e-mails concerning daily work duties, institutional notifications, e-mails from the campus community (faculty, staff, and some students), etc. overall e-mail volume (see Chart 2), indicated minor shifts in all interaction/volume categories.

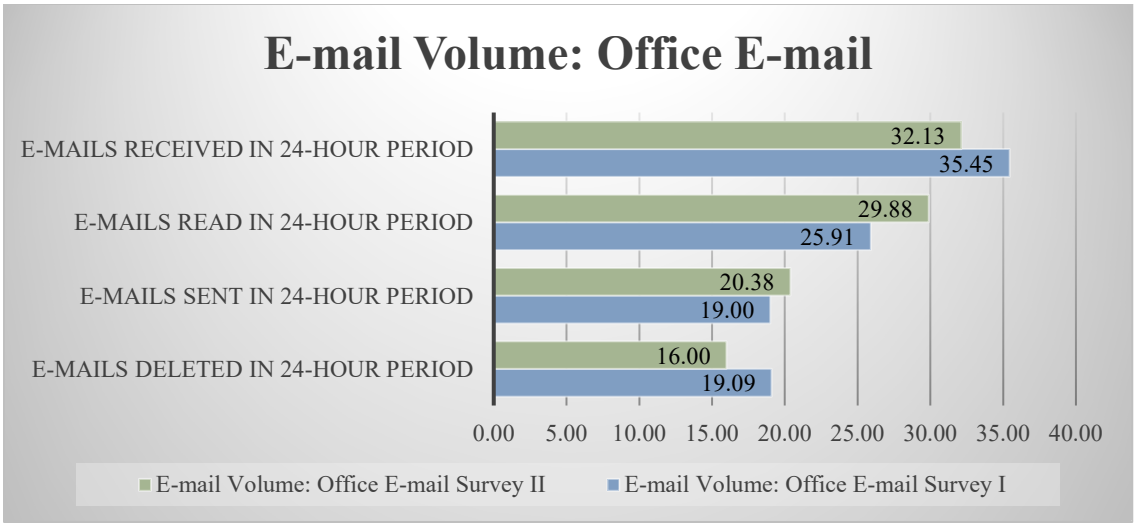


Chart 2: Average Number of Office Level E-mail Interactions/Volume within 24-hours

The six questions in this section connect back to Eppler and Mengis' (2004) and the first testable model they created, which operationalized the five cause categories that lead to overload. The survey results indicated that although the volume appeared to be happening at a reasonable rate, the rate of incoming e-mails falls within the constructs of information itself. The information tells us that the overall e-mail volume, regardless of the office or institutional level, appeared to be increasing and decreasing between categories and surveys. Understanding the effects of CSCC's e-mail volume assisted in fully understanding that overload could be attributed to the volume of messages received and the extra time it took to handle them, the tasks that may have been associated with each e-mail along with the interruptions that e-mail in and of themselves can create (Barley et al., 2011). Increases or decreases in volume lead to the symptoms of overload and "that the number of e-mails participants perceive to deal with may differ from the actual e-mail volume they deal with at any given time" (Reinke & Chamorro-Premuzic, 2014).

Finding 2:

Participants experienced higher levels on average of overload/stress in trying to efficiently manage e-mail along with being able to read all important e-mails received.

Questions seven to thirteen used a five-point Likert scale to determine experiences and stress or overload with e-mails. The symptoms mentioned in the framework by Eppler and Mengis' (2004) correlate with these seven questions as the intended outcome of this section was to indicate overall experiences and feelings of overload. The analysis of these seven questions brought forward an unexpected result. Participants indicated higher average levels of disagreement or agreement regarding overload and stress with their office level e-mails than those working the institutional level e-mail. For questions seven (7): *I can manage my e-mail efficiently* and nine (9): *I can read all of the important e-mails that I receive*, participants indicated agreement that a feeling of overload was present. Although participants indicated disagreement that overload was in play connected to locating information or dealing with important e-mails, participants indicated they experienced difficulty reading important e-mail and/or efficiently managing office-level e-mail (see Chart 3).

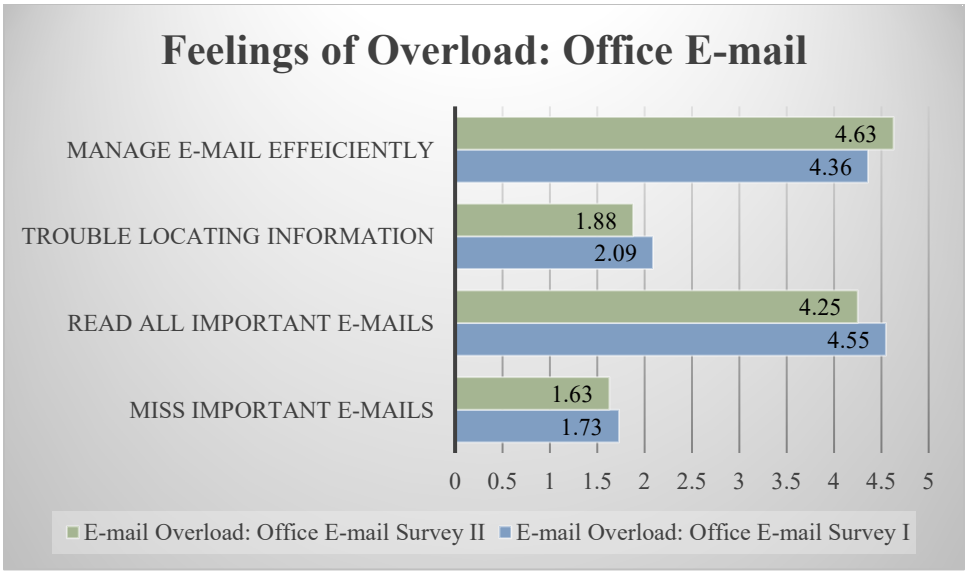


Chart 3: Feelings of E-mail Overload for Office level E-mail

At the institutional level, e-mail participants indicated agreement, as seen in the results from both surveys, with a mean of 4.50, indicating close to a strong agreement that managing e-mails efficiently was difficult at times. Strong agreement that reading all of the important e-mails received at a mean of 5.00 was also a common finding between both surveys (see Chart 4).

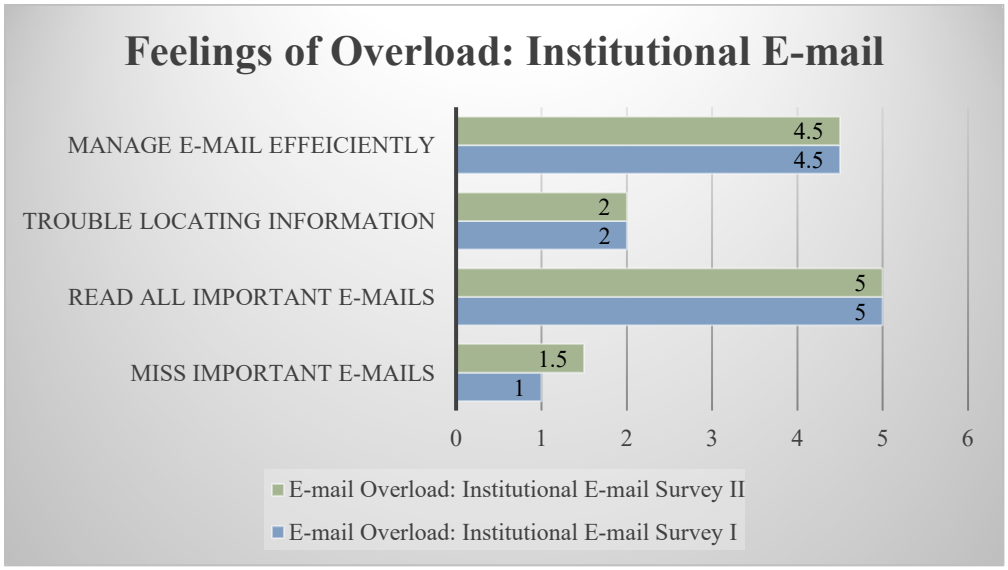


Chart 4: Feelings of E-mail Overload for Institutional Level E-mail

The more time participants spent reading and managing e-mail, the more they felt overloaded. The framework by Eppler and Mengis (2004) indicated that the symptoms of overload could be connected to when the information supply exceeded the information-processing capacity (p. 334). In contrast to earlier research, however, the extra time people spent

working, either inside or outside the office, did not appear to mediate the relationship between e-mail and the experience of overload (Barley et al., 2011). Instead, e-mail appeared to be related to overload in two specific categories, regardless of the e-mail category (office or institutional level e-mail).

Finding 3:

Office level e-mail engagement resulted in less of a feeling and/or experience of e-mail overload

Participants' experience and management tactics looked at how many times in 24 hours they checked e-mail, specifically their office level e-mail and, if applicable, one or both of the institutional level e-mails. Participants indicated (see **Error! Reference source not found.**) that they checked their office level e-mail on average 21.50 times in 24 hours compared to those responsible for an institutional level e-mail where they checked on average 4.75 times in 24 hours. Additionally, the participants' e-mail access patterns were consistent as the majority indicated that they typically checked e-mail whenever they saw a new e-mail arrived. Answers indicated a pattern of access and monitoring of e-mail throughout the day and an established part of their first work-related activities.

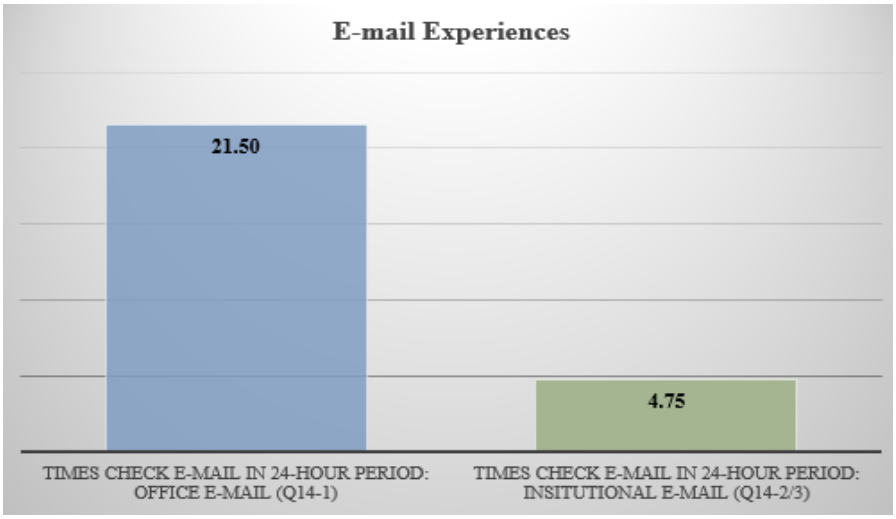


Chart 5: Average Number of Times E-mail checked within a 24-Hour Period

Many participants indicated that the e-mail client remained open throughout the workday and was checked repeatedly during the day, either as a prompt from an e-mail notification or because they had trained themselves to look at e-mail throughout the day.

"Usually, every time an e-mail comes through. If I am busy, I will check every few minutes. I do not check e-mail after I have left work."

(Participant 4)

"As soon as the e-mail arrives and requires a response. When it arrives unless I am in the middle of something, then after that task is completed."

(Participant 3:2)

While rare, two participants indicated they might check e-mail outside the workday; however, none of them were checking e-mail outside of the workday in the second survey. A few participants indicated that they had an established routine, checking e-mail every few minutes to every half-hour or morning, lunchtime, and after returning from meetings. As indicated by Participant 4, it was explicitly noted they refrained from checking e-mail outside of work hours.

"First thing in the morning, when I arrive at the office, when I return from a meeting, as e-mail arrives when I am at my desk, and usually once from home at night."

(Participant 12)

E-mail response times were also consistent among participants, as the majority indicated they respond to e-mail frequently. Participant response times were anywhere from immediately, to every few minutes, to as an e-mail arrives to as needed.

"*depends on the urgency of the e-mail, but a typical response time is within the half-hour*."

(Participant 5)

"every time an e-mail arrives, I have it up continuously."

(Participant 7:2)

The participants appear to utilize some type of process to organize their e-mail queue and determine their preferred pattern for review response. E-mail overload did not appear to be a topic that all participants experienced in their e-mail based on the analysis. E-mail overload is subjective as it relies on an individual's ability to process information and tolerance for unprocessed information to accrue (Hole, 2008).

According to Hole's research, only three of the eleven participants in the first survey would have experienced acute e-mail overload based on the mean of 3.00 or higher. Three participants indicated a higher level of overload than the remaining participants at 2.86 or lower. All three participants indicated in the initial survey that they experienced trouble managing their office level e-mail, locating information in their inbox, missed important e-mails, had trouble reading all of the important e-mails received, and generally felt e-mail caused some stress or overload in their life. The two in light green (see Table 3) also work an institutional level e-mail but only indicated the management and reading of important e-mails were pressure points. However, the second survey indicated a change as five of the eight participants showed a mean of 3.00 or higher, indicating the experience of acute e-mail overload. The remaining three participants indicated a lower level of overload. Only one (participant 4:2) of the five participants indicating acute overload, expressed trouble managing office-level e-mail, locating information in their inbox, missing important e-mails, having trouble reading important e-mails received, and in general felt that e-mail caused stress or overload in

Participant	Mean of E-mail Overload Variables
1	3.86
2	2.57
3	2.86
4	2.86
5	3.00
6	2.71
7	1.86
8	2.14
9	2.71
10	2.14
11	3.43

Table 3: Mean of E-mail Overload Variables

Participant	Mean of E-mail Overload Variables
1:2	3.00
2:2	3.25
3:2	3.38
4:2	4.25
5:2	2.75
6:2	0.00
7:2	2.25
8:2	1.50
9:2	3.00

Table 4: Mean of E-mail Overload Variables (2nd Survey)

their life. That is compared to three participants in the first survey showing that information overload occurs when the decision-maker estimates they must handle more information than can be efficiently used. When the amount of reading matter ingested exceeds the amount of energy available for digestion, the surplus accumulates and is converted by stress and overstimulation into the unhealthy state known as information overload anxiety (Eppler & Mengis, 2004).

Every participant provided answers related to their office level e-mail. The average response among the participants identified as infrequently experiencing e-mail overload ranged from 1.86 to 2.86 (see Table 3) in the first survey from 1.50 to 2.75 (see Table 4). Overall, both surveys provided results that helped answer one of the primary research questions. Specifically, question one – *To what extent does the role of e-mail overload serve as a source of stress?* The results from both surveys indicated that office-level e-mail engagement did result in less of a feeling and/or experience of e-mail overload with the average overload value being at 2.74 and 2.88 mean, compared to those participants with institutional level e-mail engagement for whom more acute feelings of overload were present being at 3.50 and 3.00 mean (see Chart 6).

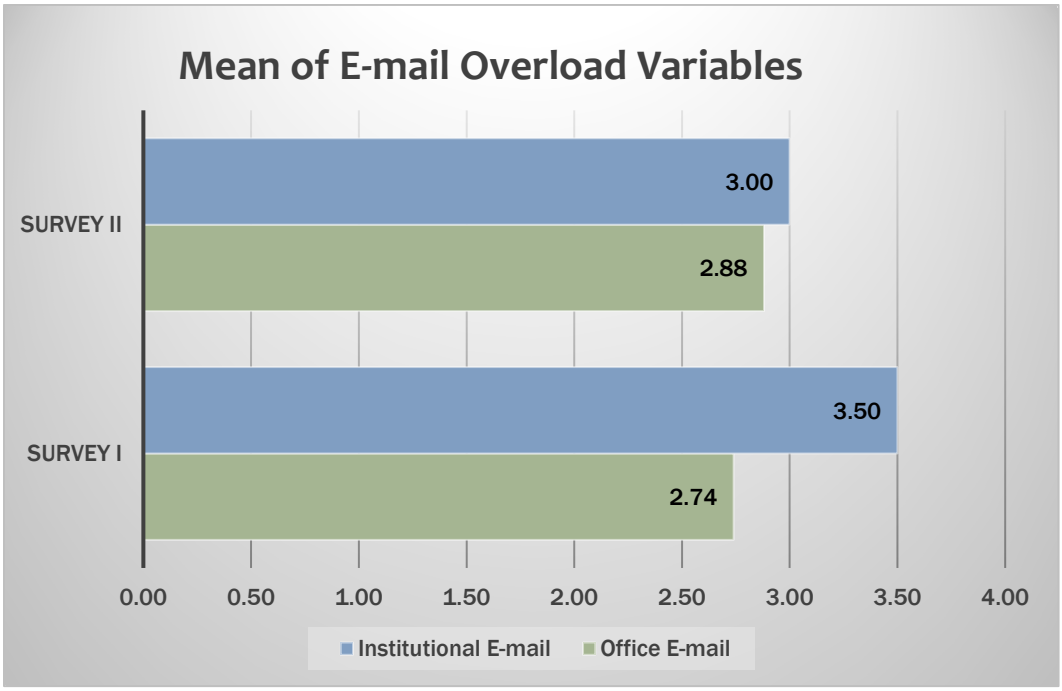


Chart 6: Mean of E-mail Overload Variables

Recommendations

As a follow-up to the research questions concerning e-mail serving as a source of stress and the extent of influence on the overall productivity, I have made the following recommendations.

Recommendation 1:

Formalize the use of data tracking mechanisms for all office and institutional level e-mails to monitor and track overall e-mail volume for the Office of Admissions and Registrar at CSCC.

Creating a method for CSCC to obtain data specific to the volume of e-mails received by staff in office level and institutional level e-mails is a needed mechanism. The creation of a tracking mechanism supports the first finding from data collected by providing a way to see the overall volume and specifically look for increases or decreases over time. The formal tracking mechanism provided was a sample monthly statistics spreadsheet (Appendix G) to track various types of data typical to the office. The sample is specific to a variety of duties and functions handled by the Registrar staff. In contrast, the sample contains more items beyond e-mails; it was provided as a mechanism to track monthly volume for various e-mails. The director had mentioned that no tracking around e-mail had been done and finding a way to show not only the total volume of e-mail coming into and out of the office while providing a way to allow staff to reflect the total e-mail engagement with their office level and institutional level (as applicable) monthly would be invaluable. In using a data tracking system, the director will be able to monitor total volume and encourage staff to have more ownership and interaction with overall e-mail volume and tracking.

The benefit to a centralized area for data entry, such as the spreadsheet, is in allowing staff to quickly interface with the spreadsheet, navigate the appropriate e-mail section, and enter the data needed. The excel spreadsheet was set-up to do all the mathematical calculations and pull the data into an overall summary reporting tab.

Recommendation 2:

Experiment with the use of existing e-mail client solutions that support task management and productivity support.

Looking inward as an office is essential, including viewing systems being used and what options may already be provided by the existing e-mail client granting a way for staff to manage overload and engagement with their e-mail. Finding two, where participants experienced higher levels on average of overload, and finding three, in which participants indicated less of a feeling of overload with their office level e-mail, align with the recommended use of a task management and productivity tracking mechanism. Since CSCC utilized Microsoft Outlook as their primary e-mail interface, it is recommended the director look to the task functionality and use a standard option provided with both the Microsoft Office 365 and Microsoft 365 plans called "Insights" (Appendix F). The tool, specifically MyAnalytics, is a personal productivity tool designed to help a participant track collaboration and work relationships, gain time to focus on important works, and improve overall work-life balance (*MyAnalytics for Admins - Workplace Intelligence | Microsoft Docs*, n.d.).

The recommendation of using a tool uniquely designed to summarize data specific to e-mail volume will allow the Director of the Office of Admissions and Registrar to address the issue of e-mail overload while also tracking overall e-mail volume. Additionally, there is a dashboard view (Appendix F) with four main areas of "insight" into one's overall workday - showing summary data and ways to improve focus, well-being, network, and collaboration while finding ways to work smarter.

This was provided as an option for quick and easy tracking of e-mail volume by having the office staff turn on the Dashboard – MyAnalytics tracking for their office-level e-mails and the institutional level e-mails. A monthly chart is then provided (showing the last four-weeks of activity) in the e-mail where one could capture the overall sent and received number in e-mail volume for that month. An example can be seen (see Figure 2), which shows a sample summary of one e-mail user's communication habits. While many data elements in this summary picture are of value, the primary one has been highlighted. By tracking both sent and read rates monthly, the director has been provided with a more accurate picture of the office's e-mail. Having the total volume for the period referenced in conjunction with all other office staff gives a more holistic picture of e-mail volume and possible pressure points that can lead to e-mail overload.

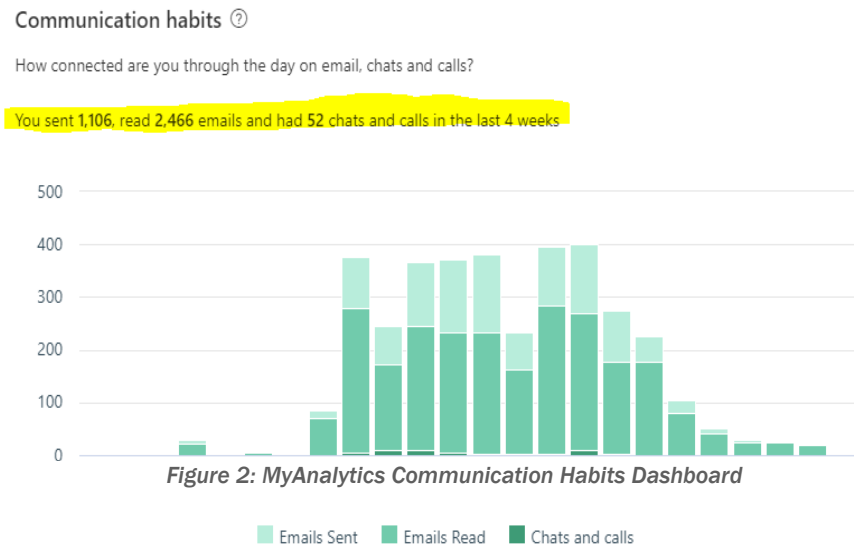


Figure 2: MyAnalytics Communication Habits Dashboard

A second option was also provided for use if the MyAnalytics option was not viable. Outlook does provide a high-level view of how many e-mails are in a folder at any given time; just by simply clicking on the folder, the number of e-mails in that folder will show in the lower left-hand corner of the client or if using the Office365 web client can be found by marking the e-mails as unread in the folder (see Figure 3 and Figure 4). To facilitate a monthly count, a holding folder labeled “monthly stats” was recommended where all the sent and received e-mails for that month could quickly be dragged into that folder to see what the total e-mail volume was for the month. That number can then be added to the tracking spreadsheet that has been provided to the site (Appendix E).

Figure 3: Outlook365 - Web E-mail View

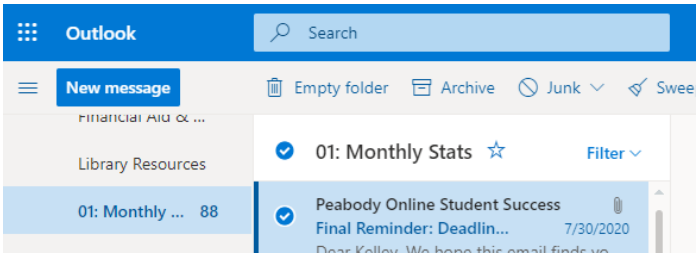
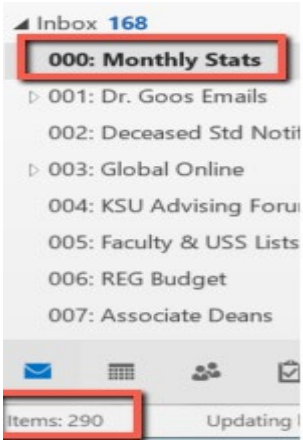


Figure 4: Microsoft Outlook Client View



Recommendation 3:

Create actionable data that can determine if productivity is being adversely affected.

If recommendations one and two are implemented, regardless of the various options or systems chosen for tracking and management, the director will accurately track various pressure points connected to e-mail volume, overload, and management. Allowing for a specific data set will show additional levels of work performed by the Office of Admissions and Registrar at CSCC while adapting or responding to cyclical pressure points using data to show when additional support may be required. Additionally, the director will be afforded the ability to monitor and track overall productivity within the office, monitor for items like workload, and ensure that the distribution of office-level versus institutional level e-mail is manageable.

Study Limitations

Although this study was designed to fill a gap in the already comprehensive research on e-mail overload and workplace stress, it is essential to remember other factors may be at play in a post-secondary educational setting. Some of the significant obstacles that need to be considered are around the use of technology today and system limitations that may exist - paying attention to outside variables that may affect the stress or motivation beyond e-mail usage. Keeping in mind the effect of the increased stressors that large volumes of e-mail have on staff, and how the

overall stress and volume affect overall workload and performance (Karr-Wisniewski & Lu, 2010).

Since the researcher is in a similar position professionally, that of a University Registrar, and has twenty plus years of experience tracking monthly stats for an office set-up such as this, some bias exists. Aware of this bias, the researcher specifically targeted the survey as the primary option for determining if e-mail overload existed. This tool forced the researcher to review raw data, analyze statistical means, and follow the processes laid out by prior research on this subject, eliminating any preconceived notions or expectations and instead following the data and results.

The widespread lockdowns and social distancing due to the COVID-19 virus also restricted many types of research activities such as in-person observations, interviews, site visits, and the timing of follow-up surveys. The timing of COVID-19 and travel restrictions between the researcher and the capstone site caused changes in possible follow-up options. Therefore, semi-structured interviews were not conducted due to COVID-19 and time constraints but would have been used to clarify qualitative survey responses. These interviews would have been conducted to understand how the staff member interacts with e-mail and perceives their interactions with the "unit" based e-mail in conjunction with their daily tasks. It was anticipated that interviews would have taken approximately 15-30 minutes. In collaboration with the Director of CSCC, identified individuals would have been invited for follow-up interviews. All interviews would have taken place at the office location of the interviewee or public meeting space. Although remote/virtual options, like Zoom or Microsoft Teams, were available, the coordination of schedules posed challenges, preventing the researcher from shifting to a remote/virtual interview option.

These on-site observations of the unit staff would have been conducted, allowing the researcher to observe the physical space in which the employees work, i.e., the staffing set-up, desk structure, technology set-ups, interruptions, or interactions. Specifically, observations of the staff that holds direct responsibility for responding to the "unit" based e-mails along with those that only hold responsibility for responding to their own "work" related e-mail. The semi-structured nature would have allowed for a starting point to the conversation and allowed for the ability to adapt to the interviewee's responses allowing for additional discovery.

The lack of on-site observations may have changed some of the researchers' interpretations of e-mail overload's overall effects. Additional items such as how the e-mail client (i.e., Microsoft Outlook) is utilized, interactions with the client, and additional functions delivered in the client that assist with the organization and management of e-mails are missing, which would have shown the researcher how each participant interacts with these tools. The observation and internal interactions within the office, the participant's familiarity with and use of technologies, and even their desk set-up and location, can play an integral part in determining outside factors beyond the survey that may play into or affect e-mail overload.

Having a small sample size could also affect the reliability of the survey's results because it can lead to a higher variability, leading to bias. The most common cause of bias is a result of non-response. Of the nineteen sent the survey, only eleven engaged with the first survey and eight in the second survey, resulting in a small 'n.'

Conclusion

E-mail is a tool through which one can identify the tasks that may be needed or required within the workday and set expectations or references to the tasks that may need guidance or direction. It is one of the quickest modes of transferring information, allowing instant responses between parties (*Benefits Of Email – Benefits Of*, n.d.). An e-mail can be sent at any time, despite working hours or the difference in time zones. It can be sent out to the whole institution, a target group, or individuals needing specific information. The ease and speed of sending and receiving an e-mail can help eliminate barriers allowing the "world" to stay connected (*Benefits Of Email – Benefits Of*, n.d.). E-mail also reduces hard costs, like paper and mailing costs, while giving both the sender and receiver an electronic record of the information being relayed. It provides a connection and tool for those seeking answers to questions or looking for assistance and acts as a portal that provides personal and professional information. From newsletters, conferences, training opportunities, announcements, and general office information, these additional e-mails help keep the participants up to date and informed. However, they also add to the mix of total e-mail volume and are often part of what can lead to the feeling of e-mail overload.

The importance of e-mail, not only in the business world but in academic environments, continues to grow. This is a communication channel that is not easily replaced, and both the positive and negative impacts on users have been documented in this study combined with links to findings in prior research. Overall, the objective was to better understand the needs of one type of office, the challenges or difficulties faced specific to e-mail, and use the information to improve their interaction with e-mail. Providing data and showing the results around e-mail overload can lead to improved interactions with e-mail and the leadership at CSCC while better tracking overall e-mail volume (Dabbish & Kraut, 2006). Being able to see trends in the data and finding ways to improve staff productivity and satisfaction with e-mail volume possibly.

This capstone project provided recommendations specific to the site chosen. The findings and recommendations do not provide all the answers but shine a very small light on possible solutions and add to the growing repository of research around e-mail overload. This provided not just a focus on Corporate America or faculty in post-secondary education but on the increasing problem occurring for professional-level staff in post-secondary education that connects back to information overload in general. The researcher hopes the information presented here will open additional avenues of study, specific to the "general" or "professional" level staff within post-secondary education. Compared to previous studies, looking at more offices or staff dealing with more than one e-mail within their organization is essential. Also important is knowing if those staff handling "office" level e-mail accounts while holding responsibility for an "institutional or organizational" level e-mail are experiencing increases in e-mail overload or the perception of overload.

The increased complexities and need for tracking e-mail also demonstrate the need for more flexibility and tracking type mechanisms within today's e-mail clients. Although the main e-mail clients used in academia (i.e., G-mail and Outlook) provide baseline analytical tools, tracking overall volume and interactions monthly, daily, and hourly has value. The landscape of strategic enrollment management and understanding all the communication paths can guide how institutions build and target incoming students and prospects while maintaining existing students. Being able to pull data, when needed, on interactions, read rates, and overall volume is one small but mighty data science element that can and should be used.

This project intended to assist one of those high-volume offices with the ability to identify e-mail usage and staff interaction with both work level and institutional level e-mails.

Providing reliable data that illuminates the effects of e-mail overload may help other post-secondary institutions and their administrative staff understand the importance of these general offices while recognizing that these areas may experience a higher level of stress than other offices on campus.

References

Ahdoot, J. (2007). Email Overload: Information Overload and Other Negative Effects of Email Communication. In *ProQuest Dissertations and Theses*. https://doi.org/10.1016/j.jaci.2012.05.050

Barley, S. R., Meyerson, D. E., & Grodal, S. (2011). E-mail as a Source and Symbol of Stress. *Organization Science*, *22*(4), 887–906. https://doi.org/10.1287/orsc.1100.0573

Bawden, D. (2001). *Information Overload*. South Bank University, [Library Information Technology Center].

Bellotti, V., Ducheneaut, N., Howard, M., Smith, I., & Grinter, R. E. (2005). Quality versus quantity: E-mail-centric task management and its relation with overload. *Human-Computer Interaction*, *20*(1–2), 89–138. https://doi.org/10.1207/s15327051hci2001&2_4

Benefits Of Email – Benefits Of. (n.d.). Retrieved September 27, 2020, from http://benefitof.net/benefits-of-email/

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Sage Publications, Inc.

Cronbach's Alpha Basic Concepts | Real Statistics Using Excel. (n.d.). Retrieved September 26, 2020, from http://www.real-statistics.com/reliability/internal-consistency-reliability/cronbachs-alpha/cronbachs-alpha-basic-concepts/

Dabbish, L. A., & Kraut, R. E. (2006). *Email Overload At Work: An Analysis of Factors Associated With Email Strain*. 431–440.

Edmunds, A., & Morris, A. (2000). Problem of information overload in business organizations: A review of the literature. *International Journal of Information Management*, *20*(1), 17–28. https://doi.org/10.1016/S0268-4012(99)00051-1

Eppler, M. J., & Mengis, J. (2003). A Framework for Information Overload Research in Organizations. Insights from Organization Science, Accounting, Marketing, MIS, and Related Disciplines. *The Information Society*, *20*(5), 325–344.

Eppler, M. J., & Mengis, J. (2004). The concept of information overload: A review of literature from organization science, accounting, marketing, MIS, and related disciplines. *Information Society*, *20*(5), 325–344. https://doi.org/10.1080/01972240490507974

Francis, L., Holmvall, C. M., & O'Brien, L. E. (2015). The influence of workload and civility of treatment on the perpetration of email incivility. *Computers in Human Behavior*, *46*, 191–201. https://doi.org/10.1016/j.chb.2014.12.044

Hiltz, S. R., & Turoff, M. (1985). Structuring computer-mediated communication systems to avoid information overload. *Communications of the ACM*, *28*(7), 680–689. https://doi.org/10.1145/3894.3895

Hole, J. D. (2008). Email overload in academia. In *ProQuest Dissertations and Theses*. Rochester Institute of Technology.

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. https://doi.org/10.1016/j.chb.2010.03.008

Klapp, O. E. (1986). Overload and Boredom : Essays on the Quality of Life in the Information Society. *The Library Quarterly*, *57*, 174.

Mackay, W. E. (1988). More than just a communication system: Diversity in the use of electronic mail. *Proceedings of the 1988 ACM Conference on Computer-Supported Cooperative Work, CSCW 1988*, 344–353. https://doi.org/10.1145/62266.62293

Mehta, D., & Mehta, N. K. (2013). Employee Engagement: A Literature Review. *Economia. Seria Management*, *16*(2), 1–9. https://doi.org/October 2008

MyAnalytics for admins - Workplace Intelligence | Microsoft Docs. (n.d.). Retrieved September 7, 2020, from https://docs.microsoft.com/en-us/workplace-analytics/myanalytics/overview/mya-for-admins

Pignata, S., Lushington, K., Sloan, J., & Buchanan, F. (2015). Employees' perceptions of email communication, volume, and management strategies in an Australian university. *Journal of Higher Education Policy and Management*, *37*(2), 159–171. https://doi.org/10.1080/1360080X.2015.1019121

Purcell, K. (2011). Search and email still top the list of most popular online activities. *Pew Internet & American Life Project a Project of the PewResearchCenter*, *6*, 1–15.

Reinke, K., & Chamorro-Premuzic, T. (2014). When email use gets out of control: Understanding the relationship between personality and email overload and their impact on burnout and work engagement. *Computers in Human Behavior*, *36*, 502–509. https://doi.org/10.1016/j.chb.2014.03.075

Scibilia, B. (2015). *Why You Should Use Non-parametric Tests when Analyzing Data with Outliers*. The Minitab Blog. https://blog.minitab.com/blog/applying-statistics-in-quality-projects/why-you-should-use-non-parametric-tests-when-analyzing-data-with-outliers

Simmel, G. (1950). *The Sociology of Georg Simmel* (K. H. Wolff (Ed.)). The Free Press.

Spring break forever: List of universities canceling classes or implementing remote study. (n.d.). Retrieved September 6, 2020, from https://www.washingtonexaminer.com/news/spring-break-forever-list-of-universities-canceling-classes-or-implementing-remote-study

Szekeres, J. (2004). The Invisible Workers. *Journal of Higher Education Policy and Management*, *26*(1), 7–22. https://doi.org/10.1080/1360080042000182500

Turoff, M., Hiltz, S. R., & Kerr, E. B. (1982). Controversies in the Design of Computer-Mediated Communication Systems, A Delphi Study. *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699.

Whittaker, S., & Sidner, C. (1996). Email overload: exploring personal information management of email. *Conference on Human Factors in Computing Systems - Proceedings*, 276–283.

Appendix A: Survey

E-mail Overload

Please answer the following questions to the best of your knowledge. If, for any reason, you feel uncomfortable answering a particular question, please feel free to skip it. To ensure that all responses are kept confidential, please do not include your name on this form. Thank you.

1) How many e-mail messages do you receive in a typical 24-hour period? _____
2) How many e-mail messages do you read in a typical 24-hour period? _____
3) How many e-mail messages do you send in a typical 24-hour period? _____
4) How many e-mail messages do you delete in a typical 24-hour period? _____
5) How many e-mails do you currently have in your inbox? _____
6) How many e-mails folders have you created for storing e-mail? _____

For the following six questions, if you will be returning the survey via e-mail, please either bold your response or enter your response at the end of the question. 1: Strongly Disagree to 5: Strongly Agree

7) I can manage my e-mail efficiently… 1 2 3 4 5
8) I have trouble locating information in my inbox or folders… 1 2 3 4 5
9) I can read all of the important e-mails that I receive… 1 2 3 4 5
10) I sometimes miss important information or important messages… 1 2 3 4 5
11) My e-mail interrupts my work… 1 2 3 4 5
12) I feel stressed because of my e-mail…1 2 3 4 5
13) Managing my e-mail is overwhelming … 1 2 3 4 5

14) In a typical 24-hour period, how frequently do you check your e-mail? _____ Times
15) When do you check your e-mail (e.g., every time an e-mail arrives, every few minutes, every evening, etc…)?

_____
_____
_____

16) When do you typically respond to your e-mail (e.g., every time an e-mail arrives, every few minutes, every evening, etc…)?

_____
_____
_____

**Survey Acknowledgement: Hole, J. D. (2008). E-mail overload in academia. *ProQuest Dissertations and Theses and Scholarworks.rit.edu/theses*

Adapted Qualtrics Survey

E-mail Overload Survey

I am responsible for the following e-mail(s): check all that apply

- ☐ my work e-mail: @v*****.edu (1)
- ☐ admissions@v*****.edu (2)
- ☐ registrar@v*****.edu (3)

Q1-6 How many e-mail message(s)…

	Your Office E-mail (1)	Admissions E-mail (2)	Registrar E-mail (3)
do you receive in a typical 24-hour period? (1)			
do you read in a typical 24-hour period? (2)			
do you send in a typical 24-hour period? (3)			
do you delete in a typical 24-hour period? (4)			
are currently in your inbox? (5)			
folders have you created for storing e-mail? (6)			

Q7-13 For the following six questions, choose which rating best applies:
0:Not Applicable, 1:Strongly Disagree, 2:Disagree, 3:Neither Disagree or Agree, 4:Agree, 5:Strongly Agree

	Your Office E-mail (1)	Admissions E-mail (2)	Registrar E-mail (3)
I can manage my e-mail efficiently (1)			
I have trouble locating information in my inbox or folders (2)			
I can read all of the important e-mails that I receive (3)			
I sometimes miss important e-mails that I receive (4)			
My e-mail interrupts my work (5)			
I feel stressed because of my e-mail (6)			
Managing my e-mail is overwhelming (7)			

Q14 In a typical 24-hour period

	Your Office E-mail (1)	Admissions E-mail (2)	Registrar E-mail (3)
Number of times I check e-mail (1)			

Q15 When do you typically check your e-mail (e.g., every time an e-mail arrives, every few minutes, every evening, etc…)?

_____

_____

Q16 When do you typically respond to your e-mail (e.g., every time an email arrives, every few minutes, every evening, etc…)?

_____

_____

Appendix B: E-mail Samples

Follow-up E-mail from Director of CSCC

Email Survey

[redacted]
Thu 9/10/2020 3:42 PM
To: [redacted]
Cc: Brundage, Kelley L <kelley.l.brundage@vanderbilt.edu>

Last November, many of you participated in a survey about your email usage for Kelley Brundage. Kelley is a doctoral candidate from Vanderbilt and is almost done with her research. She will send us all a follow-up survey this coming Monday. Please make every effort to complete the survey by the deadline she requests. It doesn't matter if you participated before or not. Please participate this time. The more people who complete, the more helpful it will be to both Kelley and our offices. Kelley will not only share the results with us but will also provide us with information to help better manage our email.

I've copied Kelley on this email, so feel free to reach out to her if you have questions about the survey or her research. If you have questions about our participation, please let me know.

Tim

[redacted]
Tim [redacted]
Director of Admissions & College Registrar
Office of Admissions & College Registrar
[redacted]
[redacted] Instagram Twitter
YouTube

Survey E-mail generated from Qualtrics

Invitation to Research Project On-line Survey: E-mail Overload

Kelley Brundage <noreply@peabodyvusurveys.org>
Wed 11/20/2019 6:58 PM
To: Brundage, Kelley L <kelley.l.brundage@vanderbilt.edu>

In a follow-up to the email sent by your Director, [redacted], on Tuesday, November 19th, you are invited to participate in a research project about E-mail Overload. This online survey should take about 5 to 15 minutes to complete. Participation is voluntary, and responses will be kept anonymous to the degree permitted by the technology being used.

You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with [redacted] State Community College. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

If you have any questions about the research, please contact the Principal Investigator, Kelley Brundage, via email at kelley.l.brundage@vanderbilt.edu or the faculty advisor, Dr. Tracey Armstrong at tracey.m.armstrong@vanderbilt.edu. If you have any questions regarding your rights as a research subject, contact the Vanderbilt Institutional Review Board (IRB) at (615) 322-2918.

Please print or save a copy of this page for your records.

** I have read the above information and agree to participate in this research project.*

Follow this link to the Survey:
Take the Survey

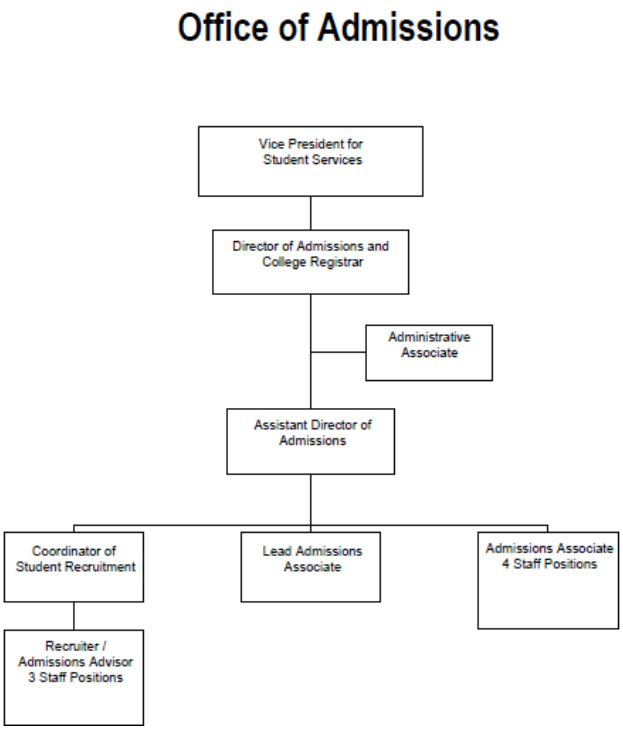
Or copy and paste the URL below into your internet browser:
https://peabody.az1.qualtrics.com/jfe/preview/SV_8nOotKBztjTIKYB?Q_CHL=preview

Follow the link to opt-out of future emails:
Click here to unsubscribe

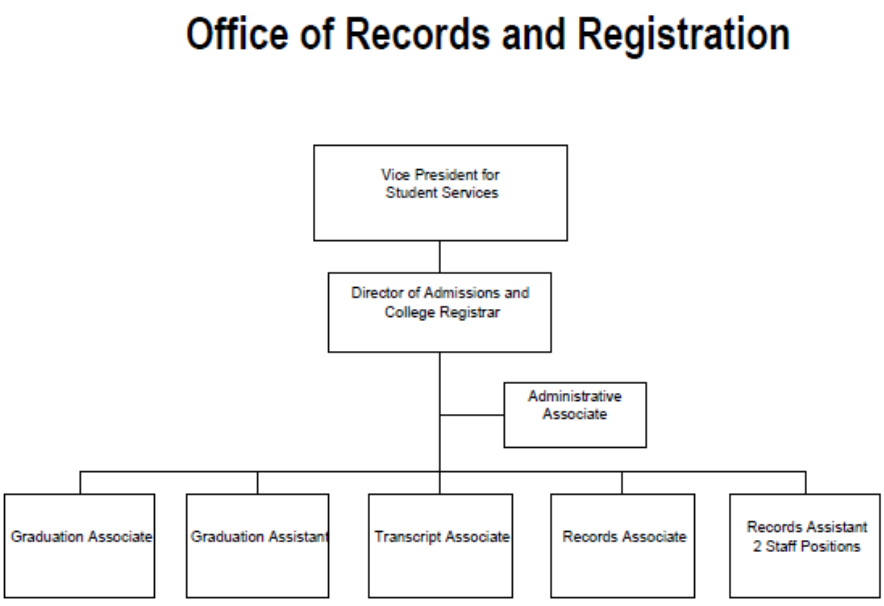
Appendix C: Organizational Chart

Capstone State Community College: Office of Admissions & Registrar

Office of Admissions



Office of Records & Registration (a.k.a. Registrar)



Appendix D: Supplemental Data

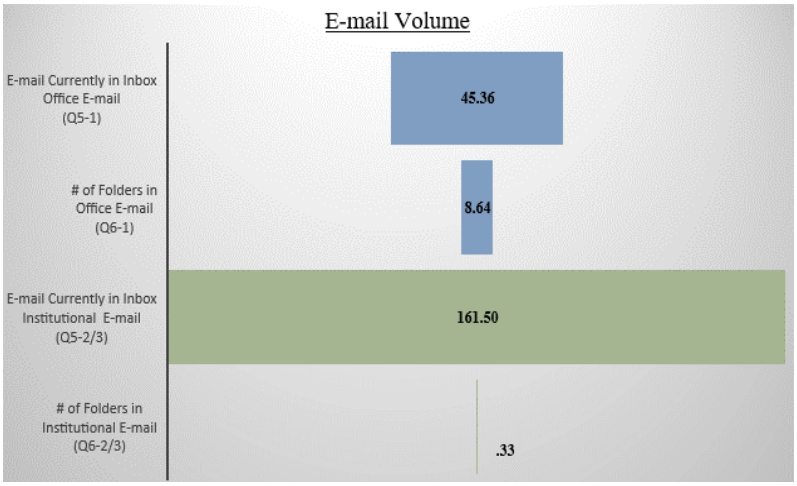


Chart 7: Average Number of Times Survey Participants Check E-mail in a 24-Hour Period

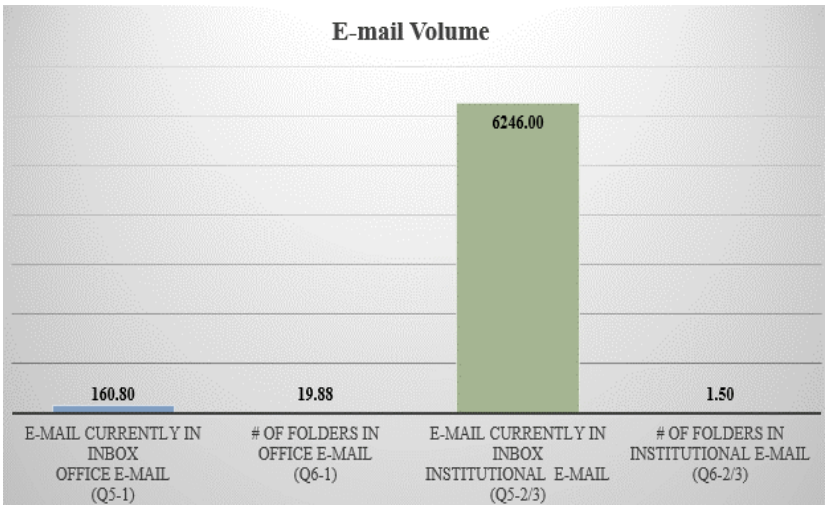


Chart 8: Average Number of Times 2nd Round Survey Participants

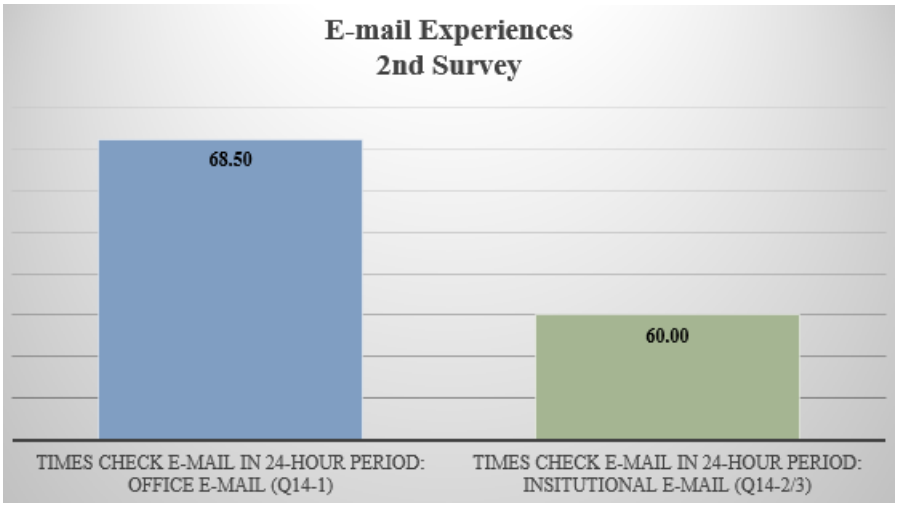


Chart 9: Average Number of Times E-mail checked within a 24-Hour Period

Appendix E: Cronbach's Alpha

Calculated in Microsoft Excel for questions 7-13

Cronbach's Alpha
key 1: answered question
0: did not answer question

Participant	Q7-13_1_1: I can manage my e-mail efficiently - Your Office E-mail	Q7-13_1_2: I can manage my e-mail efficiently - Admissions E-mail	Q7-13_1_3: I can manage my e-mail efficiently - Registrar E-mail	Q7-13_2_1: I have trouble locating information in my inbox or folders -	Q7-13_2_2: I have trouble locating information in my inbox or folders -	Q7-13_2_3: I have trouble locating information in my inbox or folders -	Q7-13_3_1: I can read all of the important e-mails that I receive - Your	Q7-13_3_2: I can read all of the important e-mails that I receive -	Q7-13_3_3: I can read all of the important e-mails that I receive -	Q7-13_4_1: I sometimes miss important e-mails that I receive - Your	Q7-13_4_2: I sometimes miss important e-mails that I receive -
1	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
3	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
4	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
5	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
6	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
7	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
8	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
9	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
10	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
11	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Total	**11**	**2**	**0**	**11**	**2**	**0**	**11**	**2**	**0**	**11**	**2**
Var	0.0000	0.1488	0.0000	0.0000	0.1488	0.0000	0.0000	0.1488	0.0000	0.0000	0.1488

Participant	Q7-13_4_3: I sometimes miss important e-mails that I receive - Registrar E-mail	Q7-13_5_1: My e-mail interrupts my work - Your Office E-mail	Q7-13_5_2: My e-mail interrupts my work - Admissions E-mail	Q7-13_5_3: My e-mail interrupts my work - Registrar E-mail	Q7-13_6_1: I feel stressed because of my e-mail - Your Office E-mail	Q7-13_6_2: I feel stressed because of my e-mail - Admissions E-mail	Q7-13_6_3: I feel stressed because of my e-mail - Registrar E-mail	Q7-13_7_1: Managing my e-mail is overwhelming - Your Office E-mail	Q7-13_7_2: Managing my e-mail is overwhelming - Admissions E-mail	Q7-13_7_3: Managing my e-mail is overwhelming - Registrar E-mail	
1	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
2	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
3	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
4	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
5	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
6	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
7	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
8	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	14.00
9	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	14.00
10	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
11	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
Total	**0**	**11**	**2**	**0**	**11**	**2**	**0**	**11**	**2**	**0**	**91**
Var	0.0000	0.0000	0.1488	0.0000	0.0000	0.1488	0.0000	0.0000	0.1488	0.0000	1.0413

k	231
Σvar	1.0413
var	7.2893
α	0.8609

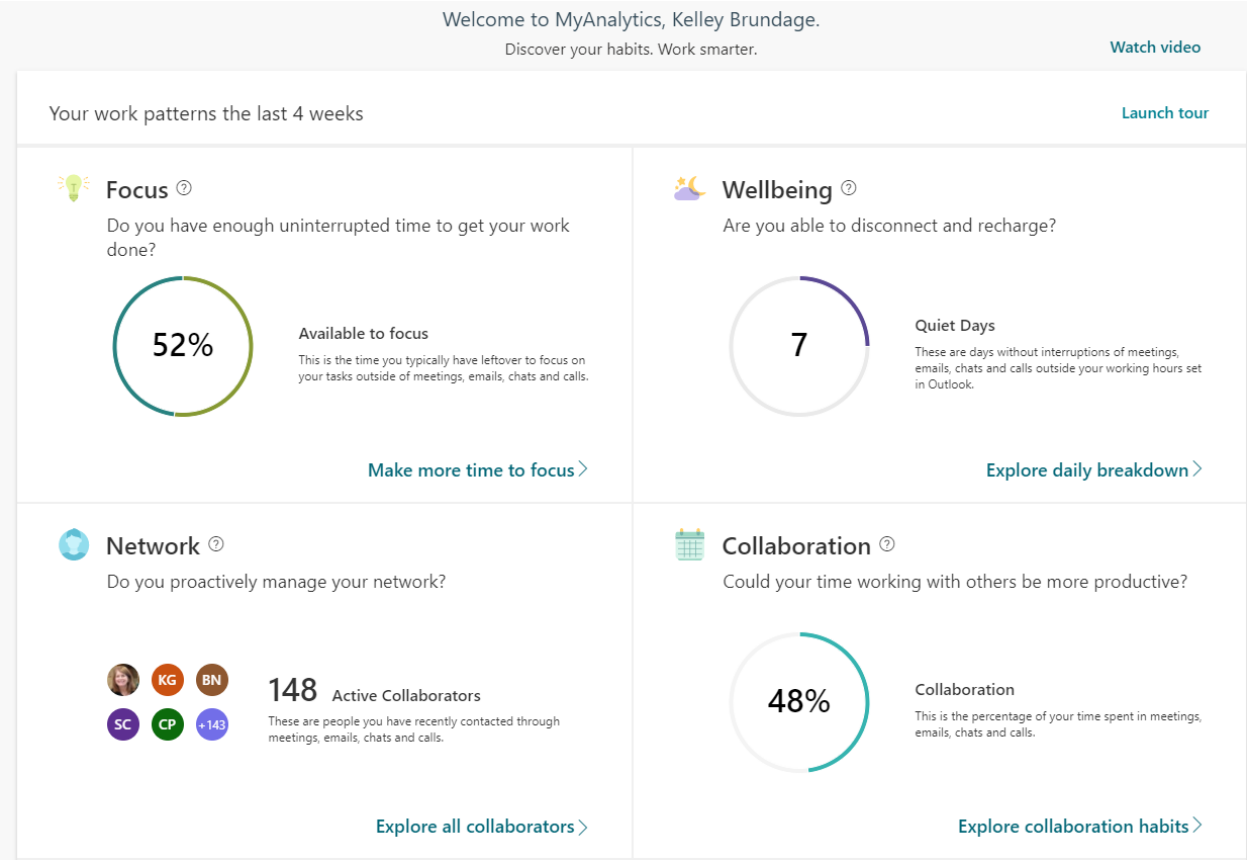
Cronbach's Alpha: Survey II
key 1: answered question
2: did not answer question

	Q7-13_1_1: I can manage my e-mail efficiently - Your Office E-mail	Q7-13_1_2: I can manage my e-mail efficiently - Admissions E-mail	Q7-13_1_3: I can manage my e-mail efficiently - Registrar E-mail	Q7-13_2_1: I have trouble locating information in my inbox or folders - Your Office E-mail	Q7-13_2_2: I have trouble locating information in my inbox or folders - Admissions E-mail	Q7-13_2_3: I have trouble locating information in my inbox or folders - Registrar E-mail	Q7-13_3_1: I can read all of the important e-mails that I receive - Your Office E-mail	Q7-13_3_2: I can read all of the important e-mails that I receive - Admissions E-mail	Q7-13_3_3: I can read all of the important e-mails that I receive - Registrar E-mail	Q7-13_4_1: I sometimes miss important e-mails that I receive - Your Office E-mail	Q7-13_4_2: I sometimes miss important e-mails that I receive - Admissions E-mail	Q7-13_4_3: I sometimes miss important e-mails that I receive - Registrar E-mail
1:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
2:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
3:2	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
4:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
5:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
6:2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
8:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
9:2	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Total	**8.00**	**1.00**	**1.00**	**8.00**	**1.00**	**1.00**	**8.00**	**1.00**	**1.00**	**8.00**	**1.00**	**1.00**
Var	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**

	Q7-13_5_1: My e-mail interrupts my work - Your Office E-mail	Q7-13_5_2: My e-mail interrupts my work - Admissions E-mail	Q7-13_5_3: My e-mail interrupts my work - Registrar E-mail	Q7-13_6_1: I feel stressed because of my e-mail - Your Office E-mail	Q7-13_6_2: I feel stressed because of my e-mail - Admissions E-mail	Q7-13_6_3: I feel stressed because of my e-mail - Registrar E-mail	Q7-13_7_1: Managing my e-mail is overwhelming - Your Office E-mail	Q7-13_7_2: Managing my e-mail is overwhelming - Admissions E-mail	Q7-13_7_3: Managing my e-mail is overwhelming - Registrar E-mail	
1:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
2:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
3:2	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	14.00
4:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
5:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
6:2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
8:2	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	7.00
9:2	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	14.00
Total	**8.00**	**1.00**	**1.00**	**8.00**	**1.00**	**1.00**	**8.00**	**1.00**	**1.00**	**70.00**
Var	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**0.0988**	**2.0741**

k	189
Σvar	2.0741
var	15.7284
α	0.8727

Appendix F: MyAnalytics Dashboard Sample



Appendix G: Example Monthly Statistics Spreadsheet

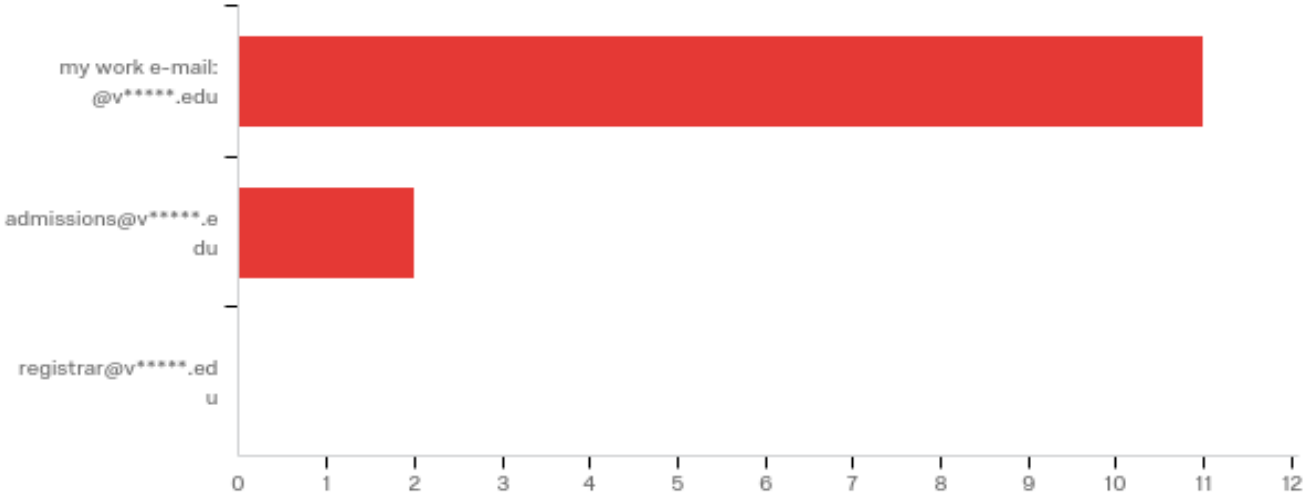
20XX-20XX Office of the Registrar Stats	July 'XX	Aug 'XX	Sept 'XX	Oct 'XX	Nov 'XX	Dec 'XX	Jan 'XX	Feb 'XX	Mar 'XX	Apr 'XX	May 'XX	June 'XX	Total
Imaging (BDMS or AppXtender)													
RO Office pages imported							611	**244**	**1366**	**2128**	**153**	**1136**	**5638**
Emails (sent & received)													
registrar@cscc.edu	**3337**	**7223**	**1582**	**1371**	**1978**	**3987**	**4810**	**1174**	**1720**	**2908**	**5782**	**2750**	**38622**
RO Staff emails (sent & received)	3913	8717	6482	6445	5663	5907	6803	5512	7295	8194	9009	7354	**81294**
staff 1	1101	1827	2058	1540	1488	1437	1629	1561	1862	1427	2001	1868	19799
staff 2	2748	3689	2326	2623	2219	2364	2611	1817	2283	2488	2668	2103	29939
staff 3	64	648	417	240	250	384	395	305	296	248	261	233	3741
staff 4		2553	1681	2042	1706	1722	2168	1829	1758	2248	2223	1624	21554
staff 5									1096	1783	1856	1526	6261
Transcripts													
# of Orders	1096	2451	471	420	396	526	699	858	835	406	880	1077	**10115**
# of Transcripts	1339	3256	861	482	477	635	835	997	918	480	1055	1220	**12555**
Pick-up # of Orders	31	63	52	47	44	31	94	54	39	24	53	43	575
Pick-up # of Transcripts	41	72	59	40	54	43	128	68	42	34	79	52	712
EDI/SPEEDE delivery	128	246	38	94	109	119	55	108	73	96	199	124	1389
PDF	0	372	106	215	274	343	529	294	283	240	504	343	3503
Transcript Comments													
	0	3	0	0	0	0	3	0	0	0	0	0	6
Registration & Records													
Mail													
Incoming Mail distributed (reported in hours)	2.75	3.25	0	0								4.4	10.4
Checks Received and Distributed	13	11	11	26	14	11	12	9	12	7	23	26	175
Misc													
Course Level Change Form	2	3	4	0	62								71
Change of Major													**3919**
Major	105	206	91	174	377	13	5	1	109	140	125	121	1467
Double Major/ Dual Degree	3	12	2	4	10	14	6	1	10	9	3	2	76
Minor	60	112	37	72	151	128	45	10	84	215	142	46	1102
Academic Standing													**491**
Semester Exceptions	49	56	2	2	0	35	34	0	2	82	2	5	269
Reinstatement from Academic Suspension	51	7	1	4	23	5	24	0	3	27	2	29	176
Academic Dismissal	0	0	0	0	0	0	0	0	0	0	2	1	3
Conditional Admit Dismissal (Graduate School)	0	6	0	0	0	11	3	0	1	1	2	3	27
Academic Discipline Actions Per Dean of Students				1	1	8	2	2	3	2	3	3	25
Grades													
Grade Changes	178	580	185	28	14	534	147	97	69	28	654	233	2747
Grade Forgiveness	38	254	40	5	0	369	28	9	26	8	1385	11	2173
Grade Forgiveness - Review and Prep	33	200	0	54	0	431	0	0	0	0	0	0	718
Credit by Proficiency	1	8	1	1	19	7	4	9	23	4	3	1	81
Academic & Classroom Scheduling													
Schedule Changes (changes, enrollment inc, etc.)	292	796	76	197	578	406	293	37	103	70	101		2949
Course Cancellations	29	0	4	48	123	33	88	14	32	8	19		398
Course Additions	50	0	11	49	141	58	60	19	51	13	35		487
National Student Clearinghouse													
Student Self-Service Reporting	**134**	**183**	**216**	**113**	**75**	**128**	**230**	**135**	**116**	**91**	**158**	**102**	**1681**
Enrollment Verify (Current Enrollent)	***266***	***533***	***1207***	***764***	***319***	***307***	***297***	***269***	***348***	***319***	***350***	***304***	***5283***
Confirmed	144	326	1058	650	247	229	210	230	276	255	235	199	4059
Unable to Confirm	122	207	149	114	72	78	87	39	72	64	115	105	1224
Dates of Attendance	***38***	***45***	***36***	***28***	***33***	***28***	***31***	***38***	***32***	***46***	***49***	***40***	***444***
Confirmed	35	37	31	24	29	22	24	29	28	38	41	37	375
Unable to Confirm	3	8	5	4	4	6	7	9	4	8	8	3	69
Degree Verify	***253***	***332***	***274***	***272***	***280***	***295***	***326***	***289***	***365***	***336***	***413***	***361***	***3796***
Confirmed	212	280	240	223	190	223	245	215	263	271	299	283	2944
Unable to Confirm	41	52	34	49	27	37	53	44	52	34	59	66	548
Manually Verified	0	0	0	0	63	35	28	30	50	31	55	12	304
Diplomas													
Original Diplomas Printed	0	0	0			1081		11	18	25	1263	1485	3883
Replacement Diploma Orders	4	13	11		10	17		21	30	16	32	47	201
Recreated Diplomas	0	0	1							2		0	3

Appendix H: Qualtrics Default Survey Results Report

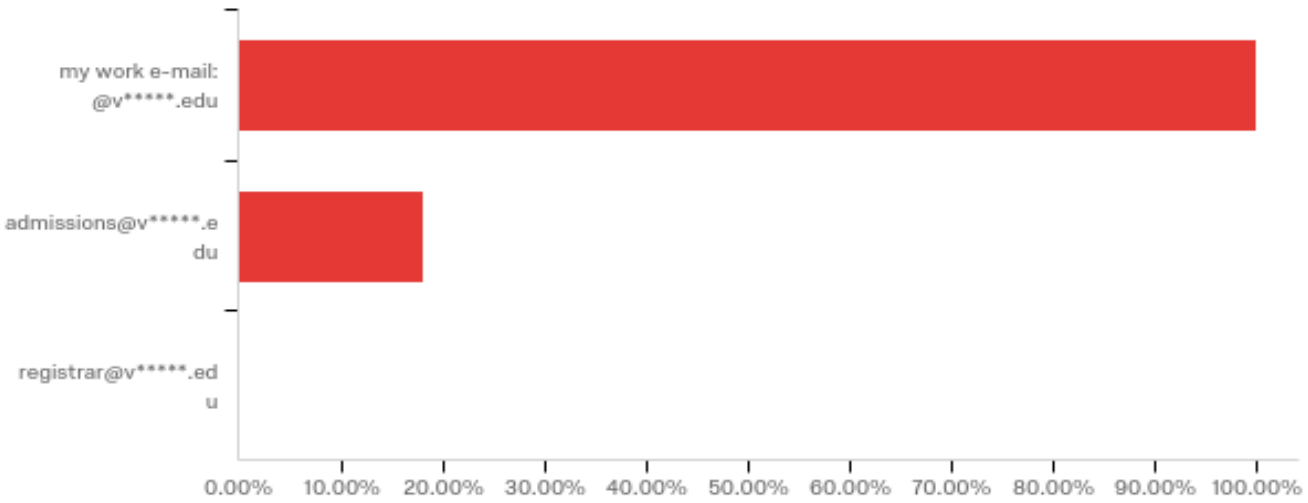
E-mail Overload Survey

November 20, 2019, to November 25, 2019

QID4 - I am responsible for the following e-mail(s): check all that apply

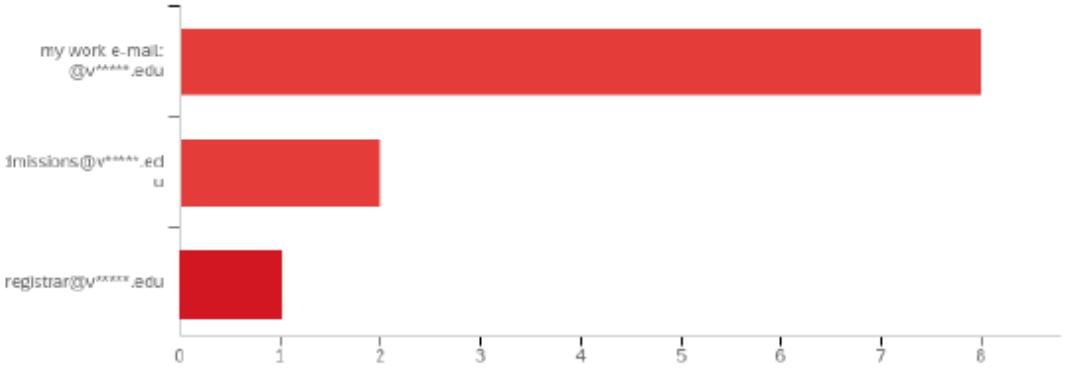


#	Answer	%	Count
1	my work e-mail: @v*****.edu	84.62%	11
2	admissions@v*****.edu	15.38%	2
3	registrar@v*****.edu	0.00%	0
	Total	100%	13



E-mail Overload Survey II - Sept 2020
September 19th 2020, 4:33 pm CDT

QID4 - I am responsible for the following e-mail(s): check all that apply



#	Answer	%	Count
1	my work e-mail: @v*****.edu	73%	8
2	admissions@v*****.edu	18%	2
3	registrar@v*****.edu	9%	1
	Total	100%	11