

**Watching You Watching Me:
Boundary Control and Capturing Attention in the Context of Ubiquitous Technology Use**

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Forthcoming, *Academy of Management Journal*

August 2, 2014

We would like to thank Jennifer Howard-Grenville, Melissa Mazmanian, Sue Higgins, Martha Feldman, Beth Bechky, Michel Anteby, and participants at the MIT, UCI, University of Oregon, and Stanford SCANCOR colloquia for their helpful feedback. We would also like to thank the UC Irvine Center for Research on Information Technology and Organizations (CRITO) for their financial support, and Mary Gilly, Mary Wolfenbarger, and Hope Schau for their collaboration in the early rounds of data collection. We offer thanks and great appreciation to the men and women who openly shared their stories with us and who make many personal sacrifices in service of their country. An earlier version of this work was presented at the 2006 Academy of Management meeting and the 2008 American Sociological Association meeting. The authors contributed equally.

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Abstract

As information communication technologies proliferate in the workplace, organizations face unique challenges managing how and when employees engage in work and non-work activities. Using interview and archival data from the U.S. Navy, we explore one organization's attempts to shape individual attention in an effort to exert boundary control. We describe the organizational productivity and security problems that result from individual attention being engaged in non-work activities while at work and find that the organization manages these problems by monitoring employees (tracking attention), contextualizing technology use to remind people of appropriate organizational use practices (cultivating attention), and diverting, limiting, and withholding technology access (restricting attention). We bring together research on attention and control to challenge current definitions of boundary control, and we detail the understudied situational controls used by the organization to shape work/non-work interactions in the moment. We highlight *how* situational control efforts must work together in order to capture attention and shape behavior, and we develop a model to explicate this ongoing process of boundary control. Our findings offer insight into the evolving challenges organizations face in executing boundary control, as well as organizational control more broadly, in the modern workplace.

“A gunner inside an armored vehicle types furiously on a Blackberry, so engrossed in text-messaging his girlfriend in the United States that he has forgotten to watch for enemy movement” (Dao, 2011)

From the fields of modern warfare in Afghanistan and Iraq to the cubicles inside modern day organizations, information communication technology has facilitated an unprecedented, sustained connection to friends and family from many miles away. These connections have a multitude of advantages for individuals, their families, and organizations, but they also challenge the ability to focus and pay attention to work. As 83% of employees admit to accessing work computers for personal use (Cisco, 2008), the popular press decries the problems of attention in today’s technology-enabled world (Carr, 2010; Davenport & Beck, 2001). Like the military in the example of the gunner above, many organizations face employees distracted by emails, instant messaging and the internet. In addition to distractions, there are a multitude of moments when an e-mail, a Twitter or a Facebook posting has the potential to be ethically or financially problematic (e.g., around a merger or acquisition), life-threatening (e.g., when a train conductor misses a signal because she or he is sending an unauthorized text), or pose network security threats (e.g., when opening a malicious link in an email). These anecdotes highlight how individual decisions about when to pay attention – and to what – have serious repercussions for individuals and create productivity and security problems for their organizations.

We look to the research on boundary control to consider how organizations control what and how employees pay attention at work. Boundary control “refers to managers’ ability to affect how employees divide their *time* between their work and nonwork spheres of life” and includes “the various ways in which managers in organizations cajole, encourage, coerce, or otherwise influence the amount of *time* employees physically spend in the workplace” (Perlow, 1998: 329, italics added). Boundary control is part of a longstanding literature on organizational control

where, often through rules, norms and technical systems, organizations exert control over how employees work (Edwards, 1979; Kunda, 1992; Ouchi & Maguire, 1975). Yet underlying organizational efforts to control where, how and when people work is the desire to shape what individuals pay attention to while at work. We argue, therefore, that boundary control requires more than influencing where the employee is physically spending his or her time, and instead must focus on controlling and shaping individual attention throughout the course of a given work day regardless of location. Thus, contrary to existing definitions of boundary control, the organization must manage where individuals place their *attention* in any given moment rather than where individuals spend their *time*. In our technology-enabled world, the need to focus on attention rather than mere physical presence is particularly critical.

In this paper, we focus on the subset of interactions where the increasingly interwoven work and non-work spheres of life (Ramarajan & Reid, 2013) often direct individuals' attention to non-work interactions and activities during work time (Chesley, 2005; Hislop & Axtell, 2011). We ask how organizations attempt to shape individual attention and divert attention from non-work activities in the face of ubiquitous information communication technology use. We find new situational control efforts that elicit different individual responses by tracking, cultivating, and restricting attention. We conclude by proposing a new definition of boundary control that focuses on the need to capture attention in order to shape behavior.

Using the case of the U.S. Navy, we find that capturing attention requires situational controls. Global control efforts, which are those "abstract and general" restrictions designed to "influence all decision-making opportunities" (Ocasio & Wohlgezogen, 2010: 195), are insufficient for the task despite their strong prevalence in the Navy (the military is extensively rule-bound with intense socialization and identification). Employing interview and archival data,

we instead find that the constant interweaving of work and non-work enabled by information communication technology requires reliance on situational controls, namely those organizational efforts designed to capture attention and thus shape behavior in the moment or in a particular context.

We make three key contributions to the literature on boundary control. First, we argue that the technology-immersed workplace requires a fundamental shift in our understanding of what boundary control must focus on to be effective: not time, but instead attention. Second, this consideration of individual attention reshapes our understanding of how boundary control is accomplished in a technology-enabled world and we detail and develop the concept of situational controls that builds on this new definition. The organization must do more than simply shape *whether* individuals are paying attention to work – the organization also needs to influence *how* individuals engage in non-work activities such that they remain attentive to organizational needs. Layered upon traditional global control mechanisms, situational controls – monitoring, contextualization and deflection – work to capture attention and shape individual behavior in the moment. Finally, we develop a model that demonstrates how situational controls work in tandem by tracking, cultivating, and restricting individuals' attention in an ongoing process. We find that boundary control elicits cooperation when the organization continuously expands efforts to track attention online, uses constantly evolving methods to focus individual attention on organizational priorities, and intermittently deflects access to technology in an effort to restrict attention.

ORGANIZATIONAL BOUNDARY CONTROL

Research on boundary control focuses on managerial and organizational efforts to influence how employees divide their time between work and home. Boundary control differs from boundary theory in that it takes the perspective of how the *organization* manages the

boundary rather than the boundary work of *individuals* within the organization (e.g., Kreiner, Hollensbe, & Sheep, 2009; Nippert-Eng, 1996; Trefalt, 2012). These organizational efforts at boundary control include structural practices that determine how and when people work, and normative efforts that shape the extent to which individuals internalize (and thus prioritize) the needs and values of the organization. Boundary control is a subset of a larger literature on organizational control and draws on some of the key distinctions in this literature.

The organizational control literature offers various ways to categorize control efforts. For example, bureaucratic practices control behavior through standardized rules and work processes (Mintzberg, 1983; Adler & Borys, 1996); normative control operates by influencing the underlying beliefs and values of organizational members (Etzioni, 1960; Martin, 1992); peer or concertive control reinforces the organizational belief structure through actions of co-workers (Barker, 1993); and technical control embeds rules into the technological infrastructure (Edwards, 1979; Orlikowski, 1991). Normative control is also aligned with the literatures on organizational culture and organizational identification (Anteby, 2008; Kunda, 1992; Pratt, 2000). For example, Pratt and Rosa (2003), in studying Amway and Mary Kay, focus on efforts that increase family and employee identification with the organization and thus the engagement in and amount of time spent on work activities.

Offering orthogonal – and particularly useful -- dimensions on which to consider control tactics, Ocasio & Wohlgezogen (2010) differentiate between global and situational controls. Global controls are more abstract and general constraints that serve to limit or shape all behavior and may include bureaucratic, normative, or other types of control. For example, global control efforts might include rules stating individuals must punch in on a time card when they arrive at and leave from work, or socialization that instills work appropriate norms about how many hours

to work a week. Situational controls, in contrast, are “guided by the momentary and local pressures of the situation – resulting from the particular, temporal, and spatial circumstances” (Ocasio & Wohlgezogen, 2010: 210). Thus a bureaucratic practice may be either global (as in a stated rule about when the work day begins) or situational (as in calling a meeting at a particular time). Likewise, in the moment reminders of organizational norms and values (a memo before a deadline reminding employees that “Our Customer Service is #1!”) act as situational controls that reinforce global efforts to instill broad organizational norms (training upon hiring). Importantly, situational control implies that control is necessarily occurring at different levels within the organization (e.g. organization-wide, unit, work group, and supervisor) because different levels are uniquely positioned to observe and manage different situations (e.g. a network administrator has high level knowledge of what is happening across her organization, a supervisor is watching an individual sitting across from him).

This distinction between global and situational controls offers a different and very relevant perspective from which to consider organizational control, and boundary control in particular. Since the time of Pratt’s (2000, 2003) and Perlow’s (1998) work on organizational boundary control, adoption of information communication technology has allowed organizational boundaries to become more permeable, in part by extending not only whom employees talk with, but also when and how they can communicate (Mazmanian, Orlikowski, & Yates, 2006; Chesley, 2005). Rules that dictate when a workday starts and ends are less effective when employees have the ability to do their personal banking or holiday shopping from the office. Thus, it is not a surprise that individuals are frequently interrupted (either externally or self-initiated) through technological means (Gonzalez & Mark, 2004). Although in some cases these interruptions may provide welcome opportunities to shift work and reschedule activities

(Wajcman & Rose, 2011), in many cases interruptions cause productivity and other problems (Jett & George, 2003; Perlow, 1999). The continual and varied stream of interruptions suggests that situational controls, which focus attention at a particular moment in time, may be particularly relevant to directing employee attention given the multitude of potential distractions that may hinder organizational productivity.

Situational controls also allow in the moment reminders to employees that certain behaviors may be organizationally problematic and create security problems. Online interactions often happen at the intersection of different contexts (e.g. organizational, family) that may cue different social norms (DiMaggio, 1997). This can be problematic for the organization when non-work norms contradict work norms, triggering behavior that is inappropriate or harmful for the organization. For example, norms to share information over email with a friend violate work norms to protect proprietary information when communicating information about an upcoming acquisition. By adding a situational control, a pop-up box might ask the individual whether he wants to send this email with the tagged word “acquisition” in the moment when he hits “send.” Global controls, such as overarching rules and norms, may be less effective given that it is the immediate context (rather than the rules themselves) that often determines behavior (Manning, 1977). Furthermore, global controls banning all personal communications are unnecessary when only occasional restrictions are needed. More broadly, this suggests that the general nature of global controls may be ineffective when decisions about when and how to work are dependent on the demands of the situation in a given moment in time and are susceptible to influence by non-work norms entering the workplace. As a result, it is necessary to understand how situational controls may play an increasing role in boundary control by exerting contextual and temporally sensitive control efforts.

INTRODUCING INDIVIDUAL ATTENTION

Organizational research on attention in the workplace focuses on the ways in which individual attention is shaped in the moment, pointing to the promise of situational controls. Simon (1957) first highlighted the importance of attention, and several streams of research build from his insights (Cho & Hambrick, 2006; Ocasio, 1997, 2011; Weick & Sutcliffe, 2006). For example, in the managerial cognition literature, Kaplan finds that the attention of the CEO predicts organizational decisions such as patenting (Eggers & Kaplan, 2009; Kaplan, 2008).

We hew close to Simon's original articulation (1957; 1997) and contemplate how the organization shapes individual attention and thus individual work behavior. We define attention here as the momentary focus on one of multiple simultaneously available trains of thought (James, 1890). We examine the actions that the organization takes to try to shape attention and direct behavior. Simon suggests that the organization plays the role of an external stimulus that "directs attention to selected aspects of the situation to the exclusion of competing aspects that might turn choice in another direction" (Simon, 1997: 101). The agency that Simon attributes to the organization, of drawing and shaping attention, connects implicitly with the literature on organizational control: in fact, "attention is central to conceptions of organizational control" (Ocasio & Wohlgezogen, 2010: 216). We largely focus on the behaviors resulting from the directing of individual attention, following early traditions of examining behavioral consequences of cognitive processes (Cyert & March, 1963).

At their foundation, problems of productivity and security are inherently problems of attention. We can see this clearly when we look at Ocasio's (2011) tripartite consideration of attention: attention involves the focus on particular stimuli (selective attention), the ability to sustain focus on particular stimuli (vigilance), and the ability to switch back and forth between

multiple relevant stimuli (regulation; see also Posner, 2012; Posner & Rothbart, 2007).

These three components of attention allow us to identify behaviors that compromise productivity and security and thus threaten effective boundary control. First, selection “determines *what* is being attended to” (Ocasio & Wohlgezogen, 2010: 192). Challenges to selective attention can occur when individuals engage in non-work behaviors at work, such as spending an hour perusing Facebook or the internet, paying bills, or sending emails to family and friends. Second, vigilance describes the capacity to sustain concentration on a particular task. When an individual becomes distracted from work by the incoming messages in his or her inbox, we know attention has momentarily shifted to non-work issues, thereby triggering problems of attentional vigilance. Problems of selection and vigilance combined threaten productivity. Finally, regulation, also called executive attention, describes the ability “to process multiple targets quasi-simultaneously, by switching back and forth between” different factors vying for attention (Ocasio & Wohlgezogen, 2010: 193). When we observe individuals sharing organizationally sensitive or problematic information with family members or friends, we can infer that the individual was engaging in non-work activities and forgetting or ignoring organizational norms and rules. This suggests problems regulating attention, which can trigger problems with security. By shaping behavior, multiple attentional concerns may be resolved. For example, the organization may not want an individual to keep a Facebook window open at work because he may select to engage in non-work activities, may not be vigilant and focused on work tasks, and he may share sensitive information or click on a link to an insecure website.

We highlight attention for two reasons. First, given the ubiquity of information communication technologies, the documented interruptions that can result (Gonzalez & Mark, 2004), and the ease with which a lack of focus can lead to productivity or security problems, the

potential problems of managing individual attention in organizations is an important subject of inquiry. The constant interweaving of work and non-work worlds means that attention is easily and frequently diverted. In fact, the three attentional components highlight not just *what* individuals are paying attention to but also *how* attention is sustained and managed through continual interruptions and regular multi-tasking. Second, following Simon (1957; 1997), we can explore how the organization tries to shape attention; this allows us to connect attention with individual behavior and organizational control. In both cases, attention points to the types of problems, individual behaviors, and organizational responses to anticipate.

In summary, current definitions of boundary control emphasize global efforts to shape the time an individual spends in the workplace and thus fail to take into account the threat of constantly shifting attention of employees as they navigate the work/non-work boundary. We argue that theory on boundary control must focus on the need to shape attention rather than just on how individuals divide their time, and we propose a new definition of boundary control that reflects this shift. When shaping individual attention in a particular moment, control efforts must necessarily be impromptu, specific and local to a particular situation. We develop the idea of situational controls, which work to shape the behaviors associated with all three components of attention: what individuals do at a given moment in time, how focused individuals are on a particular task, and how smoothly individuals engage with non-work activities while in a work context. In addition, our study further explicates how these situational controls work in tandem to elicit different individual responses. We propose a model that encompasses each of these ideas and describes how the dynamic process of capturing attention in today's world allows an organization to exert control over the work/non-work boundary.

RESEARCH CONTEXT AND METHODS

Research Setting

The U.S. Navy has been called a “greedy institution” for the extreme demands it places on its sailors (Coser, 1974; Segal, 1986), and it is considered an exemplar of a total institution (Zurcher, 1965). Total institutions can be either voluntary or involuntary, but they have clear boundaries that separate organizational members from the outside world and give the organization extensive control over its members (Goffman, 1961). Navy members, for example, experience deployments during which they must live and work away from home for many months at a time, typically residing on vessels such as aircraft carriers or cruisers. The uniqueness of total institutions is not the clarity of the boundary and extent of organizational control, for all types of organizations have boundaries, but in the intensity of such claims (McCorkel, 1998). For example, film sets and oil rigs are work settings where, for weeks or months at a time, organizational participants are cut off from their personal lives and ability to fulfill non-work identities (Bechky, 2006; Ely & Meyerson, 2010). Yet, even in organizations where significant physical separation from home is not a factor, such as in many high-technology companies, intense work norms can restrict and control behavior across the work/non-work boundary (e.g., Kunda, 1992).

By examining an extreme case, we can see what is missing from our current theory of boundary control (Pratt, 2010). Current theory focuses on whether individuals spend their time at work, but control of the work/non-work boundary is necessary even for sailors on deployment who remain physically located on a ship for months at a time. Given the use of information technologies, control of physical location alone is not enough to exert boundary control. By examining this case, we can more easily see how the organization exerts boundary control beyond simply making sure employees are physically on location. These boundary control

efforts are applicable to a wide range of organizations. Indeed, a major task of the modern organization is to regulate the conduct of employees (Rose, 1990) and we can use the insights gained to extend the theory of boundary control.

Data Collection

We collected data as part of an effort to explore the impact of information communication technology in the Navy, sponsored by the now defunct Office of Force Transformation in the Department of Defense. The first portion of our data collection efforts consisted of multiple rounds of interviews. After an initial focus group with officers and information specialists, we created two separate interview protocols—one for Navy members, and one for the Navy member's spouse if the Navy member was married. Interviewing spouses allowed us to understand how organizational control efforts were perceived outside the organization (see Perlow, 1998, and Mazmanian et al., 2006, for a similar approach) as well as gain a more complete picture of the communication occurring across the Navy's boundary. The semi-structured interview protocol asked about how information communication technology was used and the limitations and benefits of such use during deployment. A second interview protocol was developed for supervisors and information professionals where we asked about concerns and strategies for managing sailors' communications off the ship (see Appendix A for a sample of questions across the different interview protocols).

A total of 73 interviews (14 high-level officers or information professionals, 6 lower level officers, 25 enlisted sailors, and 27 spouses; 2 individuals were interviewed twice) were conducted between 2003 and 2013. Data gathering took place on four separate occasions, the first in the fall of 2003, the second in the spring of 2004, the third in spring of 2010, and the fourth in the spring of 2013. In the first three rounds we

detailed a variety of organizational controls, and in the fourth round respondents helped us articulate the reasons behind the controls and verified the accuracy of the organizational controls described by the sailors. The fourth round of data collection (10 interviews) targeted high level officers and information professionals who were responsible for utilizing situational controls. When we examine our data over this time period, we see changes in the types of communication mediums used by sailors (e.g., from email to Skype). However, the situational controls that emerge from our analysis are used across the entire time span of our interviews, and the Navy has a long history of exerting boundary control (e.g., the tagline “Loose Lips Sink Ships” was a poster developed during World War II). As we detail below, our interviews suggest that in addition to the use of new information communication technologies, what has changed is the volume of communication, and the frequency and effectiveness of global and situational organizational controls.

The interview team consisted of four female faculty members and one female graduate student for the first two rounds, and two members of the original team for the third and fourth round of interviews. Participants were recruited through a retired Navy Commander in two rounds and Facebook ads and other Navy contacts in two rounds according to specific criteria (significant relationship during a recent deployment, seeking ship and position variety for the first three rounds; supervisory and IT experience in the fourth round). They were told the project was about information communication technology use in the Navy. Selecting participants with these particular characteristics provides a theoretical sample of sailors who have experienced frequent work/non-work interactions while deployed. Each interview lasted 60–90 minutes and participants were

compensated for their time. The Navy members interviewed had been on an average of 3.5 deployments over the course of their tenures in the Navy on a wide variety of ships. Given that the Navy is fairly decentralized by ship (relative to other branches in the military), with commanding officers having extensive discretion, we found widely varying access even within the same time period (e.g., instant messaging, Skype). The Navy clearly delineates between officers and enlisted personnel, so we ensured that both were included in the study. Table 1 summarizes the role, age, education, number of deployments, Navy tenure, and gender breakdown for the interviewees. As noted in Table 1, our sample largely reflects the demographic characteristics of the Navy population except that our interviewees were slightly older with longer tenure. This difference is largely a result of our decision to interview people that had already returned from at least one deployment and so had been in the Navy at least 2 years. The vast majority of the respondents had returned from a deployment in the past year, with 50% having returned in the past three months.

All of our interviewees had at least some access to e-mail (consistent with our archival data suggesting that by 2005 over 90% of the sailors in the Navy had access to the Internet while deployed¹), and they sent on average 13 e-mails home a week (with a range of zero to 12 a day). Concerns over the openness of interviewee responses, given interviewers' role as civilians, were mitigated by the several interviewees who noted that our contact person, a recently retired Commander, was a reassurance that it was appropriate to talk with us.

Tables 1 and 2 about here

¹ 7500 sailors were surveyed in a 2005 Navy Communications Quick Poll, with a 33% response rate.

In addition to the interview data, we gathered over 15 years of primary and secondary archival data on Navy use of technology as well as instructions governing use of information communication technology, which is summarized in Table 2. For example, we collected Navy-wide memos and instructions about the Internet, command and family newsletters and guidelines, educational manuals for Navy ombudsmen (Navy spouses who act as liaisons between the Navy and family members), and websites and educational material used to prepare Navy spouses for deployment. Although Naval guidelines mention the Internet in 1995, we do not see any explicit evidence of boundary control in the archival data until 2000. And it is not until 2005 that formal memorandums from Naval Command reference sailors being “able to stay in contact electronically” with family and friends (Navy Family Ombudsman Program Manual, 2007: OPNAVINST 1750.1E, 2005). In 2010, the first social media handbook for commanding officers and ombudsmen was released and the Navy Operations Security Facebook page went live. This archival material allowed for an in-depth understanding of Navy reactions to individual uses of technology as well as how the Navy exerts control over the work/non-work boundary.

Data Analysis

A grounded theory-building approach was used to analyze the interview and archival data using multiple iterations of coding (Strauss & Corbin, 1998). All interviews were taped, then transcribed and imported into NVivo qualitative analysis software for four rounds of coding conducted by both authors. We focused our analysis on the information communication technologies most prevalent in our archival data and interviews: email, social media, and other Internet portals (note that social media, video calling, and computer-to-phone texting, were discussed by interviewees in the last two rounds). Throughout the remainder of the paper when we refer to technology we are referring to this specific subset of information communication

technologies. The first two rounds focused on open coding with no preconceived frameworks or concepts in mind (Strauss & Corbin, 1998). The third round involved reviewing nodes generated in the first two rounds of coding and creating and grouping them into constructs through selective coding. For example, the open code ‘looking for rule breaking’ was used in the first order construct of ‘watching for abuse’. Through axial coding in the fourth round, we created second order constructs and aggregate dimensions by examining the relationships between the constructs (Strauss & Corbin, 1998). In this round, for example, we grouped first order constructs ‘watching for abuse’ and ‘scanning the environment’ under a second order construct called ‘monitoring’. The third and fourth rounds of coding were conducted during a series of day-long meetings to ensure agreement. During these steps, the data, constructs, and dimensions were continually re-examined (see Appendix B for the data coding structure).

To establish discriminant validity, we used clear rules to determine the relevant construct. For example, with problems of attention, evidence of ‘attending to non-work’ included reference to time spent on non-work *activities* during work time (e.g. overuse of Facebook); ‘distracted by non-work communication’ required references to non-work *interruptions*; and ‘forgetting about work rules and norms’ required quotes around *security* problems: sharing sensitive organizational information (often unintentionally) or accidentally breaching network security. From this data structure we built our model, which is comprised of three aggregate dimensions (summarized in Figure 1). In the data tables (see also Appendix B) we represent the eight second-order constructs clustered into three organizational moves that comprise the aggregate dimension of situational controls (Table 3); and we highlight three categories of individual response that are comprised of eight second-order constructs within the aggregate dimension of individual responses (Table 4). In the text we discuss the first dimension of the model, describing

how individual attention is diverted from work, as well as the arrows that link how situational controls work to evoke different individual responses.

Insert Figure 1 about here

FINDINGS

Problems of Attention

Our first dimension in Figure 1 captures the problems of individuals engaging with information communication technologies during work time. Broadly speaking, attention being diverted causes two organizational problems: productivity problems and security problems (both operational and network security). As noted above, the cognitive attention dimensions from the literature (selection, vigilance, and regulation; Ocasio, 2011) highlight these productivity and security problems.

Problems of selective attention highlight the productivity problems that arise when individuals are engaged in non-work tasks (during work time). Sailors described a near constant temptation to spend their time on non-work interactions and activities: “All you want to do is talk to your family. You don’t want to get any work done.” This created productivity problems, as described by Mike, an enlisted medical supervisor:

You see a line of patients sitting down, and you go to a patient treatment room and seeing the person [sailor] sitting there on E-mail. That’s a problem... “Listen, you need to get up and get on these patients... I understand. You’re trying to talk to your wife. I’ve got the same things going on. But our job here is patient care; we need to do that first.”

Problems of attentional vigilance also contribute to productivity problems when individuals are distracted from work by information communication technologies (e.g. non-work emails arriving during work hours). A common behavior was to have email open at all times and

then to interrupt work when a personal email arrived: “I’m O.K., who emailed me. I’ll check it. If I check it and then something sometimes I might lose track of what I’m doing and read that.” Interruptions easily and frequently diverted attention and reduced individual productivity.

Problems of regulative attention suggest individuals have difficulty processing stimuli “quasi-simultaneously” (Ocasio & Wohlgezogen, 2010: 193) which creates security problems for the organization. For example, sensitive information was accidentally shared by individuals communicating with friends off the ship. These were problems “just in the moment” as another supervisor suggested: “...they’ll send it off and not think twice about it. But they really have to think twice ...those are operational and security issues that we have to be careful of.” Jim, an information assurance manager, described a familiar situation for many sailors: “And so you open it up [link in email] and it’s actual malware that infects your system. And, creates a backdoor into your system, and so your adversary now has a backdoor into whatever network it is that you’re on now. And you know, that happens daily.” Thus individuals engaged in behaviors, often inadvertently, that suddenly create security problems for the organization because the individual hasn’t realized how his or her behavior causes problems for the organization.

Productivity and security problems were of general concern: supervisors acknowledged that people were not working on the necessary tasks, were easily distracted by non-work activities, and failed to follow organizational rules and norms when they were engaged in non-work communications. Mitch, a communications officer with 18 years experience noted that being distracted was “the biggest issue” and “you literally will see people sometimes with 15 hours out of the day on Facebook... really, some kids will forget they have a job”. The distraction is two-fold: “both distraction in terms of taking away from work and distraction on bringing

family problems to work.” These productivity and security problems highlighted how the organization needs to control individual attention: what task is being completed, with what level of focus, and how well the organization is kept in mind when individuals are engaged in non-work interactions.

Organizational Moves: Situational Controls

The second dimension in Figure 2 describes the situational controls that the organization used to help address these problems. We find a “layered” approach where the Navy used situational controls (specific to a decision making moment) intensively to build on more global (general, non-situation specific) foundational control practices. For example, the general rules about using technology are clearly stated upon hire (e.g. the user agreement) in a global approach, but supervisors and IT specialists build on that with extensive, in the moment situational controls (e.g. an email reminder to an individual that the website they are trying to access is off limits). These situational control efforts work to capture attention in the moment. Steve, an information professional officer, succinctly described this approach:

I think it’s somewhat of a layered approach...it depends on what’s going on at any particular time. You’re always going to have the training piece. You have to have that...And then you have just regular management type control measures where ‘hey I’m walking around and now I see everybody on Facebook.’ So you put some restrictions in place... I’d say ‘hey, I don’t want anyone surfing except for 1100 to 1200 during lunch’... Then at the unit level if there is something operationally significant going on you... need people intensely focused then you put some technical controls in place...cutting it off, restricting it to time periods or to certain users... In cases where you can’t risk them not listening to you, then use some technical measures where even if they wanted to they couldn’t.

While it is clear that more global approaches where general rules and norms are instilled were still a critical foundation of organizational control, situational control was essential to reach the individual in the moment in which they were making the decision. To make an impact in a given

moment, situational controls were applied *to* different levels of the Navy, from broad swaths of Navy personnel (sometimes the entire Navy) to a focused unit, workgroup, or individual. Controls were also exerted *by* a range of organizational personnel, from workgroup supervisors, ship-level IT specialists and commanders, units focused on supporting and supervising all of the ships in a particular region, and centralized divisions focused on monitoring systems for the entire Navy. Furthermore, these controls can happen directly through an individual, be mediated through technology, or be automated. We outline these situational controls (detailed in Table 3) and we then describe how the Navy used these controls in tandem to shape attention and direct individual behavior.

Insert Table 3 about here

Situational Control: Monitoring

Monitoring has a long history in the Navy and in scholarly discussions of information technology (Sewell, 1998) and we detail the myriad ways that monitoring occurred across levels of the organization. The Navy used two key forms of monitoring, including *watching for abuse*, such as overuse, and *scanning the environment* to keep tabs on threats and trends. Monitoring is an important situational control that tracks attention by providing the Navy with information about what individuals are paying attention to (or not paying attention to) in a given moment and can occur by supervisors both physically and/or electronically watching individuals. By attending to the website individuals are looking at on a screen, IT professionals can infer what individuals are paying attention to at any given moment in time. Navy supervisors used monitoring to assess the extent of productivity and security problems. Thus, monitoring is

essential for tracking attention and triggering use of other controls, but it does not necessarily change individual attention and behavior on its own.

Watching for abuse. At the most direct level, supervisors watched for overuse of information communication technology by visually observing the work space, “just like any other business, if the workers are constantly on Facebook or constantly doing personal email.” This type of monitoring helps address problems of attention by watching for overuse; it is not *any* Facebook use that is problematic but a subjective sense of what is “too much”. Monitoring also occurred through information professionals who “rely heavily” on using automated technological tools that scan for key words. The number of hours someone is on Facebook, or any other website, is available to information professionals, thus they can electronically track behaviors that might indicate lack of focus on work tasks (and raise productivity concerns) or behaviors that may indicate network or operational security concerns. For example, Andy, a 37 year old operations officer recounted: “...an email flagged under one of our generic searches [automated] ...was alarming because it had a lot of OPSEC [operational security] violations and we took that to the XO [second in command].” Importantly, this electronic scanning allows supervisors to notice problems “within minutes, if not seconds” and to track individual overuse as well as look for rule breaking (e.g., accessing website content that is prohibited, like pornography, or sharing confidential information with outsiders). In addition, peers are an important enforcer of correct behavior (Barker, 1993) and regularly brought violations of operational security forward: “an honest sailor will come up and say, ‘hey, this is what’s going on’ or ‘this is what I suspect...’ It actually works fairly well.” Thus people at multiple levels (peers, work group supervisors, IT professionals onboard a ship, network operations center workers) watched for abuse and monitored individuals, particular words, websites, use of

particular file types or devices, and watched for particular rule violations – to detect productivity and security problems.

Scanning the environment is used to keep tabs on external threats and to look for broader trends and patterns in technology use that would indicate a problem, a service also provided in the corporate world (Sophos, 2009). Information professionals had “audit logs” to identify new proxy servers that sailors were using to get around network security measures, or to find new undesired websites based on the sudden spikes in traffic: “you can always tell the hot sites because it would spread like wildfire.” At the network operations level, “weekly they come up with new lists [of websites], or additions to the list” because Navy personnel watched massive numbers of transactions to spot problematic threats as they emerged: “we’ll catch up pretty quick and it’ll be either a site that is blocked if it is not positive or could cause problems. Or it’s allowed and then you can authorize it”. These outward-focused searches gauge the extent and the ways in which people are focusing on non-work websites, often pornographic websites or social media sites, and provide an overview of activity. These monitoring efforts exemplify the layering and reinforcing that occurs between situational and global forms of control. By assessing usage and updating global rules, policies and systems frequently, situational monitoring builds on as well as strengthens global technical, normative, and bureaucratic control efforts.

The pervasiveness of monitoring efforts described by our interviewees is consistent with the use described in other organizations (AMA, 2007; Siau, Nah & Teng, 1998; Villano, 2007), but here we see more than popular conceptualizations of monitoring (e.g. Bentham’s Panopticon) because actual use, patterns of use, and attempts to anticipate use were all occurring. In addition, unlike a global control mechanism, which would be applicable in any situation (e.g., you can never access Facebook), monitoring allows for impromptu and in the moment solutions

depending on whether the supervisor observed employee productivity or security problems at that moment. Furthermore, identifying the new popular websites allowed the Navy to monitor specific interactions where the simultaneous inhabiting of the work and non-work world may trigger individuals to forget about work norms and rules. This knowledge is critical for knowing when and how to utilize the contextualization or deflection controls described below.

Situational Control: Contextualization

The Navy used a second core situational control which involved contextualizing technology use. Contextualization allowed information professionals and supervisors at all levels to reach individuals in the moment and in specific situations in order to reduce problems of individuals forgetting about work rules and norms. Contextualization includes *encouraging positive narratives* that work to shape communication, *providing information* that details the rules and norms, and *delivering reminders and warnings* to help generate awareness and drive individuals' attention (see Table 3). Contextualization efforts help address the decoupling that can occur between the context in which the individual is physically in (the work environment) and the context in which the individual becomes engaged in via the computer (Dourish, 2004), by bringing the organizational context to the forefront. When effective, contextualizing control practices help by cultivating attention so individuals can engage in non-work activities without forgetting or dismissing the organization and its associated norms and rules. This reduces the possibility of operational and network security problems.

Encouraging Positive Narratives. Navy supervisors, commanders, ship-level public affairs officers and Navy-wide personnel worked extensively to shape online conversations in a positive way that encouraged individuals to focus on positive and productive aspects of Navy life and protect sensitive information. They did this in part by using social media (and before that

websites, email, and newsletters) to generate information and stories that they share with spouses and family members to reduce the demand on sailors to communicate home on a daily basis. Sanctioned messages and official posts provided “a safe way of doing things” and reduced the need for sailors to think about how to share (and what is appropriate to share) organizational activities. These messages included a multitude of daily posts on the Navy twitter account, frequent postings on the ship’s website, and often daily posts on ship-specific and operational security focused Facebook pages. These social media portals reached a wide audience (the Navy twitter account alone has almost 150 thousand followers²), and the Emerging Media Team is “working towards establishing successful Navy presence in discussions throughout social networks.” (Navy Social Media Slideshare, 2011). In other words, sailors had less need to share information about work because family and friends were able to follow sanctioned posts. These posts had an additional benefit of improving morale on the ship, as Morgan, a commander, described:

... so we would post pictures or shout-outs [on Facebook] to some of the cabin crew for the good things they’re doing. You’d have people commenting on their wall, whether it’s family – “good job” or they’d like it. You can tell that they feel – they were walking a little taller, feeling a little prouder, because they were the special person that day. It’s somewhat selfish on my part, because I want them to be a more effective worker.

Providing Information involved clarifying, advising, and providing explanations of the rules, regulations and norms repeatedly, in order to reduce problems of forgetting these guidelines. Chip, a communications officer, described his tactics:

One thing I say to a lot of people. With what they post on social media and stuff like that, would you want your mother to know it? ...If it’s yes, then it’s probably safe to post. Or no, then you probably should not comment on it, or say what you’re going to say, or rephrase it.

² <https://twitter.com/USNavy> (6/14/2013)

Importantly, this advice requires an individual to consider whether the message is appropriate each and every time an email or message is sent and to remember the organizational context when engaged in non-work interactions. These reminders help individuals remember appropriate behavior as the situation changes and near the moment when they are likely to engage with others.

In addition, posts and discussions on the Navy's OPSEC Facebook page created a space to respond to individuals' questions and comments as well as provide the latest statistics on Naval social media use, advice, and tips on how to use social media in an operational security supportive manner. The fact that sailors still had questions and issues even after training suggests that while annual training is a building block of normative control, situational controls layered upon global efforts is required to keep the quasi-simultaneous engagement with work and non-work from causing problems, especially as new websites and functionalities continue to emerge and create new paths to connect with non-work others outside the organization.

Delivering Reminders and Warnings included extensive reminders to sailors of the rules that they need to follow about what to share, warnings of punishment that will occur if rules are not followed, and reminders to focus on work. These reminders came from commanders, direct supervisors, information professionals and Navy-wide personnel focused on providing a social media presence. These efforts helped sailors keep the organization in mind in the exact moment where and when sailors were using technology. While on computers, sailors spoke of seeing "screen banter," "banners," and "constant reminders" of acceptable use policies for e-mail and the Internet which were pushed out by ship level information professionals and by automated electronic tools. These automated tools pop-up warnings reduced potential network and operational security concerns: "the warning that this [is a] potential dangerous site because of the

keywords that are listed or a past history... a lot of that has immediate response mechanism directly to the user.” Supervisors also reminded sailors “every day. Every single day.”

Furthermore, Navy rules required information professionals to place visible reminders where problems are likely to occur. Preeta, an operations officer, noted that:

Navy policy is if you have a secure space or you’re working within a secure space...there is a policy out there that states that a certain number, and it sounds ridiculous but it actually works, a certain number of posters, OPSEC [operational security] related posters, has to cover a certain square footage of your wall...And so there’s just a constant reminder to everybody.

Reminders also included the message that individuals need to get back to work. As Chip described, “...there’s always people there in the background using the messenger feature, having conversations with their wives 24/7. And I’m like ‘Hey man, you’re on my clock.’” The Navy layered these reminders on top of existing global bureaucratic control (in the form of extensive rules regarding sensitive information and work responsibilities) to focus the sailor’s attention on these rules in the moment. As a whole, the Navy harnessed contextualizing controls to prevent problems by encouraging sailors to focus on work and to keep organizational requirements and considerations constantly in mind so as to not unwittingly make a mistake that creates operational or network security problems while engaging in non-work interactions.

Situational Controls: Deflection

The Navy used a third type of situational control, deflection, to restrict individual attention. The three types of deflection used were: *withholding access* from an entire ship, workgroup, or individual, *limiting access* to key pieces of technology (e.g. websites, software, etc.), and *redirecting*. When monitoring revealed problems with productivity or security, Navy officials used deflection to restrict attention by simply eliminating the ability to use the internet for non-work activities. In using deflection, the organization attempted to re-direct individuals to

focus on work and eliminate the possibility for breaches of security. Deflection is also used by commanders, information professionals and network operations in situations that call for additional measures of control when monitoring would come too late and contextualization may not be sufficient. Steve related: “If there is something operationally significant you’re just going to be more extra careful. You can’t afford to totally rely on people doing the right thing.” Unlike global controls more typical of a total institution (Goffman, 1961; Zurcher, 1965), where a ship might completely restrict outside access for an entire deployment, deflection efforts are generally temporary and can change from minute to minute. In the moment of these deflection efforts, the organization attempted to encourage productivity and also dramatically reduced the opportunities to create security problems by forgetting organizational rules and norms.

Withholding Access. The most common deflection practice, sanctioned by the Department of Defense, was to instigate email and internet blackouts (DTM, 2-22-11). These were frequent, unpredictable (both when they will happen and how long they will last), short-lived (from an hour to several weeks) and happened at the request of a commanding officer or lower-level supervisor at a moment’s notice (“people get their accounts locked out all the time”).

Commanders had a great deal of flexibility in when and how they shut off access. Sometimes deflection was done to ensure sailors were not overly focused on the computer: they “secured the internet completely two hours a day. But, the only reason they did it; they wanted to make sure that everybody on the ship cleaned it. It’s a clean station. So, it’s like a field day; they have to clean the entire ship, so they secure the internet.” Without such deflection, more communications and time spent on email could lead to email overload and lower productivity (Bellotti, Duchonaut, Howard, Smith, & Grinter, 2005; Dabbish and Kraut, 2006). When deemed necessary, supervisors were able to shut off access for an individual, subgroup, or the entire ship:

“You can shut it off completely...you can do it based on user groups. However you want to slice it.” Thus the decision to withhold access was not only about *when* to restrict access but also about *who* should be deflected, and this decision was situation-specific.

Limiting Access restricted access to particular websites and software and to computers in specific locations. This was done at the work-group, ship or system level. Officials often limited access for individuals who were spending too much time on non-work activities and thus had productivity problems: “Because maybe he’s [commander of ship] just saying, ‘people are...this is crazy. It’s rampant. I need people to focus.’ He can restrict that ... have the system administrators black list that [Facebook].”

There were also limitations about which computers could be used to access the outside world. Many enlisted sailors had limited access in the library during off-time (e.g., 30 minutes at a time) with others standing in line behind them. These efforts were primarily targeted at enlisted sailors: 73% of officers have Internet access in their own workstation or stateroom whereas 66% of enlisted sailors access the internet through a shared space (Navy Quick Poll, 2005). Navy officials used computer limitations to restrict the amount of time sailors can be on computers, which helps by reducing the productivity losses associated with both the interruption and the time required to re-engage after an interruption (Mark, Gonzalez & Harris, 2005). Cory, a commander, described how limitations “help them get recaged [because] they were limited in time... you could login for 30 minutes; check your email, and then, you had to get off. Somebody else’s time was coming up, somebody was in line waiting.”

Redirecting. The final type of deflection the Navy used involved redirecting behavior to be compliant and removing unwanted electronic trails. Conversations or comments on Twitter, Facebook, or different websites that violated rules can be removed (Navy Command Social

Media Handbook, 2010: p. 5). Additionally, when possible, information professionals tried to redirect individuals from non-work websites where sailors were spending too much time to sites that were less likely to trigger problems: “sometimes we’d redirect, if they were to go to one place, we’d redirect them to another.” In so doing, supervisors shaped what individuals were able to pay attention to by shaping what they can access.

Navy officials used these three categories of situational controls – monitoring, contextualization, and deflection -- to shape individual attention and behavior in the moment, with the amount and type of oversight matched to the needs of the situation. Monitoring allowed the Navy to track problems with attention by following individual use and trends. Deflection was used to restrict attention by eliminating the possibility for certain types of behaviors. Contextualization was used primarily to cultivate attention by shaping the extent to which individuals engage in and keep the organization in mind as they engage in their non-work activities. In addition, it provided explanations and a rationale for tracking and restricting attention. The Navy layered these controls upon each other, and upon global control efforts.

Insert Table 4 about here

Situational Controls in Tandem and Individual Responses

We next examined how the Navy used monitoring, contextualization, and deflection in combination and the particular individual responses evoked from these controls. The combination of and manner in which situational controls were applied by the Navy are highlighted by the arrows in Figure 1. We first outline the ‘artful use’ of situational controls, where the Navy demonstrated an *expanding* use of tracking through monitoring, *evolving* efforts to cultivate attention through contextualization and

intermittent restricting of attention through deflection. When the Navy used situational controls in this fashion, the organization was able to cultivate, track, and restrict attention and obtain individual cooperation. Second, we describe the ‘underuse’ of situational controls when the Navy engaged in *limited* deflection, monitoring and contextualization efforts. In these instances, individuals dismissed and worked around organizational controls or became desensitized to control efforts. Finally we highlight ‘overuse’ of situational controls where *extensive* deflection and monitoring, combined with *limited* contextualization, resulted in individuals who felt powerless and disconnected from the outside world. With overuse, the Navy was able to control what sailors paid attention to, but this control came at significant cost.

Artful Use of Situational Controls

We saw ‘artful use’ of situational controls when the Navy used situational controls in specific ways: contextualization efforts were continually evolving, monitoring was constantly expanding, and efforts to deflect were intermittent. This combination of situational controls triggered several forms of individual cooperation: simultaneity, rule accommodation and re-focusing (see Table 4 for additional examples).

Andy, an officer with 12 years of service, described in great detail the ‘artful use’ of situational controls as seen in Figure 1. He noted the challenges associated with persuading individuals to be attentive about their internet use: “Access to the internet is imbued in your life ... When you are at home, and you are talking about family matters, you are used to telling everybody... you’re putting it out there on the internet. When you’re on the ship, the line is blurred... it’s a familiarity that’s a culprit.” Andy solved these attention problems by using extensive explanations to raise awareness and shape

sailors' internet use. Andy shared multiple examples of how he reached his sailors:

“When I sat down I said, ‘let me explain this to you. Most malicious software, most free adult material sites out there exist for the purpose of somehow getting malicious material onto your computer. Nobody provides that for free, there’s a reason behind that.’ And then there’s the ah-ha moment and then we just kept going from there.” The goal was to reach individuals in a given moment so they will think about what they are doing on the internet. As Jim suggested, for supervisors to achieve this constant awareness it required an evolving use of contextualization: “you can’t get boring...you have to be a little bit creative in the way that you get out there and you do things.” These evolving organizational efforts encouraged individuals to communicate with *simultaneity*, where individuals were simultaneously attentive to organizational needs while communicating with family and friends. By cultivating attention, and thereby shaping how individuals communicated with home, Navy officials diminished chances that non-work interactions would cause organizational problems or result in security leaks. For example, Allison stated that “with email you always write as if someone else could read it.”

‘Artful use’ of situational controls involved being proactive in cultivating attention.

Besides changing messages frequently to maintain awareness, Andy described how they would push out information to friends and family in order to reduce the potential for problems. He detailed:

If your motivation [is] to post pictures or get pictures of this ship, send it off the ship and potentially violate classification requirements... so your grandma could see yeah, this is me...If that motivation goes away because a PAO [public affairs officer] already beat you to the punch by posting tons of pictures of everyday life at sea and ...you’re in a couple of them, you know, you’re helping eliminate the problem...you can just ‘Like’ [on Facebook]...And that path is a great victory and combating the problem of OPSEC violations because it’s controlled.

Somebody who is clearly aware of what the threats are is addressing them properly.

In addition to evolving and proactive contextualization efforts, ‘artful use’ also required ever expanding efforts to monitor in order to effectively track attention. Andy engaged in extensive monitoring: “when I was the information assurance manager, I had a responsibility to make sure that I was looking at traffic to recognize and identify threats to the network.” But the continual onslaught of new websites and functionalities that threatened attention required the Navy to constantly expand its efforts to monitor. As 27 year veteran Cory said, “we have to continually monitor... making sure stuff is up to date.” As another information professional put it, “we’re all sort of chasing the technology curve.” Importantly, Andy explained that it was critical to use contextualization in conjunction with monitoring and deflection efforts:

I think it’s very important that we be very transparent with what we’re monitoring. Because it establishes in the mind of those that, if you have never been monitored... Now, if I weren’t going to ever say, you’re being monitored, you come on board... you’re looking at stuff that you’re not supposed to be looking at, when I come down to smack you about the head, neck and shoulders and say “Why are you doing this? You’re threatening the safety of our ship and it’s security.” ... the person is going to be like, “why are you getting on me? I’m just doing what I normally do.”

Cultivating attention provided individuals an understanding for the rationale behind the limitations and helped them to make sense of the tracking and restricting of attention that they experienced. This combination of expanding monitoring, intermittent deflection, and evolving contextualization encouraged sailors to *refocus* on work. As Chip noted, “they’ll [sailors] bitch. Ha, they complain, but you know, they get back on track, and then you know, a couple days later they’re fine.” Contextualization worked alongside deflection and monitoring to raise awareness of the rules in practice and re-committed sailors to following them. Sailors engaged in *rule accommodation* when they understood and

followed the rules. Yet sailors often followed the rule only after breaking a rule or being diverted. Jim described a common reaction: “Hey, I went to this website, it was blocked, I didn’t mean to go to it, I don’t want to get in trouble.”

Andy further explained that given the potential detrimental effects of shutting down Internet functionalities, deflection needed to be intermittent: “we were very sensitive to that [turning it off] because we realized that impacting access to social media impacted the morale of the crew and staff.” The Navy used deflection to restrict attention by partially or completely limiting internet use but, as Preeta noted, to protect morale, deflection needed to be used intermittently: “it’s really that balance between letting your sailors have all those benefits that we previously talked about but the potential compromise, compromises, that could be made by giving them that privilege.” Indeed, almost every sailor expressed the great benefit of outside access. As Shelly summarized, “when you have frequent access to the internet and to email, you tend to be less stressed; because you are able to have some sort of connection to the outside world.”

When the Navy used situational controls artfully, efforts to monitor were constantly expanding, contextualization efforts were evolving and proactive, and deflection was used only intermittently. We found that with ‘artful use’ situational controls seamlessly worked together, were engaged in across levels of the organization, and did not require a single enforcer or a rigid plan of action. As Larry, a communications officer noted, “If you’re doing all the right things, like providing training and talking to people about their home lives and reminding them about things that they shouldn’t be putting in emails or telling people and stuff like that, then usually

things work out well.” Chip suggested “just kind of a constant stream approach seemed to work best.”

Underuse of Situational Controls

Navy officials and supervisors did not always use situational controls artfully. When situational controls were underused, there was limited monitoring, contextualization, and deflection. In these instances where attention was not tracked or captured, sailors rejected control through *work-arounds* or *dismissal*. When attention was not cultivated, sailors became *desensitized* (see Table 4 for examples).

Steve, with 20 years of officer experience, described the problems he faced with his employees when deflection was limited. He lamented that reading of emails from home was “a huge distractor” that breaks sailors’ concentration because “now they’re thinking about that [instead of work].” As a result of limited deflection, sailors also recounted numerous *work-arounds* where they could visit the websites of their choosing. Chip recalled, “sailors would also find a way to bypass stuff, which we quickly learned. They couldn’t go to Facebook.com, but they could go to Facebook.uk, Facebook whatever, every single country has a variant.” Sailors engaged in a ‘cat-and-mouse’ game where they were constantly on the hunt for new websites that allowed them to communicate home, all the while knowing that the information professionals and supervisors were on their heels. Paul remembered, “you couldn’t log in to Gmail.com, but you logged into iGoogle.com. And that was your little Gmail, like your news articles and your weather. And, oh by the way, here’s Gmail, in a little corner. And the Navy didn’t know about that. So suddenly, I, oh wow, ok, I’m on Gmail.”

In addition, and especially when deflection was limited, Navy members sometimes struggled to sufficiently monitor behavior. As Cory described: “We don’t have the time of day to

go through hundreds of different sites, checking them to make sure that they're acting appropriately or doing the right thing when it comes to electronic media as well." When sailors did not believe they would be tracked, there was an active *dismissal* of the rules. Paul stated, "I'll just be careful; if it's not enforced, just keep doing what you're doing."

Finally, underuse of situational controls included limited or static contextualization efforts. Steve knew that sailors were regularly told the rules: "You have a banner that comes up [every time the sailor logs in to the computer] and you have to ok it before you log in...it's that active acknowledgment that it is a government system or workplace system. So once you click it, you've agreed to it." However, no matter how frequently efforts to contextualize occurred, these efforts were less effective when the message was static and not frequently changed. As Jim understood "unless you change it out frequently, like at least once a quarter, then it becomes, oh, well I've seen that [pop-up logon warning] before." Individuals become *desensitized*. As Andy noted, "Even if you put a sticker in front of the computer that said, 'Don't forget, you're on a military computer!' You become desensitized to its presence."

Overuse of Situational Controls

At the other end of the spectrum, overuse of situational controls resulted from extensive monitoring and deflection but limited contextualization. With overuse, the organization achieved forced compliance but individuals felt *powerless* and *disconnected* (see Table 4 for examples).

The lack of contextualization was a salient component of overuse of controls. As described by Andy, morale and trust problems were created by monitoring sailors without explaining and cultivating attention:

[if you haven't told them you are monitoring] you immediately establish in their heads that you are tracking them in a shady way. Because if it wasn't shady, why

wouldn't you have told them to begin with. So now you've established distrust. And that causes significant damage... it spreads like wildfire and it gets out of control. It may have been something as simple as "Oh, you weren't aware that I read your emails?" Now, it's like "did you know they have cameras in the head in the bathroom, and they are listening? The microphones are listening to what we say in the chow hall." And that can destroy a ship's morale very quickly.

When extensive tracking was employed, but efforts to cultivate attention and build understanding of the organization's intent were limited, individuals began to feel that "big brother is watching over their shoulder." Charlie verbalized this feeling, "if you don't trust me to control what I send out via E-mail, then why would you trust me to do the watches that I'm allowed to stand?"

Although the organization had the ability to completely shut down access to information communication technology (i.e., no internet and email access), when the internet was permanently shut down or shut down for long periods of time, individuals responded with strong feelings of disconnection. Mike described: "I feel like that part of my life gets cut off [without email access]. I really do and it's frustrating." Shelly concurred that "when it's restricted;...it kind of makes you feel more claustrophobic." Valerie felt helpless: "...it [lack of internet] really hurt where I felt helpless that I couldn't do anything to help him." These feelings of being *disconnected* and *powerless*, which were often associated with low morale, were a reason why the organization worked to avoid overuse of situational controls.

In fact, the organization received many positive benefits by having internet access at work. It was not feasible or desirable to permanently restrict attention by shutting down all access. Communications with family and friends improved workplace morale and the lives of both sailors and their spouses. This in fact was one of the most common responses we heard in our interviews – of the incredible benefits afforded by frequent communication home. Officers supported these communications and recognized the benefits: "it keeps sailors happy as they

are plugged in with what is going on and don't miss home as much so they are more productive," and an enlisted sailor concurred, "It allowed me to be able to do my job and at the same time be a dad." Even spouses could assist, in the moment, to influence the sailors in positive ways: "I'm trying as a Navy wife to make sure that my husband is spending his time on that [job]." Research on interruptions has focused on the negative aspects (Jett & George, 2003), but positive interruptions occur as well (Wacjman & Rose, 2011). The individuals we interviewed highlighted the many advantages of positive interruptions. Both officers and sailors clearly believed that eliminating them completely would not be in the organization's best interest.

Summary Model of Attention and Control

Our data suggested that current conceptualizations of boundary control largely miss the ongoing moment-to-moment struggle to shape attention, and we developed a process model that captures the ongoing combination of organizational controls that work together to shape individual attention and behavior. Our data revealed that situational controls are layered upon each other and upon global controls, and situational controls work together -- all in service of capturing individual attention and directing behavior. Importantly, however, cooperation only happened in a particular moment, as seen in the arrows that connect individual responses with new problems of attention. These arrows reflect that at the end of this cycle, after the individual has responded, new threats to attention emerged. Taken as a whole, Figure 1 suggests that this continuous cycle of cultivating, tracking and restricting attention has important implications for organizational control; namely that control of the work/non-work boundary must necessarily be dynamic, constantly shifting, evolving, and it can only be measured as effective at a moment in time. Specifically, boundary control requires ever-expanding efforts to track attention, evolving

and proactive efforts to cultivate attention, and intermittent restricting of attention, but even this ‘artful use’ of situational controls works only in a particular instance before new threats to attention emerge.

DISCUSSION

We make three key contributions to the literature on boundary control. First, we highlight the limitations of current understandings of boundary control that focus on where individuals spend their time and instead underscore the organizational problems of controlling where and how individuals focus their attention. We find that even in a workplace with strong global controls and a constrained physical location, the organization faces continual challenges in capturing employees’ attention and we offer a new definition of boundary control that reflects this shift to center on attention. Second, we develop and extend the concept of situational controls that work to mitigate these problems of attention and the productivity and security problems that attend them. Situational controls have largely been ignored in the organizational literature, yet they shape not only *what* individuals do, but they shape *when* and *how* individuals work and move between interactions and tasks. Finally, we develop a process model that demonstrates how situational controls work in tandem to elicit different individual responses in an ongoing battle to capture and shape individual attention. Specifically, we find that ‘artful use’ of situational controls across the work/non-work boundary involves continuously expanding efforts to track attention online, constantly evolving and proactive methods to focus individual attention on organizational priorities, and intermittently deflecting access to technology in order to restrict attention. We expand on and discuss the implications of each of these contributions below and end with a discussion of promising paths for future research.

Introducing a New Definition of Boundary Control

In introducing the problems of attention, our findings suggest that effective control of the work/non-work boundary requires more nuance than simply controlling when people come to work. Perlow (1998) describes boundary control around the management of employee time; however, boundary control must focus on shaping individual attention throughout the course of a given work day regardless of location. As Davenport and Beck (2001) forcefully articulate: “Attention management is not time management” (p. 27). Organizations seek to control what individuals are doing, how focused they are on a task, and how frequently or efficiently they switch between tasks. We therefore propose that boundary control be defined as “the various ways managers at multiple levels of the organization work to capture and shape employee *attention* during the daily flow of work/non-work interactions”. A new definition of boundary control that reflects the importance of attention will aid future theory development on this important topic and may have implications for the scope, boundary conditions, and other elements of boundary control theory. For example, in terms of scope, the shift to attention may suggest that it is increasingly important to include and build theory around non-work others as key players in the effort to shape attention.

Developing the Concept of Situational Controls

Although global control efforts are a significant component of organizational control attempts (Edwards, 1979; Ely & Meyerson, 2010), we find situational controls are an additional layer of control that work to shape individual attention and behavior at a particular moment in time. The concept of *situational controls* was theoretically introduced by Ocasio and Wohlgezogen (2010), and we identify three critical situational controls that facilitate control of the work/non-work boundary: monitoring, contextualization, and deflection. The organization monitors online interactions in order to track attention, contextualizes technology use in order to

cultivate attention, and deflects individuals from non-work activities for hours or days at a time in an effort to restrict attention. By developing and labeling the concept of situational controls, we highlight the impromptu, contextual and constant nature of boundary control efforts. Perlow (1998), for example, finds evidence of situational controls (e.g. calling an early morning meeting) but does not distinguish these from global control efforts in the organization. By not identifying and developing situational controls as such we risk situational controls drifting into the background, when instead they should be at the foreground of our focus.

Furthermore, situational controls offer an important organizational counterpoint to recent research on individual boundary work. The organization needs to use situational controls to ensure organizational boundary control when individual boundary work is also changing in the moment. For example, Kreiner and colleagues (Kreiner, et al., 2009: p. 716) found that individuals engage in a multitude of boundary work tactics that can shift based on the situation (“sporadic plans” and “invoking triage” as individuals deal with issues as they occur). In addition, Trefalt (2012) finds that individual boundary work shifts depending on the relationship in which the boundary work is occurring. This suggests that situational controls are needed as reactions to or as proactive attempts to shape individual boundary work efforts.

Developing a Process Model of Boundary Control

Finally, we create a process model that demonstrates how organizational use of situational controls evokes different individual responses. We see individuals cooperate and behave in organizationally sanctioned ways most often with the ‘artful use’ of situational controls: extensive and expanding monitoring of work/non-work interactions to track attention, proactive and constantly evolving uses of contextualization to cultivate attention, and intermittent use of deflection so that attention is restricted. Situational controls are used together

(e.g., monitoring can point to where deflection efforts are needed) and are deployed across levels (i.e., organization, unit and work-group) in order to shape individual attention in the moment.

The challenge then, for those leading organizations, is to use situational controls extensively but also dynamically and transparently so that control of the work/non-work boundary is ‘artful’. What distinguishes ‘artful use’ of situational controls in a technology-enabled world are not the “superstructures” of surveillance (Sewell, 1998: 403) that allow institutions to track attention and monitor behavior, which have been the topic of most discussion. Instead, effective boundary control relies on contextualization and deflection efforts that must work with extensive monitoring in order to cultivate and restrict attention. In fact, without evolving contextualization efforts and intermittent deflection efforts, the same monitoring efforts can lead to feelings of disconnection and powerlessness. This suggests that situational controls need to be considered together rather than in isolation. Furthermore, our model shows that because the opportunities for connecting across the work/non-work boundary are continually changing and attention is constantly shifting there is a constant need to sustain on-going attention. Thus, there is no resting point where the organization can assume control is complete but rather it is a continuous dance with a series of moments where attention may be captured and the organization seeks to find that ‘just right’ balance, like Goldilocks in the childhood story. In this way we contribute to the literature on organizational control as dynamic and evolving (Cardinal, Sitkin & Long, 2004).

Future Research

The benefit of an extreme case is the clarity of the organizational control efforts, but future research should examine other settings. In addition to sharing the Navy’s concern about productivity, many organizations have significant security concerns over boundary management.

In fact, almost two-thirds of businesses fear that social networking will endanger corporate security (Sophos, 2009). The organizational benefits to having a quickly adjustable means of reminding employees of their role in the organization, of the lack of privacy on the Internet, and of the potentially significant consequences of certain types or times of communicating may be substantial. The potential locations for additional research on this topic are vast as many organizations seek to exert boundary control, but it may be particularly interesting to study an organization that has less control over physical space.

In our study, we see limitations to boundary control in a setting where organizational tracking is expected, socialization efforts comprehensive, and physical location is restricted to a ship. Even here, the organization does not completely restrict attention and thus does not exert complete control. In contrast, many organizations have less ability to restrict individual attention. Although two-thirds of companies monitor their employees (AMA, 2007) and one in five companies block social media sites on work computers, personal devices allow individuals to work around these restrictions (Hill, 2013). In addition, if extensive tracking of attention occurs without a simultaneous cultivation of attention (to provide information about why control efforts are occurring), distrust and low morale are fostered. Other organizations also face backlash from disgruntled employees because of overuse, such as at Tesco where armbands track every single movement of employees, and individuals are punished for unscheduled bathroom breaks (Rawlinson, 2013). Petrecca (2010) notes that “workplaces with monitoring policies often don’t let employees know they are trying to prevent serious issues.” In fact, overuse may hurt productivity, and recent research suggests there may be important limitations to situational controls such as surveillance (Bernstein, 2012) such that time without surveillance may actually benefit worker morale and productivity. And stories of work-arounds in other types of

organizations abound, where employees try to find ways around rules and limitations (Goffman, 1961; Boudreau and Robey, 2005).

Another context to examine situational controls more broadly is to examine control efforts by the state in different countries. Examples of monitoring and deflection are common in countries like China (Perlroth, 2014). Countries experiencing civil unrest engage in “bandwidth-throttling” that restricts the ability to use personal devices (Hassanpour, 2011). Even in the U.S., such as in the Oakland, California public transportation system, wireless phone access was shut down for three hours to quiet a protest. The action raised questions about constitutional and first amendment rights—and it also raises questions about acceptable methods of organizational control (as do reports of NSA surveillance of private citizens in America). Recently we have started to see contextualization at the country level, such as in Ukraine where cell phones in the location of protests received text messages from the Ukraine police force noting they had been identified as part of a protest (Seidel, 2014). These situational controls are likely to have implications for how protests are organized, how they evolve in situ, and the ability to punish participants. These are powerful and broadly applicable tools of control.

In addition to multiple contexts, different types of technological (and non-technological) interventions to capture attention could also be studied. Many Internet security and productivity companies offer software to help facilitate boundary control efforts, such as managing in real time which websites are available to employees (e.g., Palo Alto Networks), rolling periods of availability of social networking websites to select groups of users (e.g., Sophos), and managing computer and Internet use time (e.g., Time Doctor software, which tracks and summarizes all websites visited). Other examples of boundary control occur through screen reminders, instituting e-mail or social media “timeouts” or “quiet time” in which workers can focus on work

without the distraction of incoming e-mails, and shutdowns of an individual's Internet access (Perlow, 1997; Brandeis University Policy, 2011; Silverman, 2012). Thus we see boundary control practices increasingly incorporated into tools available for organizational use.

Finally, we focus on how situational controls are used for work/non-work boundary control; however, situational controls are also used by organizations to increase organizational productivity and safety across work tasks. For example, a new trend in tools that can be purchased and installed can be summed up in the term "digital secretary" (Rusli, 2013). This new tool works by examining "every digital scrap" that workers generate, including every email sent and every phone call made, and using this information to compare the behavior of workers to one another. The new software then analyzes the digital behavior that it has tracked and, if deemed necessary, sends an email to the individual with a reminder of what work the individual should be focusing on. The tool "constantly collects data" to determine if an individual should be "prodded to take action" (Rusli, 2013). This new wave of functionalities is impressive in the extent to which it is invasive, the extent to which it 'watches' behavior of individuals, and contextualizes with reminders of what to do. It takes what we see here, situational controls, to shape worker behavior within the organization. In other words, situational controls such as monitoring and contextualization are tools that can be used to ensure individual attention to a wide array of work goals. Future research should explore these new approaches and also explore the limitations of these efforts.

Conclusion

The advances in social media, fully embraced by the Navy in 2010, offer new challenges for organizational control and attention that our study begins to uncover. Typical organizational boundary control efforts of managing time and space have significant limitations. For

organizations, layered situational boundary control practices, where situational controls are used in an artful, balanced manner, are a critically important tool for reaching the individual throughout the day and shaping attention without damaging morale. The challenges for boundary control posed by information communication technology adoption are more difficult for those organizations that face intense pressure to offer unfettered Internet access and cannot control the personal devices that employees bring to work, so the use of situational boundary control practices will likely become an increasingly important option for organizations as they attempt to track, cultivate and restrict employee attention and shape behavior. A better understanding of organizational boundary control in the face of evolving information communication technology use is important because team, geographic, and organizational boundaries will continue to bleed into one another in new ways.

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FIGURE 1
A Model of Organizational Moves and Individual Responses in the Struggle for Organizational Control

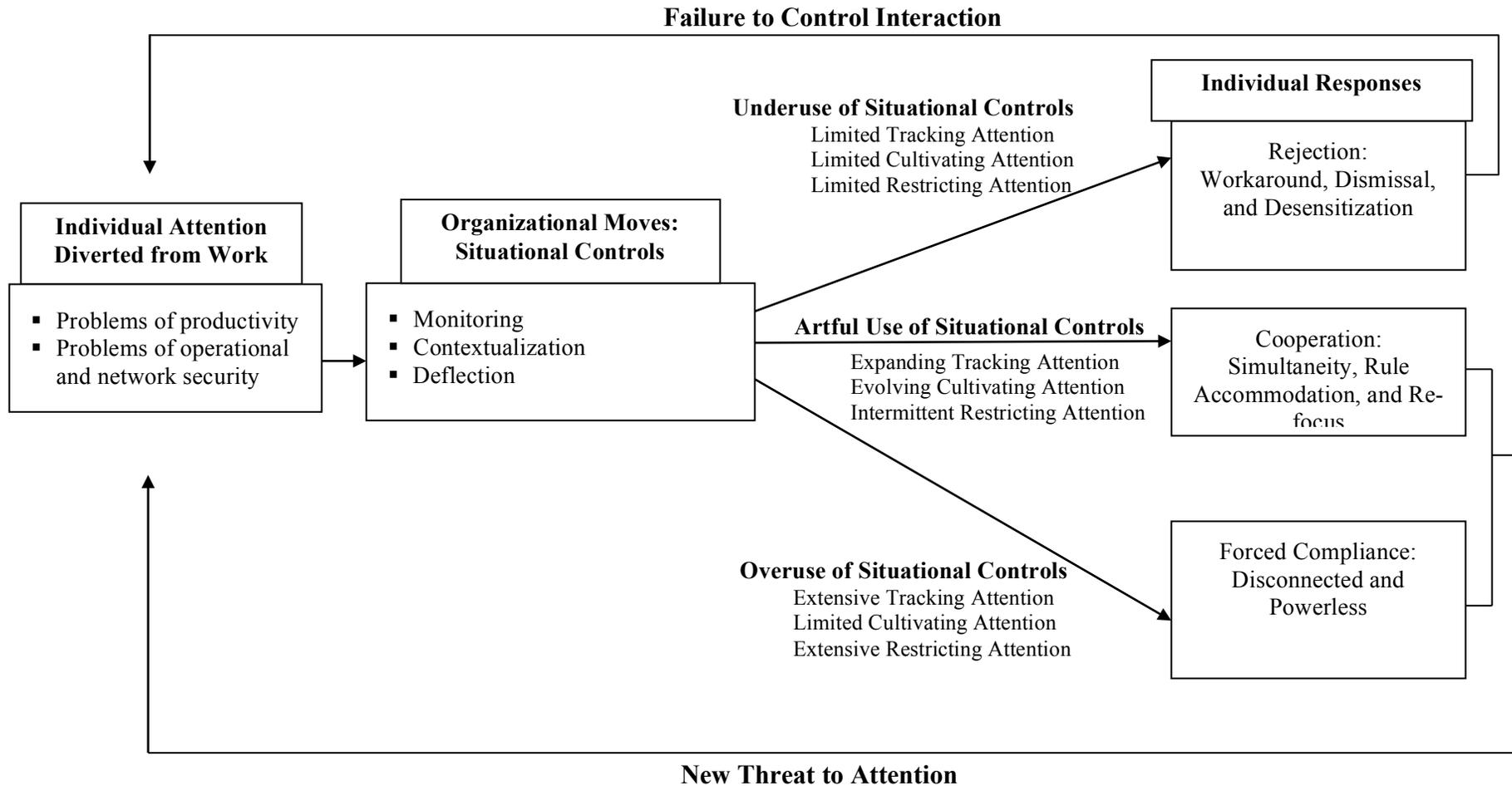


TABLE 1
Characteristics of Individual Interviewees^a

| Role | Average Age | Highest Education Completed | Average Number of Deployments | Average Navy Tenure | Gender Breakdown |
|--|----------------------|--|--------------------------------------|----------------------------|--------------------------------------|
| Officer Sample (20) 44% of sailor interviews | 37 yrs | 11 Graduate Degrees 6 College Graduates 1 Some College | 4.2 | 15.6 yrs | 100% male |
| <i>Navy Officer Population^b</i> | <i>34 yrs</i> | <i>95% College Degree</i> | | <i>11 yrs</i> | <i>84% male</i> |
| Enlisted Sample (25) 56% of sailor interviews | 30.3 | 2 College Graduate 18 Some College 2 High School | 2.9 | 8.4 | 39% female, 61% male |
| <i>Navy Enlisted Population</i> | <i>27 yrs</i> | <i>99% High School Diploma</i> | | <i>6.92 yrs</i> | <i>15% female; 85% male</i> |
| Spouse Sample ^c (27) 38% of all interviews | 31 | 2 Graduate Degrees 6 College Graduates 6 Some College 6 High School | N/A | N/A | 95% female |
| Total: (73) 100% | 32.5 Range: 18-54 | | | 11.5 | Within Navy: 19% female, 81% male |

a. We report data on age and education wherever possible. One IT professional was a civilian but we count him as an officer given his supervisory role. We interviewed 71 individuals and interviewed one couple twice.

b. We over sample officers given our interest in organizational controls; 82% of the Navy population are enlisted sailors, and 18% are officers (Population Representation in the Military Services, 2005).

c. Of these 27 spouses, 3 were currently enlisted and 6 were former enlisted sailors. Thus we interviewed 34 individuals with enlisted experience.

TABLE 2
Archival Data

| Material | Year | Audience | Type of Data/Quote | N of Pages |
|---|---|--------------------------------------|---|---|
| Bluejacket's Manual | 1998, 2002 1 st ed. 1902 | Sailor | Rules and policies regarding everyday Navy life (e.g., hierarchy, how to communicate). | 1998: 623 2002: 648 |
| Guidelines for Naval Use of the Internet | 1995, 2005, 2008, 2010 | Sailor | "It is imperative that the Department of the Navy ... minimize the risk of compromise [of classified data via the Internet] (p. 3). | 1995: 6 2005: 16 2008: 5 2010: 5 |
| DON Navy Correspondence Manual | 1998 | Officer | "Whatever you send by E-mail must be for official Government business only." | 148 |
| Navy Slideshare on Social Media | 2011- 2013 | Sailor | Best practices and training for social media use (e.g., "Tips for Safe and Effective Use of Social Media"). | 23 docs & 87 ppts |
| Newsletters Facebook, other websites, articles | 1993, 1996– 1998, 2000, 2009 -2013 | Sailors, Spouse and Family | Navy-wide, ship-specific and OPSEC Facebook pages, Family Connection Newsletters, training and orientation schedules for spouses. | >100 |
| Navy Family Guidelines (Sealegs) | 1997, 2007 | Spouse and Family | Instructions on communicating with sailor during deployment: "E-mail is not a great way to communicate when you are angry." | 1997: 84 2007: 56 |
| Navy Family Ombudsman Policies/ Manuals | 1994, 2005, 2007, 2010 | Officer and Ombudsman (Spouse) | Guidelines for the selection and training of ombudsmen (non-Navy family members who act as a link between sailor and their family). | 1994: 16 2005: 76 2007: 332 2010: 228 |
| Navy Ombudsman Social Media Handbook | 2010 | Ombudsman (Spouse) | "we need to be aware that there are other people listening...an Internet posting ...directed their followers to comb through social networking sites to look for details about service members and their families." | 20 |
| Navy Command Social Media Handbook | 2010 | Officer | "Commands must actively monitor and evaluate official use of IBC (Internet-based capabilities) for compliance with security requirements" (p. 18). | 30 |
| Navy-wide Personnel Survey | 2003 | Sailor | % w/Internet access on the job, beliefs about adequacy of Internet access | 766 |
| Novell Case Study | 2009 | | Insight into role of centralized surveillance | 2 |
| Quality-of-Life and Quick Poll Surveys | 1994, 1999, 2001, 2002, 2005, 2006, 2009 | Sailor | 48% of enlisted sailors dissatisfied with access to Internet for personal purposes. Growing # of married personnel; growing turnover because of personnel beliefs about incompatibility of Navy life and family. | 1994: 61 1999: 73 2001: 138 2002: 85 2006: 76 |
| Total N Pages: | | | | 4500+ |

TABLE 3
Organizational Moves: Situational Controls

| Situational Control | Description | Exemplary Quotations |
|---------------------------------|--|---|
| <i>Monitoring</i> | | |
| Watching for abuse | Looking for inappropriate or excessive individual use of email or internet sites. | “Today’s monitoring technology is getting much much faster...if somebody did something now [it would] get noticed within minutes if not seconds. Because you can have electronic coding advise when certain inappropriate sites or unauthorized accesses are done.” |
| Scanning the Environment | Tracking website trends, patterns of usage, and emergence of new technologies and threats. | “The 180 personnel at the NCDOC [Navy Cyber Defense Operations Command] are responsible for analyzing huge volumes of network information gathered from hundreds of locations worldwide including ships, medical clinics, headquarter offices and research facilities. NCDOC personnel monitor these networks 24/7, 365 days a year.” [archival] |
| <i>Contextualization</i> | | |
| Encouraging Positive Narratives | Encouraging and generating positive and appropriate communication with those at home. | “I would explicitly tell them what they can and can’t share. I didn’t want to leave it to them to make up – “can I tell them this or not?” If it was even close to borderline – sometimes I’d send out an Email to them, everybody on the ship saying, “As discussed... we’re not at a point where we can talk a lot about this... if you want to send something home about it, feel free to cut and paste this paragraph.” |
| Providing information | Clarifying and elaborating about what appropriate technology use entails. | “You have to provide them with the knowledge so that they take and think about it before they post it...And, you know, people don’t realize, they don’t think about it, until you start going out and you start talking to them, you start providing them some examples.” |

TABLE 3 (continued)
Organizational Moves: Situational Controls

| Situational Control | Description | Exemplary Quotations |
|--------------------------------------|--|---|
| <i>Contextualization (continued)</i> | | |
| Delivering reminders and warning | Delivering quick and short reminders and warnings about appropriate use and potential punishments. | “Now, you have a sys monitor; an IT specialist sitting there at the desk monitoring command traffic; has the ability to pop up a chat window to any computer. He’s got the IP of everybody on, and when he sees something, he can pop up a chat window and say ‘Dan, you need to cease and desist’, or ‘you need to move on’ or, ‘you’ll be logged off if you do not do something’” |
| <i>Deflection</i> | | |
| Withholding Access | Instituting a temporary but complete black-out of all internet/email access at the individual, group, or ship level. | “Absolutely. I’ve terminated access to people for certain periods of time. I would absolutely do that...[I: How fast could you shut that person down?] Fast. It’s a couple hits of a button and their access is shut off, their login doesn’t work. |
| Limiting Access | Limiting the ability to access parts of the outside world through technical and physical means. | “The new system [Websense] uses preset criteria to automatically block access to Web sites and other Internet resources that pose a threat to security or are considered nonessential to a user's functions or mission.” [Archival data, 2008 Press Release] |
| Redirecting | Redirecting behavior to be compliant and removing unwanted electronic trails. | Blocked sites are redirected to a notification page which links to a page on NMCI's homeport Web site. Here, a user can submit a request that a site be unblocked in order to support mission requirements. [2008 Press release, in Archival Info] |

TABLE 4
Individual Responses

| Individual Move | Description | Exemplary Quotations |
|---|--|---|
| <i>Rejection (Elicited by Underuse of Situational Controls)</i> | | |
| Work-around | Renewed efforts to find a way around organization's control efforts | <p>“That’s pretty often. People will find ways around certain things. I remember when MySpace was really big. Everybody could log onto MySpace. One day the Navy just said no more. There’s no access to it anymore. But people were finding ways to go through with Japanese MySpace website or something like that and going through there. They’d find different gates... And there’s people who found... It was like they kind of went through a different browser. Somehow they opened up a different browser and went through that way. Like people had gates.”</p> <p>“She [wife on shore] can call and say I’m able to get online at that time and kind of get around security that way, not get around it, but utilize the situation.”</p> |
| Dismissal | Actively ignoring organization's control efforts | <p>“So as far as that, people just use them [usb keys] and you don’t tell anybody about it and you’re careful...I’m not going to sit there and wait 20 minutes for a disc to burn and use up a blank CD. I’ll use a thumb-drive and I’ll just be careful and I won’t get caught.</p> <p>“I figured if they wanted to see it that bad then they could.”</p> |
| Desensitization | Overexposure to unchanging messages causes messages to become invisible to individuals | <p>“that repetition, it just comes up, so you click on ‘Okay, I acknowledge.’ And then they go, they haven’t read it.”</p> |

TABLE 4 (continued)
Individual Responses

| Individual Move | Description | Exemplary Quotations |
|--|---|---|
| <i>Cooperation (Elicited by Artful Use of Situational Controls)</i> | | |
| Rule Accommodation | Adjusting behavior to follow the organization's rules | "For a while, me and my husband actually chatted. Actually chatted instead of e-mailed. Well, he got in trouble because we didn't know that we weren't allowed to do that...And so we couldn't do that anymore. So we had to do the e-mailing and wait for the response." |
| Re-focus | Turning focus back to work | "'Hey until this place is shining or until I see you get to work, it's off indefinitely.' You wouldn't believe how fast these guys would work." |
| Simultaneity | Keeping the organization in mind in the moment | "You don't want to get too personal on E-mail because you never know who's reading it." "...to me, it's [OPSEC posters] just a constant reminder, you know. You look up, what you should and shouldn't send." |
| <i>Forced Compliance (Elicited by Overuse of Situational Controls)</i> | | |
| Disconnected | Sense of being "cut-off" with outside world due to restriction of internet | "When it's restricted; not only do you feel like you're disconnected to the outside world, but you get stressed out because of it." |
| Powerless | Sense of powerlessness and frustration from inability to fulfill non-work tasks | "Now not being able to do it [email home] you feel helpless like you have no control at all of what goes on. It's frustrating." |

APPENDIX A
Interview Protocol (Sample Questions)

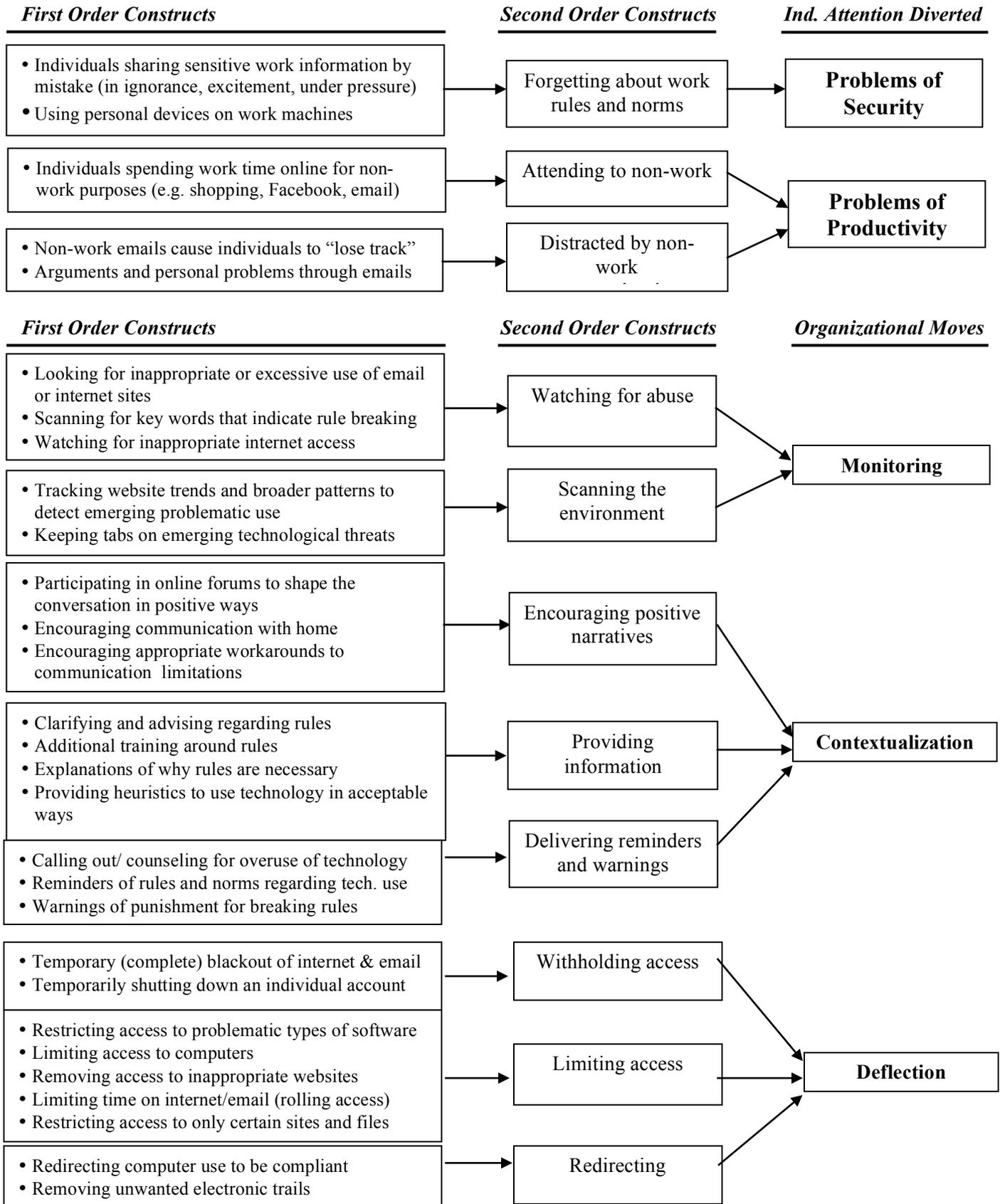
General Protocol

1. How long have you been in the Navy? What is your position in the Navy?
2. During your last deployment, what level of technological access was available on the ship? Was that different from earlier deployments? What technologies did you use?
3. How do you access the Internet, email, and other technologies? Do you have your own computer? Do you have to wait in a line? How often was access limited or the system shut down? For how long?
4. How much do you self-censor (if at all)? What do you censor? When?
5. How does IT access as well as IT limitations make you feel?
6. How do you pushback against Navy rules and limitations? When?
7. Examples of pushback from *Navy* against *sailor* IT use?
8. Are there times when you embrace/accept Navy rules and restrictions around IT use or encourage/advise the Navy to make new rules? Negotiate about access or rules?
9. How does technology use make you feel about your ability to juggle being a Navy member and also a spouse/parent/friend? (e.g. better/less able, more/less efficient)
10. Does the Navy (through your supervisor or through rules or other communication) ever do anything to indicate that they are supportive or not supportive of you using technology to stay in touch with your spouse and children?
11. Now I want to ask you to think about a time when an important event, decision or happening occurred during your deployment (positive or negative: accident, household purchase, something with regard to children, interpersonal conflict). We'll ask your spouse about the same event. Describe.

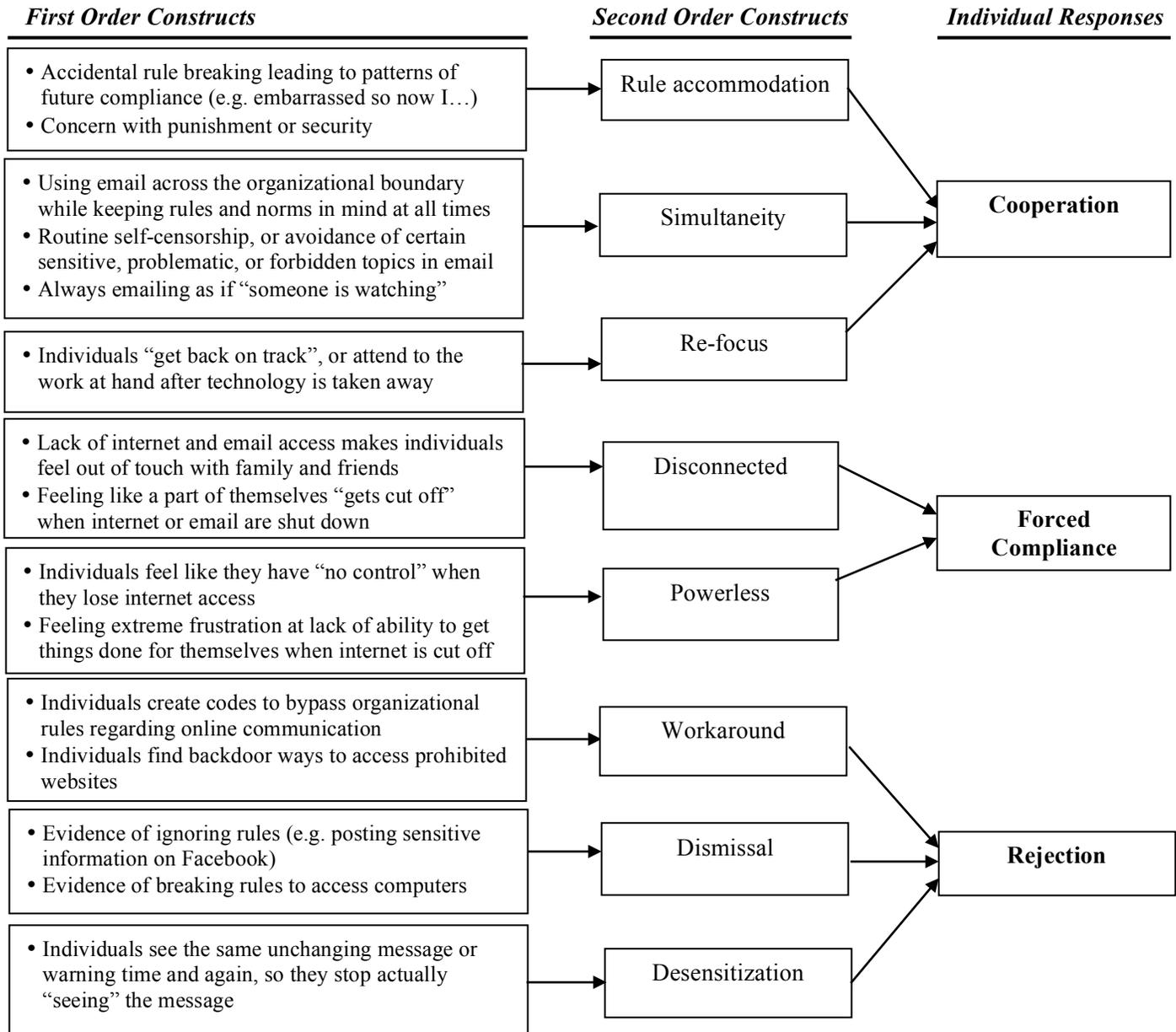
Supervisor-specific protocol

1. What are the issues that you think about regarding sailor's use of electronic communication during deployment? (email, internet, skype, and social media etc.)? What are your biggest concerns and how serious are they? What are the biggest benefits?
2. What do you do to try and mitigate problems with communication technology use? What seems to work? What doesn't?
3. Who do you target with these efforts and what impact does it have on them?
4. When do you use different ways of handling the problems? In what order? In what combination?
5. How important is it that sailors know that you are watching them? Is it that you know they are watching or that you actually find things?
6. Is it enough to train people about appropriate use of technology? Why do you need to monitor? Of your sailors that are very bought in (very "pro-Navy") – and their spouses are bought in – do you still have problems with their use of communication technology?
7. Do you see technology being used in ways that surprise you? In ways that are unexpected? How often does that create problems? Can you give me an example of when sailors used technology (e.g. social media) in a way you didn't expect?
8. When do you feel like you have 'succeeded' in managing communication patterns? What's important to that? What do people do differently? What do you now notice about your own behavior?

APPENDIX B Data Coding Structure



**APPENDIX B (cont.)
Data Coding Structure**



BIOGRAPHICAL SKETCHES

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