Toward a Stage Theory of Strained Betrayal

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ABSTRACT

Insider threats can be accidental or deliberate, with completely different underlying behavioral mechanisms. There has been considerable research focused on addressing accidental insider threats that occur through carelessness, apathy, or lack of expertise of individuals; however, little has been done to study insider threats (e.g., data theft) orchestrated by maliciously motivated employees. These malicious acts are forms of betrayal and have potentially devastating consequences to a company and the motivations for these acts of betrayal were not formed in a day, but rather developed over time. In this research in progress, we draw from the general strain theory (GST) and the emotions-centered model of voluntary behavior (ECT) to model the evolution of regular, benign employees to motivated, malicious insiders capable of malicious acts of betrayal. We present a new staged Theory of Strained Betrayal (TSB) that describes the evolution as one that is dependent on the direct influence of a number of external and internal factors, as well as the interactions among them.

INTRODUCTION

For almost 53% of organizational security breaches, an employee inside the firm was responsible for intentionally or unintentionally facilitating the breach (Insiders 2018). For those instances in which an employee intentionally aided the breach, his or her actions constituted a betrayal of their firms' trust that ultimately exposed the firm's sensitive assets to a variety of dangers. Employers entrust their employees with access privileges and information necessary to fulfil their responsibilities, often stipulating the terms of these privileges and information privy in the employment contracts and other legal arrangements, such as non-compete clauses or non-disclosure agreements. Any act of defiance by an employee against their conditions for employment constitutes a violation of the trust upon which the employment was grounded; a betrayal of the firm's trust that could have devastating consequences to the company.

Of course, not all employees enter their employment with intentions to do harm. For most, their employment is a positive experience for both themselves and their employer, where they

provide a critical service to their firm and are provided with an environment in which to earn a living and grow professionally. So, assuming they didn't enter their company with malicious intentions, how does an employee arrive at the point in their employment where a purposeful and malicious act of betrayal could be even be considered, much less enacted?

To understand what leads employees to form and act on intentions of betrayal, it's important to understand their motivations for betrayal and the facilitating conditions, internal and external, which helped shape them. By understanding how and why an employee would perform malicious acts of betrayal against his or her employer, it may be possible to form interventions early on in the employee's tenure with the company that mitigate or even reverse the motivation to cause harm. Research indicates that employee interventions are particularly effective in alleviating the motivation for malicious behavior if executed early on in an employee's time with a company (Insiders 2018). However, to understand the appropriate time and type of intervention to execute, we must understand the forces that helped shape the employee's betrayal intentions in the first place.

Perhaps one of the best frameworks for understanding the evolution of a benign employee to one with malicious betrayal intentions is the Insider Threat Kill Chain (ITKC) (Goel et al. 2016; Goel et al. 2017). The ITKC is a variation of Lockheed Martin's external cyberattack kill chain, in which the process of malicious external cyberattacks was presented as a sequence of steps (Reconnaissance, Weaponization, Delivery, Exploitation, Installation, Command and Control, Actions on Objectives). The sequence of external attacks is involved in breaching the security of an organization and establishing a persistent presence to attack specific targets in the organization. The attack can be thwarted by breaking the chain of events in the kill chain. Similar to the kill chain for external cyberattacks, the ITKC describes an evolution of an employee from normal to malicious (i.e. employee entry, radicalization of employee (trigger point), reconnaissance (opportunity), data acquisition (tipping point), and data exfiltration. The ITKC is illustrated in Figure 1.
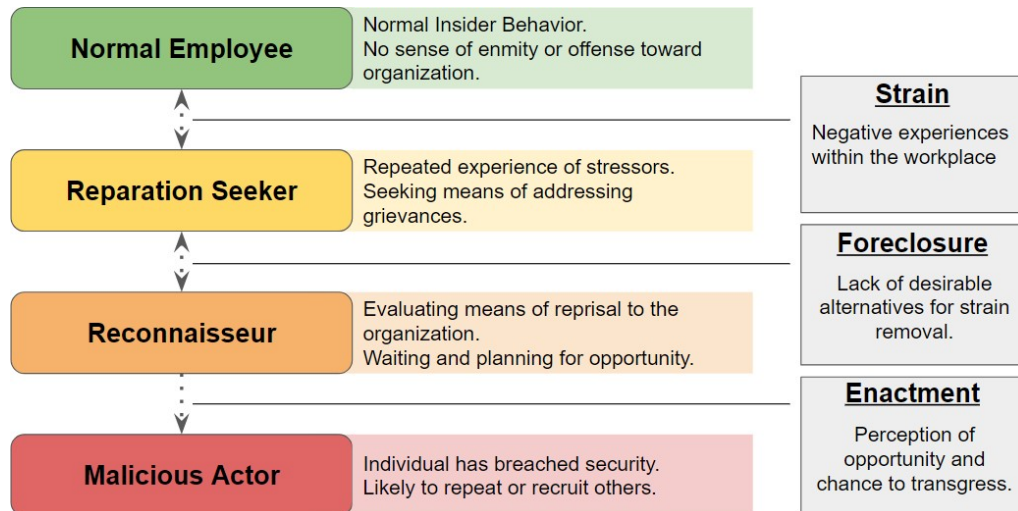
Figure 1: Insider Threat Kill Chain

What the ITKC doesn't articulate, however, is the role of strain in the evolution of the malicious insider; specifically, how strain predicates the nomological network of attitudes, perceptions, and intentions that predict malicious behaviors at each stage in their evolution. Strain can be either objective or subjective. Objective strain refers to situational "events or conditions that are disliked by most members of a given group." (Agnew 2001, p. 320); whereas, subjective strain refers to "events or conditions that are disliked by the people experiencing (or have experienced) them." (Agnew 2001, p. 321). As an insider progresses from a benign employee to one capable and willing to commit an act of betrayal, it's important to understand how strain is derived from situational factors that emerge from within the organization and how this strain can lead to the formation of malicious betrayal intentions and behaviors.

Toward achieving this understanding, this study seeks to develop and test a theory for explaining employee betrayal behaviors. We propose a behavioral model that we call the Theory of Strained Betrayal (TSB). The model leverages the emotions-centered model of voluntary behavior (ECM), which identifies how negative emotional states result in counterproductive work behaviors (Spector and Fox 2002), and general strain theory (GST), which helps to explain the strain individuals feel from imbalances between their socially-constructed goals and their reality (Agnew 2007). Further, by leveraging both GST and ECM, we

are able to present a nuanced view of the drivers of employee betrayal behavior at multiple stages in the employee's progression from benign to malicious.

In the following sections, we first review GST and ECM, describing the integration of the theories toward the formation of a new Theory of Strained Betrayal (TSB). We then describe our proposed mixed method approach to testing the theory and the predicted implications and limitations of our work.

THEORETICAL FRAMEWORK AND INTEGRATION

Social structural theories are based primarily on the notion that deviant behavior is dependent upon the social and economic structures of a society or community. There are three primary theories that are generally classified as social structural theories, social disorganization theory, cultural deviance theory, and GST. Each theory shares the underlying premise described above, but is unique in its specific perspective. Of these theories, GST (Agnew 1992) is particularly applicable for the study of workplace deviance in that it hypothesizes that criminal behavior is motivated by the experience of stressors within an individual's environment.

GST has been applied to a variety of types of criminality and has been found to accurately model criminal behavior in populations ranging from adolescents (Agnew and White 1992; Reid and Piquero 2016) to white-collar criminals (Langton and Piquero 2007), as well as non-criminal transgressive computer behavior such as cyber-bullying (Jang et al. 2014). From an empirical standpoint, GST is well positioned to help explain how negative events experienced within the workplace can foster malicious insider activity. Critically, the influence of strain on the individual's decision to engage in deviant and criminal behavior is unlikely to stem from a single, contextually independent negative event. Rather, a key component of GST is that the accumulation of experienced strain should also influence the likelihood that an individual decides to engage in malicious behaviors (Agnew 1992).

While GST is able to account for the emotional drivers of decisions, where it is limited, however, is in explaining the formulation of those emotions and one's ability to regulate the emotions based on their perceptions of control over the sources of strain. This is where ECM provides

insight. Importantly, chronic perceptions of control play two key roles in the ECM account of malicious behavior in an organization (Spector and Fox 2002). The first manner in which control perceptions impact the likelihood of engaging in malicious behaviors is through their effect on the experience of the stressful event. Individuals who feel that they largely have control over circumstances within their life correspondingly do not react as negatively to frustrations experienced within the workplace (Spector 1998). The second key role of control in ECM account of malicious behavior in an organization is that those with an external locus of control, due to a lack of perceived of alternatives to malicious behavior (Spector and Fox 2002) are more likely to engage in theft (Fox and Spector 1999) and sabotage (Storms and Spector 1987), as well as a wide variety of other behaviors that damage the organization (Spector and Fox 2005). This account of control and its diminishment of the consideration of non-malicious behavior also happens to mirror the goal subversion function of strains in GST insofar as they degrade the individual's propensity to choose a prosocial means of responding to strain.

The ECM has had trouble, however, with conceptualizing both the level and the scope of the effects of control, largely due to theoretical differences in how control is predicted to affect the engagement of malicious behaviors (Galvin et al. 2018). To address this ambiguity, our TSB incorporates recent developments in research on perceptions of situational control, rather than as a wholly stable dispositional difference as most widely used (c.f. Spector & Fox, 2005). Further, incorporating perceived situational control and locus of control into TSB provides an opportunity to clarify how one's locus of control proximally affects specific behaviors resulting from a negative event stressor.

RESEARCH MODEL AND ASSOCIATED HYPOTHESES

Because the evolution of a malicious insider is best described in stages, we present our TSB as a multi-stage theory (Figure 2), with stages one through three explaining the factors that lead to malicious betrayal intentions and stage four presenting the factors that contribute to the formation of malicious betrayal behaviors. As described in our integration of GST and ECM, the key to an employee's progression from benign to malicious is the employee's previous experiences with strain; experience with and perceived control over the situations that produce

strain, experience with previous attempts to reduce strain, and experience in engaging in strain coping behaviors and in malicious behaviors. As strain-inducing situations or events progress and repeated attempts to alleviate the stain fail, these experiences are key to differentiating the attitudes, emotions, and perceptions of efficacy held by benign employees in the initial and early stages of coping with strain and the final, later stages of strain coping experienced by malicious-minded employees.
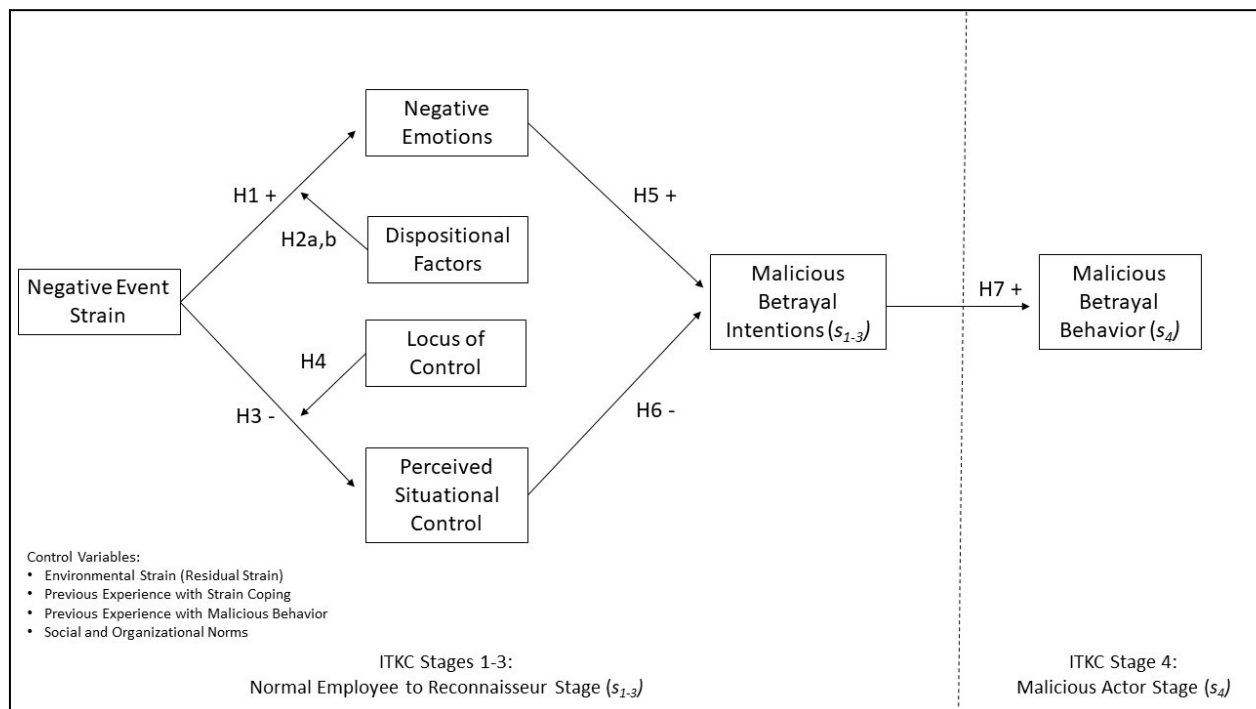

Figure 2. Theory of Strained Behavior

Based on our presentation of TSB, as an employee experiences stain from negative events and progresses from a normal employee to a Reparation Seeker and then to a Reconnaisseur, we can expect the strain (initial and repeated) will create negative emotions that ultimately lead to malicious betrayal behavior.

H1: As negative event strain increases, the negative emotions perceived by employees from that strain also increase.

Previous research has established that stain is subjective in the sense that situations or events that produce strain for some people, may not for others. This variability in strain evaluations is

attributed to a number of factors, including personality dispositions such as personality traits. Unfortunately, the ITKC also doesn't account for the dispositional make-up of the employee. Dispositions are the distinct characteristics that define the core values and belief systems of an individual (Johnston et al. 2016). These characteristics include personality traits such as narcissism, Machiavellianism, or cognitive style and are relatively stable over the lifetime of an individual. To fully understand how an employee can progress from benign to malicious, it's important to also understand how his or her dispositional make-up influences the sense of strain, both in how it is perceived and in how it is translated into thoughts for how to relieve the strain, malicious or otherwise.

The negative emotions resulting from initial and repeated strain are amplified by certain dispositions held by the employees. Although strain often arises from events that occur outside of the individual's control, the impact of those events on the development of strain is likely to vary across individuals (Alarcon et al. 2009; Cavanaugh et al. 2000). That is, individuals respond to different event stressors in distinct ways due to differences in how they perceive and experience those stressors. This is the underlying argument established by Hofstede (1980) and Earley et al. (1999), that dispositional factors, such as personality, influence how individuals perceive their environment. More specifically, personality traits have been correlated with perceptions of stress resulting from a number of situational factors, including workplace situational factors (Abush and Burkhead 1984) as well as training-related situational factors (Tyssen et al. 2007). Based on this, it is likely that individuals with a particular dispositional make-up are likely to report a higher degree of negative emotions following the experience of negative event strain in the workplace. In this research, we focus on a few particular dispositional make-ups, the dark triad set of personality traits and the big five personality meta-traits of stability and plasticity.

The dark triad is a set of three personality traits (narcissism, psychopathy, Machiavellianism) that have been linked to deviant behavior (Furnham et al. 2013; O'Boyle et al. 2015; Paulhus and Williams 2002). Individuals high in psychopathy lack empathy for others and tend to display thrill seeking and impulsivity (Hare and Neumann 2009). Individuals high in Machiavellianism

are unprincipled and use manipulation to accomplish their goals (Furnham et al. 2013).There is some correlation among the three traits that comprise the dark triad (Vernon et al. 2008), and research shows that the dark triad is linked to deviant and counterproductive behavior in the workplace, but not job performance (O'Boyle et al. 2015). Individuals that sit at the top of the dark triad traits spectrum are more driven by self-advancement than others. Consequently, they feel greater strain in cases where they experience obstacles to personal gain.

H2a: Employees whose dispositional make-up is high on the dark triad spectrum will experience stronger negative emotions from negative event strain than those whose dispositional make-up is low on the dark triad spectrum.

One of the more common set of dispositional factors used in the IS literature is the big five set of personality traits. These traits consist of openness, conscientiousness, extraversion, agreeableness, and neuroticism, yet recent research has determined that the five traits form two higher-order meta-traits in plasticity and stability. Stability, first identified by Digman (1997) is defined as describing risk averse tendencies among individuals, whereby situations that may result in strain are avoided. Plasticity, on the other hand, has been used to describe more risk-taking, reward seeking tendencies among individuals (Vecchione et al. 2011). Persons exhibiting high levels of plasticity are less willing to avoid situations that may produce strain, as they are less susceptible to it (DeYoung 2006).

H2b: Employees whose dispositional make-up is consistent with the stability meta-trait will experience stronger negative emotions from negative event strain that those whose dispositional make-up is consistent with the plasticity meta-trait.

The influence of strain on the individual's decision to engage in malicious betrayal behavior is unlikely to stem from a single event, but rather the sustained accrual of strain (Agnew 1992). ECM distinguishes between chronic emotional states (moods, dispositions), and emotional reactions specified to an event (affect, emotions), arguing that the event-specific reaction is partially determined by the more chronic state of the individuals (Spector and Fox 2002; Spector et al. 2006). The convergence of these two lines of theory then suggests that

individuals who report greater degrees of negative event strain will have less of a sense of situational control.

H3: As negative event strain increases, the perceived situational control held by employees will decrease.

In the organizational literature, the belief in one's own ability to control one's outcomes in life is conceptualized as locus of control (Rotter, 1966). When individuals believe that the events in their life occur due to outside circumstance or powers, they are described as having an external locus of control. Those that view the outcomes in their life as stemming from their own personal actions have an internal locus of control. Individuals who feel that they largely have control over circumstances within their life correspondingly do not react as negatively to frustrations experienced within the workplace (Spector 1998). For these individuals, they are less likely to perceive a loss of situational control due to negative event strain.

H4: Employees with an internal locus of control are less likely to perceive a loss of situational control due to negative event strain.

Whereas a critical assertion of GST is that the accumulation of strain results in a similar accumulation of negative emotions, GST also asserts that this accumulation of negative emotions will result deviant behaviors. In this context of our study, this accumulation of negative emotions is expected to result in thoughts of betrayal and, ultimately, the development of plans to engage in betrayal behavior.

H5: As employees perceive negative emotions due to negative event strain, they will form malicious betrayal intentions.

Strain is argued to result in malicious behavior primarily as a result of the motivational impetus associated with a negative emotional state (namely the desire to relieve said emotions), however strain is also argued to result in malicious behavior to the degree that strained individuals believe they are unable to address the strain (Agnew 2007). One of the ways this is argued to occur is through the experience of strains to the individual which subvert beliefs that they will be able to attain desired goals through pro-social, non-malicious activity (Agnew

2007). Thus, GST holds that strain drives malicious behavior by increasing the desire to engage in criminal behavior to attain a desired outcome (money, a sense of justice, etc.), and also via the diminished belief in viable alternatives to said malicious behavior. Given this pattern, in addition to event strain, we expect perceptions of diminished situational control to also increase the likelihood of insider threat behavior, starting with the formation of malicious betrayal intentions.

H6: As employees perceive a lack of situational control due to negative event strain, they will form malicious betrayal intentions.

As described by the ITKC, the progression of Normal Employees to Malicious Actors occurs over time. In our TSB model, we articulate this progression in stages, with the fourth a final stage of the progression describing the link from malicious betrayal intentions to malicious betrayal behavior. The formation of this conversion of intentions to actions is the result of multiple stages of unresolved strain and the accumulation of negative emotions and a perceived lack of situational control. To that end, we hypothesize:

H7: Employees intentions to commit malicious betrayal will lead to acts of malicious betrayal.

Because this is a research in progress, the following section will outline the research design we plan to follow to test the theoretically formed TSB described above.

RESEARCH DESIGN

Tests of TSB will be conducted in two phases. In the first, we plan to use a scenario analysis to conduct a preliminary evaluation of the TSB model in different situational contexts that activate strain e.g. social injustice, personal injustice, and patriotism. In the second phase, we will conduct extensive lab experiments to induce strain, and then evaluate the subjects' betrayal intentions and behaviors.

IMPLICATIONS AND LIMITATIONS

Prior research has focused on detecting employee deviant behavior, post facto. This research is novel in that it focuses on understating the psychological state of employees that leads them to

commit acts of betrayal, such as data theft and other malicious activities. The research is also foundational in that it establishes a theoretical basis for insider threat behavior by defining a process (ITKC) for insider threat activities and linking it with well-established criminological theory (Agnew 2007) and theory of organizational deviance (Spector and Fox 2005). It presents a new behavioral model that explains an employee malicious betrayal lifecycle through the lens of strain. The theoretical foundations established in this work will lead to new interventions to prevent employee acts of malicious betrayal.

CONCLUSION

With the loss of billions of dollars-worth of damages due to malicious employee behavior, it's critical that we improve our understanding of what motivates once benign employees to consider and conduct malicious acts of betrayal against their companies. Therefore, the focus of this proposed research is intentional, malicious employee betrayal and the identification of such betrayal before its occurrence. Building on an integration of the general strain theory (GST) and the emotions-centered model of voluntary behavior (ECT), we seek to develop and test a new Theory of Strained Betrayal (TSB) that models the evolution of regular, benign employees to motivated, malicious insiders capable of malicious acts of betrayal.

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