

ADAPTIVE PERFORMANCE IN THE FIRE SERVICE:  
THE ROLE OF EMPOWERMENT  
PRACTICES/PROCEDURES, LEADERSHIP  
BEHAVIORS, AND TEMPO BALANCE

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ADAPTIVE PERFORMANCE IN THE FIRE SERVICE: THE ROLE OF  
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TEMPO BALANCE

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Abstract: Fire departments, like other organizations that follow rigid hierarchical structures, face difficulties in being flexible or adaptive enough to address the needs generated by large and complex disaster environments. Research is lacking, however, on the ability of empowerment to enhance adaptive performance in emergency response organizations, which today face increasingly complex threats and growing responsibilities. The present study explores two models - the first tests the relationships between the empowerment practices of career development opportunities, autonomy, employee voice with two leadership levels, and adaptive performance. Tempo balance and the empowerment practices are also tested for interactive effects, a measure originally developed to capture firefighter stress and fatigue from excessive mandatory overtime policies. The second model performs moderated mediation to assess whether senior leaders must also be effective, empowering leaders (in addition to immediate supervisors) in order to achieve heightened levels of empowerment and subsequent adaptive performance, as many senior leaders in the fire service are criticized for being overly bureaucratic, risk averse, and resistant to change. Data were collected from four U.S. fire departments located on the West Coast – 1255 completed responses were returned. The results for the first model show that firefighters are better able to overcome stress and fatigue during complex incidents by relying on their training and ability to improvise, meaning these empowerment practices help compensate for poor tempo balance in fire departments from ineffective scheduling. The results for the second model display significant and positive direct relationships between empowering leadership behaviors and adaptive performance, although the interaction effects were not significant, suggesting compensatory effects - in that empowering immediate supervisors can compensate for risk averse, non-empowering senior leaders in their ability to personally empower firefighters on their own. These findings ultimately show how immediate supervisors are key to overcoming senior leader deficiencies and producing operational success during conditions of high complexity. Lastly, using a sequential explanatory mixed methods design, I use focus group data to support the empirical findings while providing additional insight into the nuances of leadership and empowerment in the fire service. Specific recommendations for fire service leaders are also provided.

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## CHAPTER I

### INTRODUCTION

#### *Problem Statement*

As uncertainty and complexity during emergency response operations increases, so does the need for responders to display heightened levels of adaptive performance (Wenger et al., 1990). Adaptability is needed during emergency incidents detailed by such conditions so that responders can properly adjust their roles in accordance with unpredictable changes in the operating environment (Wall et al., 2002). While fire departments are highly effective in routine or predictable response conditions, which account for the majority of emergency calls, research suggests they struggle in being adaptable or flexible enough to handle large, expanding disaster incidents detailed by high levels of uncertainty and complexity (Jensen & Thompson, 2016). This is primarily due to two related reasons: inflexible leadership and bureaucratic organizational structures.

#### *Background Context of the Problem and Research Question*

First, as is the case in many other response organizations (e.g., military, police), leaders in the fire service are often criticized for being overly risk averse, bureaucratic, and resistant to change, diminishing employees' adaptive capabilities in complex incidents (Wankhade et al., 2020). For example, overburdening checklists and firefighters' fear of repercussion from errors,

improvising, or breaking SOPs can limit their ability to think fast and make appropriate decisions during such events (Jahn, 2019). Moreover, departments that overstress the importance of adherence to policies and procedures can increase the number of times in which employees fail to adapt in the presence of surprise (Dekker, 2003). Thus, human-based errors, such as leaders being indecisive, can lead to operational collapse, misdirected or misaligned responders, delayed or deficient decision-making, and other poor outcomes that can negatively affect adaptive performance or safety. Firefighters already work in a high-risk environment that is one of the most dangerous professions in the world: 100 firefighters die on the line of duty per year and another 70,000 are injured (Haynes & Molis, 2016).

Second, public service organizations, such as the fire service, typically operate in a rigid bureaucratic organizational structure (Bigley & Roberts, 2001). Bureaucratic systems inhibit adaptability as they possess highly formalized hierarchical structures that are characterized by extensive rules, procedures, policies, and instructions (Bigley & Roberts, 2001; Weber, 1947). Such organizational structures inhibit the flow of timely information and are too centralized to be flexible or adaptable enough to compensate for changing circumstances, which reduces their effectiveness in complex, uncertain response environments (Neal & Phillips, 1995). During the emergency response to Hurricane Katrina, for example, firefighters and emergency services often had to bypass and even disregard bureaucratic policies and protocols in order to save lives (Boersma et al., 2014; Rhodes, 2006; Russell et al., 2016). Hierarchical structures rely heavily on vertical communication, where the transmission of instructions, reports, and requests takes much longer during expanding disaster incidents which force the hierarchy to expand (Chang, 2017). Since the flow of information is lagged in these situations, leaders and supervisors cannot communicate with responders fast enough to help them best adapt to changing conditions. Moreover, many fire service leaders come from military backgrounds, where safe and effective

operations are attributed to the command and control model (Smeby, 2014)<sup>1</sup>. While effective for routine responses, this type of bureaucratic approach is not typically seen as being highly flexible or adaptable for similar reasons, and thus not effective in complex response environments (Buck et al., 2006; Neal & Phillips, 1995).

What managerial and leadership strategies then might departments utilize to overcome these hierarchical constraints and enhance adaptive performance during complex response incidents? Complex response incidents are those which take more time to bring under control, have the potential to affect neighboring communities, are characterized by uncertainty/ambiguity, and are situations in which unexpected events are possible (Joung et al., 2006). Examples in the fire service include large scale fires (e.g., in a factory), mass casualty incidents, wildfires, and large scale disasters that require response from multiple departments. While a sufficient number of empirical works testing the relationship are lacking, Bigley and Roberts (2001) suggest that demonstrating department adaptive performance in conditions of high uncertainty and complexity depends primarily on the extent to which responders are *empowered* to make important decisions, such as the ability to improvise the use of resources and response tactics when warranted by the situation. Empowered in this way, responders help to maintain department adaptability by enhancing the organization's responsiveness to unpredictable aspects of its operating environment (Wall et al., 2002). For example, when responders are able to act upon advice and information rather than instruction, they can make decisions that best fit the needs of the operating environment while doing so at a faster rate (Bigley & Roberts, 2001); when the hierarchy expands, there is often not enough time to wait for instructions from upper ranks. Thus, the present study explores managerial and leadership strategies that response organizations can utilize

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<sup>1</sup> Scholars such as (Burke, 2018) argue that researchers have inaccurate assumptions about the modern command and control model.

to best empower employees and in turn achieve heightened levels of overall adaptive performance during complex response conditions, where it is crucial for operational success.

### *Overview of the Framework, Concepts, and Contributions*

The extent to which employees feel empowered and its resulting influence on department adaptive performance is primarily the result of two antecedent categories – empowering managerial practices/procedures, and empowering leadership behaviors. On the one hand, empowering practices/procedures provide employees with specific knowledge, skillsets, and training to effectively respond to their work environment, and the latitude to make important decisions needed for successful improvisation during complex events (Tuuli & Rowlinson, 2007). Such practices/procedures include access to career development opportunities, work autonomy, and ensuring employee input is heard and valued by leadership (Wall et al., 2002).

On the other hand, the extent to which responders feel empowered depends heavily upon the behaviors of leadership. Leaders help empower their subordinates by encouraging participative decision-making, leading by example, sharing information, coaching, and demonstrating concern for employees (Albrecht & Andreetta, 2011; Pearce & Sims, 2002). It is important to consider leader behaviors as a separate dimension because without support from leadership and the healthy work environment this creates, subordinates may not feel they are truly empowered to make decisions on the fly by policies and procedures alone, and may thus lack confidence in their actions (Hopkinson et al., 2019; Ro & Chen, 2011).

The present study thus tests a series of hypotheses formulated to explore the effects of specific empowerment practices/procedures and empowering leadership behaviors on levels of adaptive performance in U.S. fire departments during complex emergency incidents. Only two studies have linked empowerment practices/procedures to adaptive performance, or an individual(s)' ability to modify their behavior to meet the demands of a changing environment

(Charbonnier-Voirin & El Akremi, 2011; Tabiu et al., 2020), and just one study has linked empowering leadership behaviors to adaptive performance (Qiu et al., 2018a); no research on this important topic exists in the fire service, where adaptability is needed to better handle increasingly complex events.

In addition, the present study explores tempo balance as a potential moderator for the empowerment practices/procedures – department adaptive performance relationship. Tempo balance is an original measure developed in the present study that refers to measures of excess fatigue or stress from mandatory overtime policies and lack of sufficient time off (akin to work overload and exhaustion). During focus groups conducted in the pilot study, it became clear that tempo balance is highly relevant to the fire service where mandatory overtime policies commonly lead to long, consecutive shifts (e.g., 72-96 consecutive hours) multiple times a month, which have shown to inhibit firefighters' safety and performance (Choi et al., 2014). While limited, some research in traditional organizations suggests that levels of employee overload and work exhaustion can heighten or attenuate the effects of empowerment practices/procedures on performance levels (Ceschi et al., 2017), but these concepts have never been explored or tested for interactive effects with empowerment practices/procedures and adaptive performance in any type of organization. Therefore, the present study tests tempo balance as a moderator of the relationships between empowerment practices/procedures and adaptive performance, such that when strong, tempo balance has the capacity to strengthen the relationships between empowerment practices/procedures and department adaptive performance. Alternatively, when imbalanced, poor tempo balance can weaken these relationships.

Moreover, while theoretical insights provide direction, limited research exists to identify potential mediators of the empowering leadership behaviors – adaptive performance relationship. Following Qiu et al. (2018), who find that psychological empowerment fully mediates the empowering leadership behavior – adaptive performance relationship, the present study tests the

construct of work autonomy, based on the idea that leaders must empower their employees to make important decisions rapidly and with limited to no consultation (Bigley & Roberts, 2001; Wall et al., 2002), and its ability to explain why empowering leadership behaviors influence adaptive performance. While past research suggests individual adaptive behaviors that lack support and elude detection by management can undermine department-level performance in complex emergencies (Pettersen & Schulman, 2019), the assumption is that individualized empowerment practices recognized by the organization lead to department-level performance outcomes due to their designed influence on employees' collective commitment, motivation, behavior, and skills (Tharenou et al., 2007), a process that leads to increased organizational effectiveness in complex conditions (Neal & Webb, 2006). In the remainder of this dissertation, "adaptive performance" is implied at the department level unless otherwise specified.

The present study also contributes to an understudied area in leadership research. Most existing studies assess leadership behaviors and performance outcomes by studying a single leadership referent (organizational/senior vs. mid-level), usually with mid-level supervisors receiving the most focus (e.g., Cropanzano et al., 2015; Engel, 2001). Therefore, in addition to mid-level supervisors, the present study also seeks to understand the influence that senior leader behaviors have on the effect of perceptions of work autonomy and consequent department adaptive performance, particularly by testing for interaction effects between the leadership levels. That is, do employees simply need their immediate supervisors to display empowering behaviors? Or, do they also need senior leaders to be "effective", empowering leaders, to feel personally empowered and subsequently demonstrate department adaptability in situations of high complexity? This question has also yet to be addressed in the literature and it has important implications. To illustrate, as mentioned, the lack of response organizations' success during complex incidents is often attributed to senior leaders who are risk averse, overly bureaucratic, and resistant to change (Wankhade et al., 2020). Providing evidence for mechanisms that can

achieve the strongest effect on adaptive performance by understanding whether senior leaders and immediate supervisors must both be empowering (additive effects), or if immediate supervisors can compensate for senior leadership's inadequacies (compensatory effects), highlights necessary conditions of empowerment and operational success during high complexity. Finally, the present study uses a sequential explanatory mixed methods design utilizing focus group data to ascertain the hypothesized model and quantitative findings, ultimately generating additional insights on the specific leadership and managerial factors that firefighters perceive as primary threats to their ability to feel empowered via their competence (self-efficacy), meaning, impact, and self-determination. Understanding these nuances will help scholars develop more rigorous measures and better understand the causal mechanisms that link empowerment to performance outcomes.

### *Practical Importance*

It is critical that we understand these relationships, particularly in the fire service context, because disaster events (e.g., hurricanes, floods, earthquakes, wildfires) are increasing in both number and severity; losses are also expected to increase due to changing conditions (e.g., climate change, globalization, technological change, urbanization, political and economic instability) that make response conditions increasingly unpredictable and complex (Cutter et al., 2015). Understanding how managerial practices/procedures and leadership behaviors can empower firefighters to positively influence department adaptive performance in these highly uncertain environments is thus timely research for first response organizations, and other hierarchical organizations, struggling to maintain adaptability under changing conditions. Broken down into the empowerment practices/procedures model and empowering leadership behaviors model, all hypotheses are summarized in the conceptual models below (Figures 1 and 2).

Figure 1: Hypotheses 1-8 (Practices and Procedures Model)

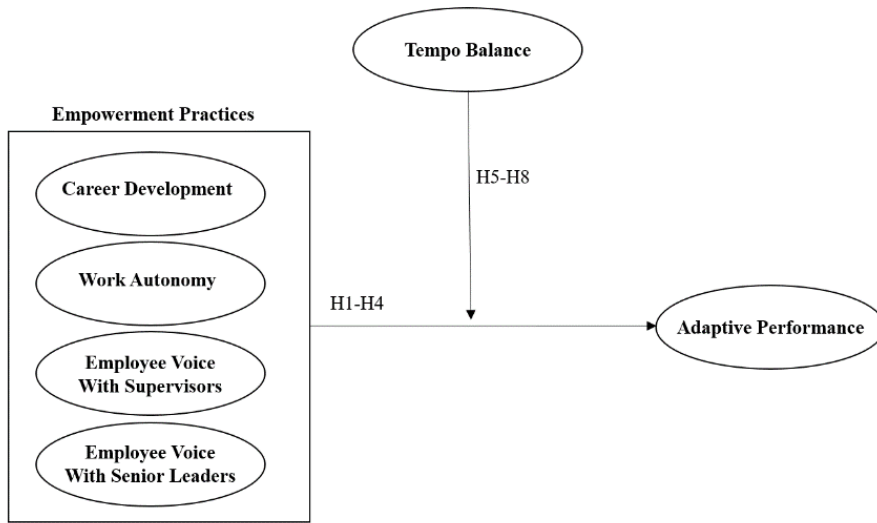
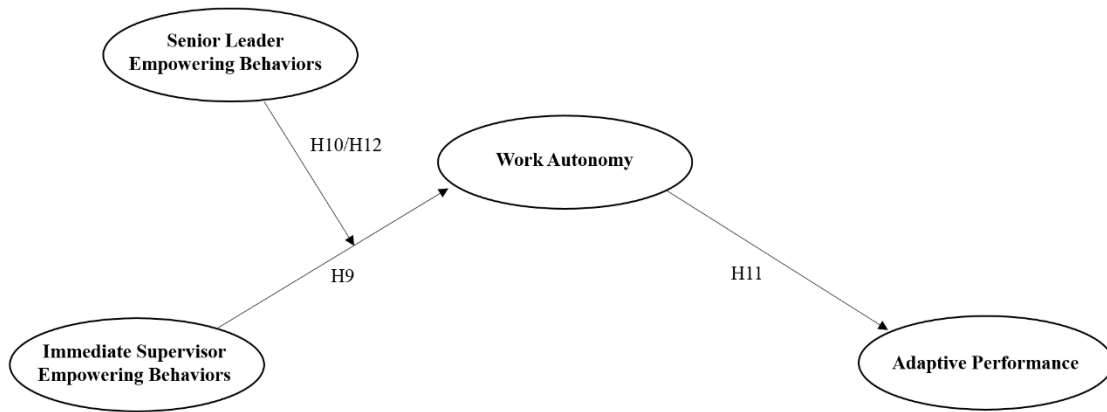


Figure 2: Hypotheses 9-12 (Empowering Leadership Behaviors Model)



*Study Outline*

The present study proceeds and is summarized as follows. In Chapter 2, I first provide a background on public management, the Incident Command System (ICS), and adaptive performance to describe how emergency response failures in complex disasters are often a result of over-reliance on Classical approaches to public management and mechanistic features of the



ICS, which limit adaptability via their emphasis on heavy centralization. While the Classical approach is suitable for routine response conditions, I argue that the use of Human Resources (HR) leadership and managerial approaches (e.g., empowerment) help response organizations become more adaptable during complex emergencies by buffering constraints imposed by the hierarchy and risk averse leaders. The literature review also shows that HR constructs such as empowerment practices/procedures and leadership behaviors have received little attention in adaptive performance studies, with personality and individual difference variables receiving the most focus. No existing studies explore HR constructs and adaptive performance in a sample relevant to the fire service in the context of high emergency response complexity.

In Chapter 3, I introduce structural and psychological empowerment as the primary theoretical components. Following this, I utilize empowerment theory and ideas presented in the literature review to identify specific empowerment practices/procedures and empowering leadership behaviors, and develop a series of hypotheses. Tempo balance, a new construct, is tested as a moderator of the empowerment practices/procedures – adaptive performance relationship. In Chapter 4, I detail methods and perform extensive scale development procedures in order to properly develop and validate existing and new constructs. All statistical tests show that the measures display high construct validity and reliability, including tempo balance.

In Chapter 5, I test the hypotheses and provide a detailed discussion of the results. The results primarily support the overall theory which predicted that empowerment practices/procedures (career development opportunities, work autonomy, and employee voice with supervisors and senior leaders) and empowering leadership behaviors would enhance department adaptability in complex response conditions due to their positive influence on firefighters' sense of meaning, competence, self-determination, and impact at work. The significant relationship between tempo balance and department adaptability also shows that a more balanced workload designed to keep employees from becoming too tired, stressed, or

fatigued helps firefighters be more resilient when response conditions are expanding. The results for interaction effects show that when firefighters are stressed and fatigued from imbalanced workloads (tempo balance = low), however, providing access to career development opportunities and work autonomy are extremely important for increasing department adaptive performance, as compared to when firefighters are not stressed and fatigued (tempo balance = high). Moreover, work autonomy mediates the relationships between immediate supervisor empowering behaviors, senior leader empowering behaviors, and department adaptive performance with bootstrapping procedures for indirect effects. However, the moderated and moderated mediation hypotheses for senior leader empowering behaviors were not supported, implying that immediate supervisors should be able to compensate for non-empowering senior leaders and influence work autonomy when they display high empowering behaviors of their own.

In Chapter 6, I further investigate nature of the quantitative model/findings using a sequential explanatory mixed methods approach. Qualitative data was produced from seven focus groups consisting of firefighters of similar ranks. In general, the focus group participants modeled their discussion around what can be described as threats to empowerment, where they not only ascertained the present study's empowerment model, but also demonstrated an expanded model of empowering leadership behaviors and empowerment practices/procedures in the fire service by highlighting extra dimensions for each construct that can either increase or hinder its influence on perceptions of psychological empowerment and consequent outcomes. Lastly, in Chapter 7, the present study concludes by summarizing the findings and discussing practical implications, avenues for future research, and study limitations.

## CHAPTER II

### LITERATURE REVIEW AND THEORY DEVELOPMENT

#### *A Background of Public Management Approaches*

Approaches related to the way public organizations should be structured and managed can be categorized along two major paradigms in public administration: The Classical approach, and the Behavioral approach. The combination of early-mid 20<sup>th</sup> century works such as Wilson's definition of public administration, Taylor's scientific management theory, and Weber's prescriptions for organizational management and structure (hierarchy as the main mechanism for control and coordination), constituted the core of the classical approach to public administration. To illustrate, Weber (1925), known as one of the fathers of public administration, argues that the most efficient and rational way to organize human activity is through bureaucracy, or that organized hierarchies and systematic processes such as clear rules, regulations, and lines of authority, are required to maintain order, maximize efficiency, and eliminate favoritism. Based on these ideas, and ideas from other scholars such as Gulick and Urwick (1937)<sup>2</sup>, different groups, such as the Departmentalists (also "Administrative Management") emerged in the Classical period emphasizing the use of formal organizational structures to maximize organizational efficiency. Specifically, common principles of these Classical movements include, a) authority

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<sup>2</sup> Gulick argued that coordination should be achieved via a structure of authority (hierarchy) between the director and work subdivision, and that there should be one master (no unity of command).

should correspond to level of responsibility, b) unity of command should be established, and, c) chain of command should not be circumvented (Fry & Raadschelders, 2017). Even today, these principles are deeply ingrained in many administrative cultures that adopt rigid hierarchical structures such as police and fire organizations (e.g., the ICS), which will be discussed in more detail below.

Early scholars such as Merton (1940), however, inspired a change from the Classical approach by detailing the many inefficiencies of bureaucracy. Specifically, Merton (1940) suggested that the same rational rules and control that Weber (1925) argues makes bureaucracies reliable and efficient, can easily lead to inefficiencies, dysfunctions, or limitations such as lack of adaptability. That is, strict rules can interfere with adaptation when certain conditions occur that are not clearly envisioned by those who write the rules. This means that factors which produce efficiency in general times can produce inefficiency in specific instances, such as complex environments. The inflexible nature of formal rules can also result in individuals using tactics of survival which displace the official goals of the organization, a process otherwise known as goal displacement (Merton, 1940).

The Behaviorists, then, attempted to modify (not eliminate) the hierarchical organizational structures touted by Classical theorists (Fry & Raadschelders, 2017). While Classical scholars demanded centralization with control and coordination, Behavioral scholars argued for decentralization and providing organizational members more control at work, as this would remove constraints to employee prosperity, performance, and adaptive behaviors (Fry & Raadschelders, 2017). For example, while the Classical approach emphasized executive decision-making authority and close supervision, the Behavioral approach argued for more participatory decision-making procedures and more autonomy on the part of employees (Fry & Raadschelders, 2017). Early Behaviorists believed that constant bureaucratic pressures cause individuals to

adhere to rules as an end, rather than a means, which is known as blind conformance (Merton, 1940).

At the core of the Classical approach is the belief that employees are only segmentally involved in the organization and that their behavior can be control by monetary incentives. Behaviorists, however, believe that employees should be fully involved in the organization and expect intrinsic, rather than just instrumental rewards for their work. For example, the Hawthorne experiments demonstrated that managerial attention paid to employees as individuals, the extent to which they allow employees control over their work, the willingness of management to listen, provide direct feedback, and other interactional variables also serve to motivate people (Shafritz, 2015). Thus, the Behavioral approach stresses that organizations must learn to address a wider range of human needs if they are to effectively motivate employees and adequately control their behavior (Fry & Raadschelders, 2017). Movements eventually formed along the Hawthorne experiment findings and this line of thinking, such as the Human Relations movement, which is a contemporary form of the Behavioral approach that seeks ways to restructure the organization and adjust managerial styles to become more responsive to a wider set of social and psychological needs in the organization (Fry & Raadschelders, 2017).

At the core of these leadership and managerial approaches are assumptions about human behavior and human needs (Shafritz, 2015). McGregor's (1960) Theory X and Theory Y, for example, explains how a manager's assumptions about human behavior predetermines their administrative style. Theory X assumes that people must be coerced, controlled, and directed towards organizational goals because they dislike work and are not motivated, and people like to be treated this way to avoid responsibility (McGregor, 1960). Theory X falls in line with the Classical approach to public management and resembles beliefs underlying command and control approaches commonly found in military and paramilitary organizations. Theory Y, on the other hand, highlights that people have intrinsic interest in their work, are self-motivated, desire to be

self-directing and acquire responsibility, and have the capacity to be creative (McGregor, 1960). Theory Y assumes that individuals will exercise self-direction and self-control to achieve organizational objectives to the extent to which they are committed to those objectives (McGregor, 1960), and is more in line with the Behavioral/Human Relations approach. Theory Y therefore implies that managers create conditions for members to help them believe they can achieve their own goals by best by directing their efforts towards the success of the organization.

Ouchi and Price (1978) also prescribe how employees should be motivated for increased productivity; like other authors, they see that productivity can be increased as social goals are met. Essentially, organizations that have a strong emphasis on the well-being of employees (and jobs for life) are better able to promote stable employment, employee loyalty, high productivity, and high employee morale and satisfaction (Ouchi & Price, 1978). Developing Theory Z, the authors suggest this is best achieved with a strong organizational philosophy and culture, long-term staff development and employment, consensus in decisions, concern for happiness and well-being of employees, informal control with formalized measures, and individual responsibility (Ouchi & Price, 1978), which is more aligned with the Behavioral/Human Relations approach.

Overall, scholars from the behavioral era, including Ouchi and Price (1978), asserted that hierarchical organizations are naturally and inevitably hostile to the growth needs of individuals. Behavioral scholars also emphasized the inefficiencies of bureaucracy along the lines of Merton (1940), in that the rigid hierarchical structure of such organizations limits their ability to adapt to changing environments, and that this is becoming more problematic due to the increasingly complex conditions of today. Organizational behavior research thus began to address questions such as how organizations could encourage their employees to grow and develop using Human Relations logic due to the belief this would enhance organizational performance, creativity, adaptability, and prosperity (Shafritz, 2015).

### *Public Management in Emergency Response Organizations*

While the debate about the appropriate degree of decentralization in public organizations is ongoing, in the past few decades, the Behavioralist logic has been used repeatedly to identify problems associated with various emergency response failures during complex disasters, such as Hurricane Katrina. To illustrate, as detailed extensively in the introduction, scholars argue response failures in such disasters are often a product of excessive bureaucratic constraints, heavy centralization, and resulting lack of flexibility, and thus emphasize the use of various HR leadership and managerial approaches to help response organizations become more adaptable during complex events (e.g., Bigley & Roberts, 2001; Neal & Webb, 2006). For example, some scholars argued for approaches that focus on employee motivation and commitment through empowerment rather than control, as this showed to be most associated with the organizational goals of flexibility and adaptability (Truss et al., 1997). As one example, this is because motivated and committed employees tend to respond better to changes and new situations by providing extra effort (Gould-Williams, 2007; Meyer et al., 2002). However, little empirical research was performed to adequately assess the Behavioral/HR argument in public organizations, let alone response organizations, and disagreements continue to revolve around the hierarchical nature of the Incident Command System (ICS), and whether the command and control approach could allow for adequate decentralization. In other words, at the core of the debate are the fundamental differences seen in the Classical and Behavioral/HR approaches and assumptions regarding human needs and behavior, and the resulting styles of leadership and management over employees and structure of the organization. To understand how and when the HR approach can work under the ICS model, a detailed discussion on the ICS is necessary.

### *The ICS as a Flexible Command and Control Model in Disaster Response*

Scholars and practitioners alike have long debated the ICS's effectiveness as an emergency response organizing mechanism (Bigley & Roberts, 2001; Neal & Webb, 2006). The debate is centered around the hierarchical structure of the ICS and whether the command and control model is reliable for operations that surpass common emergencies, or those that involve uncertain situations or events of large types, scales, and complexity (Jensen & Waugh, 2014).

### *The Nature of the ICS*

First, it is important to understand the characteristics of the ICS. Designated by the Department of Homeland Security, the ICS is now the national policy for on-scene incident management in the United States. The ICS was developed following a devastating California wildfire in 1970. Overall, the ICS was designed to be a flexible hierarchy that clarifies who is in charge during the response effort. The ICS is considered to be flexible because its structure can be expanded or contracted relative to the size of the incident in order to guide the most effective response. To illustrate, small incidents usually require a single incident commander (who heads the hierarchy) to manage the event. However, as the size of the incident increases, the ICS can be expanded to divide the responsibilities among different sections that are headed by different individuals, who sit just below the incident commander on the hierarchy. These sections include operations, logistics, planning, and finance/administration, which are present in every response incident, although the single incident commander can handle all functions when incidents are small. Often times, large incidents that demand coordination with different types of response organizations require multiple incident commanders, or a unified command at the helm of the ICS. Despite the nature of the event, the ICS has a predefined hierarchy (clear Chain of Command) and is characterized by extensive rules, procedures, policies, and instructions (Bigley & Roberts, 2001); a command and control model that is a prototypical example of the Classical management thinking (Buck et al., 2006). Scholars often highlight these characteristics, however, when they argue that the ICS is less effective in expanding, complex disaster incidents.



### *ICS Critiques*

The debate on the ICS as an effective organizing mechanism for complex disaster incidents is centered around the following critiques: First, disasters of increased size and scope often require coordination with non-fire, local, and outside organizations, although scholars have stated that the ICS does a poor job at integrating such organizations in the hierarchy during the response effort (Cole, 2000a). One reason this occurs is because unlike the ICS, volunteer and non-governmental groups often do not operate in a hierarchical structure of management (Chang, 2017). Second, as incidents escalate, de-escalate, or shift in operational periods, there are numerous command transitions which can lead to information loss (Cole, 2000a). Evidence of this can be seen in Wenger et al. (1990), who conducted interviews on disaster responders and determined that such shifts in authority during operational periods lead to information loss and obstacles for new incident commanders. Third, there can be substantial differences in how agencies implement the ICS which can vary from one agency and/or region to another (Cole, 2000a). Chang (2017) suggests that such differences in ICS implementation result from different organizational cultures, insufficient ICS training, and those who are simply unwilling to use the ICS in routine operations. As a result, people have different perspectives on the effectiveness of ICS in certain contexts because it has been exercised in various ways. Fourth, the ICS has also been criticized for “mobilization overkill”, or that it can be less effective for incidents that occur in limited or focused areas (Wenger et al., 1990). This is because the massive ICS mobilization of resources (e.g., emergency personnel, equipment) on limited disaster impacts can produce serious problems related to convergence and congestion at the disaster site (Wenger et al., 1990). Primarily, however, scholars argue that the rigid hierarchical nature of the ICS makes it an ineffective mechanism for responding to complex disaster response scenarios (Jensen & Waugh, 2014; Wenger et al., 1990). Scholars believe bureaucratic structures such as the ICS inhibit the

flow of timely information and are too centralized to be flexible or adaptable enough to properly react to changing circumstances (Neal & Phillips, 1995). This can become especially problematic during complex incidents that require the hierarchy to expand. For example, based on numerous field studies, Quarantelli (1988) and Dynes (1994) noted that exercising control over frontline responders by tightening hierarchical constraints is ineffective in the beginning hours of large, complex emergencies due to the time needed for higher levels to gain a sufficient understanding of the situation, as complex emergencies generally demand immediate decision-making which is best made by individuals with ongoing direct access to the problem at hand (Groenendaal et al., 2013).

### *ICS Benefits*

While numerous scholars have highlighted the problems associated with the ICS, scholars have also argued that the system has many benefits. Foremost, the hierarchical model is an effective means for response in predictable and stable disaster environments (Neal & Phillips, 1995). For example, Goldfarb (1997) stated that the hierarchical structure of ICS provides discipline and that it creates a clear delegation of authority and responsibility in disaster response. Cole (2000) also performed a study that examined the strengths of ICS from the perspective of practitioners, and showed that participants ranked hierarchical system aspects such as delineated responsibilities for every position, uniform terminology, and manageable span of control as being major benefits of the ICS.

Moreover, scholars have argued that the ICS hierarchy can actually operate with a degree of flexibility (Bigley & Roberts, 2001). That is, during predictable aspects of disasters, employees are able to shift between predetermined organizational routines; but also during complex problems, they are allowed to improvise their approaches to some extent (Bigley & Roberts, 2001). Scholars such as Leonard and Howitt (2010) have also demonstrated empirically that the

ICS can be flexible and robust in a variety of situations. Thus, the ICS does not solely utilize a hierarchical structure to manage disaster responders. Rather, according to Moynihan (2007), the ICS is comprised of hierarchical and network characteristics, which can also be referred to as mechanistic and organic organizational structures, respectively. According to organizational theory, these design elements coexist and can be used in the ICS to various degrees in order to operate in the most effective way during a particular disaster response. Leaders must understand how (via leadership styles and managerial approaches) and when to influence the oscillation of the system towards more organic features or more mechanistic features relative to the size and complexity of the disaster event.

To illustrate, a mechanistic system emphasizes centralization and uses the establishment of clear rules and a hierarchy to manage employees, while an organic system instead emphasizes decentralization and focuses on communication and cooperation (Burns & Stalker, 1961). In this way, the ICS is most similar to a mechanistic system (and the Classical approach to public management), because it has a hierarchical structure based on control and authority. After the IC makes centralized or hierarchical decisions, instructions are provided to responders who should not go around the chain of command. Moreover, when unexpected issues arise, employees look to their ICS supervisors for instructions and rely on vertical communication to request resources and complete tasks (Chang, 2017). Burns and Stalker (1961) state that mechanistic systems tend to be more effective in stable environments where most organizational tasks are routine, which is reiterated by other scholars such as (Shafritz, 2015). However, because the primary form of ICS communication is vertical, it can take longer to transmit reports, instructions, and requests through the hierarchy, particularly when the ICS structure is large, which can diminish response effectiveness in complex environments (Bigley & Roberts, 2001). Thus, according to Burns and Stalker (1961), since constant change and improvisation are needed to handle unexpected events, *organic* systems are better equipped to handle complex situations. As a recent study by Kanten et

al. (2015) empirically demonstrates, organic organizational structures, rather than mechanistic structures, produce a positive and significant relationship with adaptive performance.

In light of emergency management debates on the ICS by scholars such as Bigley and Roberts (2001), I argue that many of the problems scholars typically associate with the hierarchical structure of the ICS during complex incidents could be due to the tendency of departments over-relying on mechanistic characteristics of the ICS during such events, where certain organic features that are available in its design serve to be more appropriate.<sup>3</sup> Since the ICS is composed of both mechanistic and organic design elements (Chang, 2017), leaders and managers can use their decision-making to influence the rigidity of the ICS in different response scenarios. Thus, certain leadership styles and management approaches and strategies can influence the extent to which ICS operations are more mechanistic or organic to match the demands of the incident.

#### *Broad Leadership and Managerial Strategies to Oscillate the Structure: A Brief Illustration*

To illustrate, as implied in the discussion above, one way that leaders can shift between structures is through their emphasis on centralized and distributed/shared decision-making (Chang, 2017). Leaders can observe disaster environments and shift to more participative, or shared decision-making (organic design elements) strategies when disasters are increasingly complex, or more centralized decision-making (mechanistic design elements) when responses are routine. One opportunity for leaders to employ distributed/shared decision-making is during hierarchical expansion. As incidents increase in size and scope, the Incident Commander (IC) decides how the hierarchy of the ICS expands. Thus, the IC's decision-making process during top-down expansion can influence extent to which design elements are more mechanistic or more

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<sup>3</sup> That is, scholars argue that the disaster environment must be both predictable and stable for the hierarchical command and control approach to be an effective mechanism for accomplishing goals (Neal & Phillips, 1995).

organic in nature. When the IC relies heavily on pre-established rules and regulations to determine hierarchical expansion, the system is more mechanistic, but if the IC uses interactive exchanges with other ICS users and/or disastrous environments and needs, the system is more organic.

To oscillate towards organic characteristics, ICS supervisors can also permit subordinates a greater ability to improvise in situations that involve unexpected problems (Bigley & Roberts, 2001). That is, providing subordinates information and advice rather than instructions. Bigley and Roberts (2001) suggest that the ICS becomes less useful when organizations decide how resources should be used or how employees should carry out tasks by strictly adhering to standard operating procedures, particularly in situations where standard operating procedures are not sufficient to meet the needs of the event and/or response environment. The authors instead show that the ICS is more useful when responders improvise tactics warranted by the situation (Bigley & Roberts, 2001).

Taken together, an ICS system can be determined to be more organic and thus more suitable for larger types of incidents based on a number of leadership and managerial strategies, such as the degree to which leadership is receptive to the perspectives and opinions of various ranks within and outside the hierarchy, and/or the degree to which ICS supervisors provide their subordinates latitude to improvise when unexpected problems arise. In other words, as will be detailed in the next chapter, leaders and managers can enable these organic characteristics available in the ICS with strategies that primarily *empower* employees. As compared to mechanistic structures (non-empowering), organic systems are associated closely with empowering characteristics, such as participative decision-making and granting the ability to improvise (Burns & Stalker, 1961). Empowering employees is particularly important for emergency response organizations, such as the fire service, that hope to grow and develop employees so they can effectively adapt to changing conditions (Wall et al., 2002). However,

additional theory is needed to identify specific dimensions of empowerment and the mechanisms linking them to adaptive performance. Before introducing empowerment as the theoretical component, a discussion on adaptive performance is necessary.

### *Adaptive Performance: Background of the Construct*

Over the years, scholars have increasingly understood employee performance to be a multidimensional construct that reflects the totality of behaviors necessary to accomplish organizational goals (Austin et al., 1991; Motowidlo, 2003). It was not until the late 1990s, however, that scholars began to include adaptive performance in their models (e.g., Allworth & Hesketh, 1997), suggesting that former performance models were incomplete. Overall, scholars argued that organizations were operating in more changing, dynamic environments and that this required a more adaptable workforce (Pulakos et al., 2000). Thus, studies began to suggest that adaptive performance could be differentiated from other dimensions of performance (Hesketh & Neal, 1999), ultimately leading to adaptive performance being understood as its own facet of performance.

However, adaptive performance has been assessed in different ways and under different labels over the last two decades because the adaptive performance literature has grown upon disparate research perspectives and methods (Baard et al., 2014). For example, the terms adaptive performance, adaptation, adaptability, adaptive expertise, adaptive transfer, and performance adaption have all been used interchangeably under various definitions which has resulted in substantial conceptual ambiguity about whether they refer to identical, partially overlapping, or distinct constructs (Jundt et al., 2015). However, all conceptualizations assume adaptive performance occurs in connection with externally induced changes, which in turn suggests adaptive performance occurs when subordinates adopt new roles, acquire new skills, or modify existing work behaviors in order to respond to work-relevant changes and meet organizational

objectives (Chan, 2000; Jundt et al., 2015). Another common theme across adaptive performance variations includes it being conceptualized as a set of behaviors directed towards maintaining performance levels or limiting performance decrements as a result of change (Jundt et al., 2015).

While team-level adaptive performance studies are increasing (Hoandră, 2017), adaptive performance has primarily been assessed at the individual level using Pulakos et al.'s (2000) operationalization (and later by Charbonnier-Voirin & Roussel, 2012). To illustrate, Pulakos et al. (2000) identified eight dimensions of individual adaptive performance, including: handling uncertain or unpredictable work situations; solving problems creatively; handling work stress; learning new tasks, technologies and procedures; demonstrating interpersonal adaptability; demonstrating cultural adaptability; and demonstrating physically oriented adaptability. In a later study, Pulakos et al. (2002) showed that these eight dimensions loaded on to a single general factor: adaptive performance. However, certain combinations of these dimensions are relevant for different organizational circumstances and job types (Charbonnier-Voirin & Roussel, 2012; Pulakos et al., 2000). For example, Pulakos et al. (2000) showed that for job types similar to those in the fire service (e.g., police trooper, soldier, infantry), dealing with uncertain and unpredictable work situations and handling emergency or crisis situations were among the most relevant dimensions of adaptive performance. Applying these insights, adaptive performance is defined here as the average of employee perceptions towards their ability to adapt to dynamic work environments to deal with uncertainty in emergency crisis situations (Pulakos et al., 2000). Theoretically, this definition is consistent with individual adaptive performance, in that department adaptive performance is demonstrated when employees in the department quickly and properly adjust their behaviors to the demands of new events and complex work environments (Pulakos et al., 2000). The definition here is only concerned with the adaptive performance dimensions noted to be most important for the emergency context and is not concerned with the level of individual perceptual agreement. While past research suggests individual adaptive

behaviors that lack support and elude detection by management can undermine department-level performance in complex emergencies (e.g., Pettersen & Schulman, 2019), the assumption here is that individualized empowerment practices recognized by the organization lead to department-level performance goals due to their designed influence on employees' collective commitment, motivation, behavior, and skills (Tharenou et al., 2007). In the remainder of this dissertation, "adaptive performance" is implied at the department level unless otherwise specified. Due to the reasons above, along with my measure of adaptive performance being specifically designed for military and paramilitary organizations during emergency contexts, I attempt to limit theoretical insights on adaptability and complexity from studies on private organizations.

Overall, adaptive performance is demonstrated when employees adjust their behaviors to the demands of work situations and new events (Pulakos et al., 2000). For example, employees display successful adaptive performance when they are able to efficiently deal with uncertain and unpredictable work environments (by adapting quickly and easily) that result from organizational restructuring, changes in priorities, fewer available resources, or joining a new organization or group (Charbonnier-Voirin & Roussel, 2012). Similarly, the ability to handle emergencies or crises situations largely corresponds to the speed that an individual can react to or avoid a hazard, crisis situation, or an emergency in an appropriate way (Pulakos et al., 2000, 2002). As a predictor, adaptive performance has also been found to enhance task performance (Shoss et al., 2012), although more research is needed to link adaptive performance to organizational-relevant outcomes.

### *Empirical Antecedents of Adaptive Performance*

Empirical research shows numerous antecedents of adaptive performance. In their literature review, based on dozens of relevant studies, Jundt et al. (2015) found that previous research on individual adaptive performance could be categorized into 1) proximal predictors and



2), distal predictors. Proximal predictors of individual adaptive performance, or those which are conceptually closer to the behavioral outcome that often stem from distal predictors, include self-efficacy, metacognition, declarative knowledge, knowledge structure coherence, and adaptive experience (Jundt et al., 2015). Distal predictors, on the other hand, which are more distant to the behavioral outcome and often work through proximal predictors, commonly include cognitive ability, conscientiousness, emotional stability, mastery goal orientation, error-management training, adaptive guidance, exploratory learning, leader support, and transformational leadership (Jundt et al., 2015). Most studies included in the review, however, use supervisory ratings of adaptive performance (e.g., Allworth & Hesketh, 1997; Blickle et al., 2011), rather than perceptions from general employees.

With the exception of a few variables mentioned above, it is clear that most studies on adaptive performance look at individual differences that underlie it, such as through the dimensions proposed by Pulakos et al. (2000). To illustrate, Pulakos et al. (2002) found past experience, interest, learning new tasks, self-efficacy, cognitive ability, and the personality constructs of achievement motivation and openness to predict adaptive performance in a large (N=739) military sample. Another study by Howe (2019) found that general mental ability driven differences and goal type instead predict adaptive performance. Unfortunately, few meta analyses on adaptive performance exist - although an exception is Huang et al. (2014), who focused on individual differences in personality and found that emotional stability and ambition are the two primary personality predictors of adaptive performance.

Certainly less frequent are studies that examine leadership behaviors and Human Resources Management (HRM) practices/procedures with adaptive performance, illustrating the need to better understand predictors from this category. As Jundt et al. (2015) note in their review, the amount of research focusing on the task, job, social, or organizational context in which adaptive performance takes place is surprisingly small. Upon conducting a far more

extensive search than what was required for the individual differences section above (updated throughout the creation of this dissertation), I identified a full list of antecedents from this less-cited category (typically in lower impact-factor journals). These can be categorized as 1) leadership behaviors, and, 2) managerial practices/procedures:

#### *HR Leadership Behaviors*

- Transformational leadership (Charbonnier-Voirin et al., 2010).
- Leader vision (Griffin et al., 2010).
- Managerial empowerment, supervisor support (Charbonnier-Voirin & El Akremi, 2011).
- Empowering team leaders (Rousseau & Aubé, 2020).
- Organizational empowering leadership (Qiu et al., 2018).
  - Psychological empowerment as a mediator.

#### *HR Managerial Practices/procedures*

- Continuous learning, strong learning climate (Han & Williams, 2008).
- Climate for innovation (Charbonnier-Voirin et al., 2010).
- Training, career planning, job autonomy (Tabiu et al., 2020).
- Shared leadership, access to resources (Rousseau & Aubé, 2020).
- Self-leadership (Marques-Quinteiro et al., 2019).

As seen, most antecedent HR leadership behaviors and managerial practices/procedures are in line with the Behavioral approach, Theory Y, and organic organizational theory. However, Rousseau and Aubé (2020) is the only study among those listed here to use a sample relevant to the fire service (the authors sampled public safety organizations). The others involve utility companies, hotels, banks, and other similar enterprises primarily in countries outside the U.S., where structural and cultural differences are likely to account for a high amount of variance. It is not understood if such predictors behave similarly in the U.S. fire context, and if traditional

measures will suffice. Overall, the lack of research on leadership and HRM practices/procedures as predictors of adaptive performance in public organizations is largely due to the infancy of the construct and assumptions related to the way public organizations should be structured and managed, where only recently has the Behavioral/HR approach gained traction (previously dominated by the Classical approach).

### *Chapter 2 Summary*

Considering the discussion in the previous chapter, which describes the inefficiencies of bureaucracy (e.g., Merton, 1940), the importance of HR approaches, which suggests employee motivation is a product of leader and managerial strategies that emphasize employee needs, growth, and development (Fry & Raadschelders, 2017), and the importance of organic characteristics acting in the ICS during complex incidents (Bigley & Roberts, 2001), the present study focuses on empowering HRM practices/procedures, and empowering leadership behaviors as predictors of adaptive performance. As discussed extensively above, emergency response organizations are faced with increasingly complex disasters and threats that produce more unpredictable response scenarios than ever before. Responders' efforts to adapt quickly, easily, and appropriately to unpredictable work conditions, however, are often constrained by the hierarchical structure of their organizations, which is most suitable for predictable and stable disaster environments that involve typical response scenarios (Neal & Phillips, 1995). However, as will be described in the primary theoretical component below, empowerment explains how response organizations can become more adaptable in conditions of high uncertainty despite these new dangerous, changing conditions of today; specifically, by buffering the constraints imposed by the hierarchy and risk averse leaders (Wall et al., 2002).

As demonstrated by the mere four studies cited in the previous section, empowering practices/procedures and empowering leadership behaviors have also been neglected in adaptive

performance studies, with personality and other individual difference variables receiving the most focus. Moreover, the few empowerment studies cited in the literature review are performed in traditional foreign business contexts, providing little insight for U.S. emergency response. These studies also do not differentiate between empowerment among different leadership referents, and often do not include relevant mediators and/or moderators to adequately explain the empowerment - adaptive performance relationship, which has never been addressed in the fire context during conditions of high complexity and uncertainty. Overall, the present study thus follows the Behavioral approach (particularly, the Human Relations approach), organic theory, and core aspects of Theory Y and Theory Z which emphasizes the use of empowerment to address adaptive performance issues in the fire service, caused by their heavy reliance on Theory X, mechanistic, and Classical approaches to organizational structure and management. Next, Chapter 3 presents the primary theoretical component of structural and psychological empowerment to identify specific constructs, better explain these mechanisms, and to develop a series of hypotheses.

## CHAPTER III

### PRIMARY THEORETICAL COMPONENT AND HYPOTHESIS DEVELOPMENT

The review of the literature in Chapter 2 suggests that empowerment practices/procedures, and empowering leadership behaviors, are characteristics of organic structures, which are important mechanisms for bypassing constraints of the hierarchy and the command and control model to demonstrate adaptive performance in conditions of high uncertainty (e.g., participative decision-making, developing the abilities of responders, and granting them autonomy to improvise when the situation warrants). The theory of structural empowerment detailed below helps further identify empowering leadership behaviors and practices/procedures important for inclusion in the testable model.

#### *Structural Empowerment*

According to Kanter (1985), the role of management in empowering employees is to provide them with the ‘power tools’ that maximize their ability to accomplish work goals in an effective and meaningful way. Kanter's (1979, 1977) structural empowerment approach describes that employees located lower in the organization hierarchy will feel empowered if they have access to opportunity, information, support, and resources. *Access to opportunity* involves employees’ access to learning and development that helps advance them in the organization (Wong & Laschinger, 2013); *access to information* refers to the knowledge that is necessary for

employees to perform job activities (Kanter, 1979, 1977); *access to support* describes an interactive, coaching, and facilitating leadership style and overall managerial support (Spence Laschinger et al., 2010); and *access to resources* reflects employees' abilities to access the supplies, resources, and materials that are necessary to achieve organizational goals (Kanter, 1977).

Employees experience powerlessness when they do not have access to these empowerment structures, which diminishes their well-being and overall organizational functioning (Kanter, 1977; Laschinger et al., 2010). This is because disempowered employees lack opportunities for growth and mobility, are excluded in important decision-making processes, and do not have control over the conditions that make their work possible (Laschinger et al., 2010). On the other hand, employees who do have access to power and opportunity structures tend to experience empowerment and are more motivated to achieve organizational goals (Kanter, 1977). Such access to power and opportunity manifests the motivation, initiative, implicit knowledge, flexibility, involvement, and commitment required of employees to respond to increasingly competitive conditions (Wall et al., 2002).

### *Psychological Empowerment*

Building off (Kanter's (1977, 1979, 1985) work, Spreitzer (1996) later argued that managerial actions and behaviors contribute to individual and organizational outcomes to the degree in which they influence individual perceptions of psychological empowerment: dimensionalized as meaning, competence (or self-efficacy), self-determination, and impact. *Meaning* refers to a fit between an individual's work role requirements and their beliefs, values, and behaviors; *competence* involves self-efficacy specific to a task, or the belief that one is able to perform work requirements with skill; *self-determination* refers to the feeling that one has a choice in initiating and regulating actions, indicative of having autonomy over work behaviors

and processes; and lastly, *impact* refers to the degree to which one can influence important operating outcomes at work (Hackman & Oldham, 1980; Spreitzer, 1996). Here, psychological empowerment is seen as a response to working in structurally empowering work conditions (Laschinger et al., 2010) that are the product of empowering leaders and their practices.

#### *Other Empowerment Models*

While Spreitzer's (1996) psychological empowerment model (or specific dimensions within it) is most commonly used, empowerment is thought to influence individual performance (and less clearly, adaptive performance) in a variety of ways. One popular mechanism describes that empowering practices/procedures and leadership behaviors leads to higher performance levels through the ability, motivation, and opportunity (AMO) framework (Appelbaum et al., 2001; Jiang et al., 2012). Because empowered employees have more opportunity to utilize their skills and motivation, adaptive performance levels are expected to increase. That is, despite employees' high ability and motivation to successfully complete work tasks, situational characteristics beyond their control can either inhibit or prevent them from accomplishing this task (Blumberg & Pringle, 1982). Since empowering leadership practices are designed to remove such constraints (Tuuli & Rowlinson, 2007), the increase in opportunity can explain why employees perform at higher levels, and thus display higher adaptive performance. While frameworks such as AMO are useful, the present study relies more on the structural theory of empowerment to identify empowering leadership behaviors and their practices/procedures, and the psychological theory of empowerment to explain how they link to adaptive performance.

#### *Additional Consequences of Empowerment*

While limited, empirical results by Qiu et al. (2018) indeed demonstrate that perceptions of employee empowerment produces a positive and significant relationship with adaptive performance. Research also shows that empowerment leads to a number of positive individual

and organizational outcomes beyond adaptive performance. For example, individual benefits of empowerment include increased employee commitment, improved performance, adaptive capacity, and higher likelihood of effective goal implementation (Kuyea & Sulaimonb, 2011), along with higher morale and job satisfaction (Saifullah et al., 2015). Positive organizational outcomes also include increased organizational flexibility, performance, and resilience (Harcourt & Ateke, 2018; Preuss & Lautsch, 2002; Williamson, 2008). In their meta-analysis on team empowerment, Seibert et al. (2011) also showed that attitudinal consequences of psychological empowerment include higher job satisfaction and organizational commitment, reduced strain and fewer turnover intentions; behavioral consequences include increased task performance, organizational citizenship behaviors (OCBs) and innovation.

#### *Empowerment Summary*

Following Kanter (1977) and Spreitzer (1996), empowering leadership is therefore seen as a group of managerial practices/procedures and leadership behaviors intended to identify and remove conditions that foster powerlessness at work, eliminate organizational constraints, and delegate authority and responsibility to enhance employees' motivational states (van Dijke et al., 2012). As Harcourt and Ateke (2018) describe, employee empowerment is a management style related to the activities of assigning appropriate responsibility to employees and helping them develop abilities. Rather than abdicating their responsibilities, empowerment instead implies that leaders provide employees more decision-making capacity by providing, for example, wider authority in monitoring, by taking responsibility, and using their knowledge and skills by encouraging employees to make decisions on their own (Al-Ghabra, 2017). In its broadest form, empowering leadership implies that employees who are provided greater opportunities for self-direction will create superior outcomes (Vecchio et al., 2010).



Empowerment in the fire service, however, is often hindered by hierarchical organizational constraints and risk averse senior leaders (Wise & Freitag, 2002), diminishing their capacity for success in complex emergency response incidents (Wankhade et al., 2020). To overcome these constraints, structural and psychological theories of empowerment suggest that leaders can display specific behaviors and implement certain practices/procedures that will enhance their confidence in employees, employees' confidence in themselves, and more success in complex response conditions by providing them more meaning, competence, self-determination, and impact.

*Hypothesis Development for Model 1 (Hyp 1-8): Identifying Empowerment Practices/procedures*

Following Kanter (1979, 1977) and Spreitzer (1996), along with insights from the few studies on organic theory (Moynihan, 2007) and empowerment in the fire service (Perry, 2004), I first identify specific empowerment practices/procedures (before empowering leadership behaviors) that reflect the dimensions of psychological empowerment to predict department adaptive performance during complex incidents, which include managerial commitment to, a) developing firefighters (career development opportunities), b) allowing for flexibility to carry out role responsibilities (work autonomy), and c) providing firefighters a voice in management strategies and program implementation (employee voice with immediate supervisors and senior leaders). Career development opportunities relate to the competence dimension of psychological empowerment, work autonomy refers to the self-determination dimension, and employee voice relates to the meaning and impact dimensions, although some overlap exists. Thus, each empowerment practice/procedure contributes to dimensions of psychological empowerment, which in turn, should improve adaptive performance. A detailed discussion on each mechanism is provided below.

### *Career Development*

According to Tansky and Cohen (2001, p.287), career development opportunities refers to the level in which organizations provide their employees “opportunities for internal movement, continual growth, increased skills and abilities, and personal and professional development.” Developmental opportunities are thought to improve adaptive performance by enhancing the self-efficacy and self-determination of employees, as they help build the confidence, skills, abilities, and freedom of employees necessary for them to do tasks more efficiently (Van Wart, 2014). As a result, employees are better able to make effective autonomous, adaptive decisions.

Encouraging adaptation without employees having sufficient skill or preparation can result in unsafe practices and failed adaptations (Dekker, 2003). Consequently, research suggests that leaders empower employees through development and training as a way to ensure and enhance their ability to properly evaluate the risks between failing to adapt, and attempting adaptations that could fail (Dekker, 2003). When employees understand how and when to balance risks in this way, and are provided adequate authority to make decisions during a crisis, they become more flexible and adaptable (Dekker, 2003), leading to organizations that are more effective in conditions of high uncertainty. Studies in traditional organizations have found positive relationships between constructs similar to career development opportunities and adaptive performance, including continuous learning, strong learning climate (Han & Williams, 2008), training, career planning (Tabiu et al., 2020), and access to resources (Rousseau & Aubé, 2020). Furthermore, studies show positive relationships between career development opportunities and affective motivating variables that facilitate performance, including perceived organizational support (Zhong et al., 2016), organizational commitment (Dockel et al., 2006; Herrbach et al., 2009; Meyer & Smith, 2000) and job satisfaction (Barnett & Bradley, 2007; Wright & Kim, 2004).

*Hyp 1: Perceptions of career development will be positively related to department adaptive performance.*

#### *Work Autonomy*

Work autonomy refers to the amount of latitude that managers provide employees when performing their work tasks or making important decisions (Tabiu et al., 2020). Providing work autonomy enhances employees' self-determination, which increases adaptive performance because it allows them more control to engage in improvisations when the situation warrants. For example, during disasters, leaders may not always be able to provide responders adequate direction because they are far removed from the incidents on the ground (Bigley & Roberts, 2001). In such situations, in order to best adapt to changing conditions, it is important to allow responders latitude in important operational decision-making since they are more informed about the contingencies of the situations that they face. Work autonomy is empirically related to the experience of self-determination (Kraimer et al., 1999) and has been found to predict adaptive performance (Tabiu et al., 2020), along with organizational effectiveness in complex and dangerous work environments (Dodd & Ganster, 1996). Autonomy has also been found to predict other relevant performance determinants such as creative self-efficacy, work engagement for innovative behavior (Orth & Volmer, 2017), organizational commitment (Iliopoulou & While, 2010) and job satisfaction (Gillet et al., 2013; Labrague et al., 2019).

*Hyp 2: Perceptions of work autonomy will be positively related to department adaptive performance.*

## *Employee Voice*

Employees often have ideas, information, and opinions for effective ways to improve organizational functioning, although the extent to which leaders are open and receptive to such information determines whether employees will speak up (Detert & Burris, 2007). Thus, in the present study, employee voice refers to the degree to which employees feel they can provide discretionary information to leaders that is intended to improve organizational functioning despite the possibility of upsetting the status quo (see Detert & Burris, 2007). Similar to participative/shared decision-making, allowing employees' voices to be heard enhances adaptive performance because it empowers employees and enhances their self-determination, meaning, and impact (Wall et al., 2002). In chaotic work environments, where conditions rapidly change and uncertainty is high, organizations need to quickly adopt adaptive behaviors throughout various levels (Kantur & İşeri-Say, 2012). When subordinates are empowered with more input in important decision-making processes, they develop more authority and ability and this leads to more creative solutions (Kantur & İşeri-Say, 2012; Mallak, 1998). Empowering employees in this way has been shown to have a positive impact on adaptive organizational outcomes by also increasing employee involvement in stressful and changing work environments (Mallak, 1998).

The present study captures employee voice at two-levels: 1) employee voice with immediate supervisors, and 2) employee voice with departmental/senior leadership. Research in emergency response organizations such as fire and police has, even more so than research in traditional organizations (e.g., Fortune 500 companies), generally focused on lower leadership levels (e.g., Day et al., 2017; Engel, 2001; Russell et al., 2016).<sup>4</sup> Senior leadership does not

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<sup>4</sup> This is an important distinction because two-levels of interactions occur within the fire service. The first level is the day-to-day interactions a firefighter has with their immediate supervisor. This interaction is referred to as the firehouse mentality. The immediate supervisor, often a captain or lieutenant, directs the daily assignments, firehouse operations, and direct career development training. The second level is the

interact with the day-to-day operations, but they establish the expectations, organizational strategies, standard operating procedures, career development opportunities, and operational tempo. It is expected that employee voice would be strongest at the immediate supervisor level, since firefighters interact with this manager most often. Research shows that employees' relationships with their immediate supervisors tend to be their strongest organizational connections (Wayne et al., 1997), and that far more interactions occur between employees and their immediate supervisors, than with senior leadership (Waldman & Yammarino, 1999). While considering these possibilities, I provide the following general hypotheses:

*Hyp 3: Perceptions of employee voice with immediate supervisors will be positively related to department adaptive performance.*

*Hyp 4: Perceptions of employee voice with senior leaders will be positively related to department adaptive performance.*

#### *The Moderating Role of Tempo Balance*

Despite levels of employees' competence, freedom, and motivation to perform work tasks, situational characteristics beyond their control can either heighten or attenuate their ability to make effective performance-related decisions (Blumberg & Pringle, 1982). Tempo balance, an original measure developed here, is one such situational characteristic which may produce interactive effects with the empowerment practices and their relationships with department adaptive performance. Tempo balance refers to the perceived balance of mandatory overtime policies and sufficient time off, in terms of the extent to which this perceived balance (imbalance) causes levels of stress, exhaustion, fatigue, and burnout among firefighters.

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organizational influence on voicing. This level of management is often battalion chiefs, district chiefs, assistance fire chiefs, and fire chiefs

Many firefighters in the U.S. work long (24-hr) shifts, although firefighters may work additional (24-hr) shifts either voluntarily or through mandatory overtime policies, averaging multiple consecutive 24-hr shifts per month (Choi et al., 2014). While opportunities for overtime are important for those seeking more work and pay, the effects from excessive or poorly scheduled mandatory overtime policies and long consecutive shifts may contribute profoundly to negative attitudes and behaviors among firefighters, which in turn can reduce their health and performance (Choi et al., 2014). Research shows that firefighters' working more than 70-h/week are more likely to be over-worked and less productive, showing higher injury rates, lower quality service, and ultimately producing higher costs per incident (Lusa et al., 2002).

Tempo balance is most akin to (but independent of) work overload and work exhaustion, which are established constructs in the literature that have been empirically tested in organizations similar to the fire service (e.g., police, EMS, correctional officers). Take work overload, for example, which is defined as the conflict between the demand of the job as an organizational citizen and the time availability for meeting these job demands (Kunte et al., 2017). Scholars such as Schaufeli and Peeters (2000) find work overload to be among the most notable stressors for correctional officers, which is associated with levels of turnover, job dissatisfaction, psychosomatic disease, and burnout. Another study by Dollard and Winefield (1998) also demonstrates a link between levels of correctional officers' work overload and strain symptoms, including psychological distress, negative affectivity, and job dissatisfaction. The difference between tempo balance and work overload/exhaustion is that the former captures relevant and unique demands of responders' jobs (e.g., mandatory overtimes) that contribute to stress, fatigue, and exhaustion, rather than a general assessment of the outcome itself.

Research in the police sector also demonstrates that work overload is a cause of acute fatigue (Violanti et al., 2011; Vila, 2006), which can develop into burnout over time. Moreover, the necessity to work overtime and the shortness of breaks between shifts experienced by police

officers can lead to fatigue that will not be recovered before the next shift (Vila, 2006). Because they are already tired before their shift begins, many police officers struggle to concentrate well enough to perform at high levels (Basinska et al., 2014). Such insights demonstrate why research suggests that fatigue exposes police officers to increased risk of injury and may threaten the safety of citizens (Senjo, 2011), which is consistent with Lusa et al.'s (2002) findings in the fire service.

There are also a number of police work overload antecedents that are important to consider. Duxbury et al. (2015), for example, found numerous antecedents of work overload in police organizations, including pressures to perform work outside one's mandate, understaffing, and an unsupportive organizational culture. A later study by Duxbury and Halinski (2018) also confirmed these findings in another police sample (also found hours employed to be significant) and demonstrate that they also predict heightened stress levels among police officers. It is salient to note that these same issues causing workload in the police sector are present in the fire service, and are becoming more prevalent. Examining these issues will help further describe the need to study tempo balance as a unique measure in the fire service today.

For example, a number of changes are taking place in the structure of and activities at fire stations which impact the ability of firefighters to take sufficient time off, such as increased EMS emphasis. In large metropolitan areas, fire departments now represent the majority of responders to arrive on the scene of an accident or emergency (Karter, 2018). However, in 2018, U.S. fire departments responded to 36,746,500 9-1-1 calls – and only 4.84% of calls were fire-related, while 60.31%, or the overwhelming majority were for medical aid (Karter, 2018). In addition, of these medical events that firefighters respond to, many firefighters believe are not truly medical emergencies (Cannuscio et al., 2016). In effect, firefighters often believe that after numerous low-acuity 9-1-1 calls, firefighters become desensitized and respond more slowly to calls or respond unfavorably to citizens' requests for aid (Cannuscio et al., 2016). Nearly half of the nation's EMS

systems are based in fire departments, although little is understood about the effects of the increased emphasis on EMS as a designated emphasis on firefighting. Administratively, for example, call volume is substantially increased in fire departments offering EMS (faster rates in more densely populated localities), meaning that staffing changes and increased personnel are needed to meet this demand. However, many departments have not implemented effective strategies for such changes and the brunt of the increased responsibility falls on existing employees, which comes in the form of *added shifts* and *increased mandatory overtimes*. Little is understood, especially empirically, about the impacts of added shifts and mandatory overtimes on firefighter work overload, and perceived levels of stress, fatigue, exhaustion, and outcomes such as adaptive performance. Although the International Association of Fire Chiefs (IAFC) has noted that given the high call volume, rigorous training, and administrative changes, leaders must carefully monitor their personnel for signs of fatigue, frustration, and burnout while providing them with adequate support. The latter is central to core ideas of empowerment, for example, which is why interactive effects between tempo balance and empowerment are likely to be significant.

Taken together, firefighters may display high levels of self-efficacy, self-determination, and impact due to a department's emphasis on empowerment practices; but when tempo balance is low, employees' mental and physical energy is likely to become drained to the extent to which emotional exhaustion and fatigue diminish their ability to translate empowerment into increased performance (e.g., Fernet et al., 2012). When tempo balance is high, in contrast, the effect of empowerment practices on adaptive performance should become even stronger. This logic is supported by research on other similar constructs such as work overload and work exhaustion, which have been found to produce negative effects on performance determinants such as work situation awareness (Sneddon et al., 2013), psychological strain, safety behaviors (Wong & Chan, 2020), safety compliance (Stetzer & Hofmann, 1996), emotional exhaustion (Örtqvist & Wincent,



2006), affective performance determinants such as job satisfaction and organizational commitment (De Cuyper & De Witte, 2006; Zeytinoglu et al., 2007), and overall job performance (Karatepe, 2013). Work exhaustion has also been found to moderate the relationships between types of performance enhancing personal characteristics, such as proactive personality, and performance levels (Baba et al., 2009). Taken together, the relationships between career development opportunities, work autonomy, and employee voice, and department adaptive performance should be stronger when tempo balance is perceived to be high, whereas the relationships should be weaker when tempo balance is perceived to be low.

*Hyp 5: Tempo balance moderates the relationship between perceptions of career development and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*

*Hyp 6: Tempo balance moderates the relationship between perceptions of work autonomy and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*

*Hyp 7: Tempo balance moderates the relationship between perceptions of employee voice with immediate supervisors and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*

*Hyp 8: Tempo balance moderates the relationship between perceptions of employee voice with senior leaders and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*

The above hypotheses reflect the first categorization of empowerment, or empowerment *practices/procedures* and their influence on adaptive performance. However, the literature suggests that empowering leadership *behaviors* are also important for empowering employees, to subsequently bypass bureaucratic constraints and become more successful in increasingly

competitive conditions (Wall et al., 2002). Like empowering practices/procedures, empowering leadership behaviors are also designed to remove employees' power constraints and motivate them to achieve organizational goals (van Dijke et al., 2012). Without support from leadership, however, and the healthy work environment this manifests, employees may not perceive they are fully empowered to make important autonomous decisions and may thus lack confidence in their actions (Hopkinson et al., 2019).

*Hypothesis Development for Model 2 (Hyp 9-12): Empowering Leadership Behaviors*

Early leadership research largely focused on the personal traits of leaders, which only explained a small amount of variance in desired outcomes (Bass, 1990). It was not until the 1950s that scholars began the study of leader behaviors, in conjunction with situational variables and leadership traits (e.g., Carter et al., 1958; Katz & Kahn, 2015). Scholars eventually addressed the methodological issues which suppressed its influence on performance in the 1970s (P. Zhang & Gheibi, 2015), resulting in leadership research gaining interest again particularly in the 1980s (Thomas, 1988). During this time, rather than using broad encompassing leadership models, research focused on the effects of the leader-follower relationship (Zhang & Gheibi, 2015), coinciding with the origins of the behavioral (HR) approach to public management and Theory Y. For example, as an alternative to broad leadership models such as charismatic leadership (House & Aditya, 1997) and the four factor theory by Pearce et al. (2003), empowering leadership was introduced to examine employee effectiveness with its emphasis on work meaning, participative decision-making, removing bureaucratic constraints, and developing confidence (Zhang & Gheibi, 2015). From this perspective, empowering leadership follows the relationship-based view which originates in theories of leader support (Bowers & Seashore, 1966), consideration (Fleishman, 1953), and power sharing (Hersey & Blanchard, 1969).

### *Identifying Empowering Leadership Behaviors*

There are numerous examples of empowering leadership behaviors. For example, Honold (1997) notes that empowering leaders create better outcomes by building a culture of participation through providing employees a compelling mission, a structure that promotes flexibility and autonomy, rewards for employees who participate, a lack of severe punishment when they take risks, along with ongoing involvement programs and support from management. A seminal work by Arnold et al. (2000) however, identified five key roles or dimensions of empowering leaders, finding that they 1) coach, 2) inform (communicate), 3) lead by example, 4) show concern, and 5) encourage participative decision-making (PDM). Classifying empowering behaviors in this way aligns with Kanter's (1979) structural empowerment approach, as each behavior relates to empowerment via employees' access to information, support, resources, and opportunity to learn and grow (e.g., inform reflects access to information). Throughout the next section, these empowering leadership behaviors are described in more detail.

For the purposes here, rather than senior leadership, the leadership referent focused on is the immediate supervisor (unless otherwise specified) because like most hierarchical organizations, interactions between employees and immediate supervisors are far more frequent than their interactions with senior leadership (Waldman & Yammarino, 1999), where mid-level leaders also provide most of the praise, punishment, and reward (Mayer et al., 2009).

It is also important to clarify how the present study conceives of work autonomy in the context of Model 2. Perceptions of work autonomy that result from empowering supervisors is referred to here (like Model 1) as the ability to influence one's own behavior, particularly in terms of being able to improvise when warranted by the situation. Thus, the present study focuses on employees' initial response to immediate supervisor empowering leadership behaviors primarily reflecting Spreitzer's (1996) self-determination dimension of psychological

empowerment, rather than referring to meaning, competence, or impact. For this reason, given its empirical and conceptual similarity with self-determination, work autonomy was used again to act as a mediator in Model 2 (Kraimer et al., 1999). The focus on this form of empowerment is primarily due to the theoretical argument, in that responders should be granted enough decision-making authority to improvise during conditions of high uncertainty (Bigley & Roberts, 2001).

### *Immediate Supervisor Empowering Behaviors and Perceptions of Work Autonomy*

The extent to which employees feel empowered depends heavily on the behaviors of leadership (Albrecht & Andretta, 2011). Following Kanter (1977) and the behaviors proposed by Arnold et al. (2000), the assistance and support of empowering supervisors increases employees' sense of power and control over their work conditions and fosters their sense of self-determination (enhanced work autonomy), or their sense of choice in initiating and regulating actions (Spreitzer, 1996). First, to illustrate more specifically, supervisors who provide the necessary amount of *coaching* and training help employees feel they have sufficient freedom, confidence, and control over their assignments (Becker, 2016a), which improves their ability to make autonomous decisions. Second, supervisors who *inform* effectively share information, communicate goals and objectives, and provide timely information, which provides the necessary knowledge for employees to control the conditions of their work (Laschinger et al., 2010). Third, if supervisors do not show employees support and *concern*, they may not feel truly empowered to make decisions, which causes them to lack confidence in their actions (Ro & Chen, 2011). Lacking empowerment in this way, employees are more likely to fear any errors resulting from autonomous decision-making will be met by repercussions from leadership, which can discourage improvisation. Fourth, supervisors who display integrity (*leading by example*) set a high standard for performance (Arnold et al., 2000) and are trusted more, meaning such supervisors are better able to influence employees and how they experience barriers to power and uncertainty. Fifth, supervisors who engage in *participative/shared decision-making* empower employees with more

discretion in the decision-making process, thereby developing more authority and ability (and thus more self-determination) among them (Kantur & İşeri-Say, 2012; Mallak, 1998). However, elements of empowering supervisors such as coaching behaviors, for example, may also lead to employees feeling more competent and displaying higher self-efficacy in their work (Zhang & Chen, 2013). These empowering leadership behaviors are discussed in more detail in a later section.

Taken together, the supervisory behaviors above help to develop feelings of work autonomy among employees by removing their power constraints and motivating them to achieve organizational goals (van Dijke et al., 2012). Following empirical results from works that find positive relationships between empowering supervisors and work autonomy (e.g., (Albrecht & Andreetta, 2011; Özarallı, 2015), the following hypothesis is proposed:

*Hypothesis 9: Immediate supervisor empowering behaviors (coaching, informing, leading by example, showing concern, encouraging participative decision-making) will be positively related to work autonomy.*

#### *The Moderating Role of Senior Leader Empowering Behaviors*

The section above implies that employees will feel empowered to the degree to which immediate supervisors remove uncertainties and barriers to power at work, and that supervisors' close relationships with employees helps them to display empowering behaviors. Senior leaders, however, may also play an important role in facilitating the relationship between immediate supervisor empowering behaviors and work autonomy by displaying the same empowering behaviors on their own. This perspective suggests that immediate supervisor empowering behaviors work best to influence employee outcomes when combined with high levels of empowering senior leaders.

First, while immediate supervisors are more influential in determining the day-to-day behavior of employees (Mayer et al., 2009; Meglino et al., 1989), senior leaders develop rules, regulations, standard operating procedures, policies, and procedures which determine organizational values (Huntsman & Greer, 2019). As such, senior leaders set an organizational climate that helps determine how effective immediate supervisors can be in terms of successfully empowering their subordinates. For example, senior leaders who create a climate of centralized decision-making (negative empowering behavior) may buffer the ability of supervisors to develop employees' feelings of empowerment even when supervisors engage in empowering behaviors such as participative decision-making. In such situations, most employees would feel that speaking up for important decisions is unwanted or simply a waste of time (Detert & Treviño, 2010) since the same sentiment is not supported by upper management.

Second, when senior leaders do engage in empowering behaviors, they increase the frequency of interaction with their employees, reduce their hierarchical distance, and allow employees to participate in top management decisions (Armstrong & Sambamurthy, 1999). Since it is far less feasible for senior leaders to accomplish this in hierarchical organizations, usually being far removed from their employees, both empowering supervisors and employees' sense of empowerment substantially benefit from their actions. When employees instead perceive senior leaders to lack (low) empowering behaviors, (e.g., risk averse), perceptions of work autonomy resulting from immediate supervisors is likely to become weaker since supervisors lose assistance from senior leadership in being able to effectively empower subordinates; in such cases, less opportunity and power is available to employees.

Third, supervisors are expected to act as "agents" of the organization (Kannan-Narasimhan & Lawrence, 2012), who communicate upper-rank's change mandates and translate their statements about organizational missions or visions into operationalized goals and objectives (Gabris & Ihrke, 2007). When levels of senior leader empowering behaviors are high, immediate

supervisors feel enabled to reinforce senior leadership's sentiment to a greater extent (value congruence takes places), which enhances their ability to impact perceptions of self-determination. Key aspects of the work environment (e.g., implementation of regulations and degrees of support and supervision) that senior leaders control (Densten, 2003) should be reinforced by immediate supervisors to employees at the lower end of the hierarchy, implying that senior leaders must also display increased empowering behaviors in order for employees to experience high empowerment. This is supported by research arguing that senior leaders in the fire service must also provide firefighters the necessary information, support, coaching, development, and delegation of responsibility for them to have the freedom to make informed decisions required for organizational success (Cox, 2012; Smeby, 2014).<sup>5</sup>

*Hypothesis 10: Senior leader empowering behaviors moderate the relationship between immediate supervisor empowering behaviors and work autonomy such that the relationship is stronger when senior leader empowering behaviors is high and weaker when it is low.*

#### *Perceptions of Work Autonomy and Department Adaptive Performance*

In order for departments to be adaptable in conditions of high uncertainty, it is important for responders to feel empowered enough to improvise when warranted by the situation (Bigley & Roberts, 2001). Empowering employees in this way increases their self-determination, a heightened sense of autonomous control that is required to facilitate adaptive behaviors and help organizations respond to unpredictable aspects of its operating environment (Wall et al., 2002). For example, in expanding disaster incidents, supervisors can be far removed from the impacts on the ground, so they are not always best informed about the contingencies of situations that face

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<sup>5</sup> While this perspective might also suggest senior leader empowering behaviors to be a possible antecedent of immediate supervisor empowering behaviors, much of the logic is still relevant to explain an interaction effect.

responders to provide appropriate direction (Bigley & Roberts, 2001). Empowering responders to use their own judgement to make split-second decisions (flexible, but cognizant of the rules) enables those with the best situational knowledge to make strategic decisions that may best adapt to changing situations.

Thus, empowering responders with work autonomy may help to mitigate, or even overcome hierarchical constraints by enabling them to properly adjust their behaviors to the demands of new work situations and events; making departments more adaptable (see Pulakos et al., 2000). As Wall et al. (2002) note, autonomous control is particularly beneficial for those organizations pursuing quality and flexibility strategies during situations of high uncertainty (Wall et al., 2002). Following the limited empirical works that find empowerment being related to adaptive performance (Charbonnier-Voirin & El Akremi, 2011; Qiu et al., 2018), we can expect adaptive performance to be influenced by the extent to which responders feel enough autonomous control to make important decisions on the fly.

*Hypothesis 11: Work autonomy will be positively related to adaptive performance.*

#### *Simple Mediation*

This section explains how work autonomy acts to mediate immediate supervisor empowering behaviors and adaptive performance in complex response environments, followed by how its interaction with senior leader empowering behaviors influences this indirect effect (moderated mediation). Overall, supervisors who coach, inform (communicate), lead by example, show concern, and encourage participative decision-making, provide employees access to important power and opportunity structures that enhance the self-determination necessary for them to be flexible enough to achieve work goals involving situations of high uncertainty.

Coaching influences perceptions of autonomous control, which in turn, impacts adaptive performance in slightly different ways. First, the ability of employees to make autonomous



decisions on the fly is enhanced by supervisors who provide adequate coaching and training, as this helps them feel they have sufficient freedom and control over their assignment (Becker, 2016). Second, leaders who coach also develop the necessary confidence, skills, and abilities of employees that help them do tasks more efficiently (Van Wart, 2014), which enhances their ability to effectively make autonomous, adaptive decisions. For example, without employees having sufficient skills or preparation, encouraging adaptation can result in unsafe practices and failed adaptations (Dekker, 2003). Consequently, research suggests that leaders empower employees through coaching and development as a way to ensure and enhance their ability to properly evaluate the risks between failing to adapt, and attempting adaptations that can and might fail to become more flexible and adaptable (Dekker, 2003).

Leaders who inform (e.g., provide access to information) enhance employees' sense of autonomy and consequent adaptive performance, because these behaviors provide the necessary knowledge for employees to control the conditions of their work (Laschinger et al., 2010). Clear goals and objectives, for example, help employees to understand organizational strategies which both empowers them to make appropriate decisions and creates a healthy work environment (Lindberg & Vingård, 2012). Recent research on the fire service, however, has demonstrated that Battalion Chiefs (often Incident Commanders for large-scale emergency events) often communicate without explicating the intent of the order, and often do not monitor its execution; this results in subordinates failing to properly carry out the order (Groenendaal & Helsloot, 2016). Continuous communication is needed as this creates knowledge and builds trust in the face of adverse situations, and this increased coordination enhances employee empowerment to improve self-determination and in turn, facilitates adaptation in changing environments (Kantur & İşeri-Say, 2012). Incident Commanders should communicate their intent in terms of what to do and why it must be done, but do not always have to specify how to do it (Groenendaal & Helsloot,

2016)<sup>6</sup>. Overall, having quality information to control work conditions, adaptive performance behaviors are expected to be enhanced.

Leaders who show concern (e.g., access to support) also influence perceptions of autonomous control and in turn, adaptive performance outcomes because of the supportive work environment they create. Lacking support from management, employees are likely to feel disempowered, unconfident in their decision-making, and fearful that mistakes during improvisations will be met with consequences from leadership (Ro & Chen, 2011). This lack of self-determination, in turn, discourages potential improvisations that can help enhance adaptive performance behaviors. In work environments that are expanding and unpredictable, organizations need to quickly change and this creates anxiety and ambiguity among employees (Kantur & İşeri-Say, 2012). A safe and supportive work environment that is characterized by care and concern thus enables organizations to better cope with external threats and changing circumstances which is an appropriate context where adaptive behaviors can develop (Kantur & İşeri-Say, 2012). Leadership support has also been found empirically to predict individual adaptive performance (Bergiel et al., 2009; Chen et al., 2010).

Relatedly, it is also important for leaders to lead by example in a way that sets a high standard for performance (Arnold et al., 2000). When employees feel a leader lacks integrity, they are less likely to trust said leader, which also influences attitudes and behaviors that harm outcomes (Elsetouhi et al., 2018). This is consistent with research on the military showing that untrustworthy leaders lack an ability to influence employees, and this damages operational performance particularly in risk-laden situation (Sweeney, 2010). Employees will experience high

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<sup>6</sup> Effective communication also enhances employee involvement and the quality of interaction in the empowerment process where in challenging times, employees need to either exploit resources themselves or acquire knowledge from others' competencies (Kantur & İşeri-Say, 2012).

levels of autonomous control only when leaders do have a strong influence on their barriers to power and uncertainty.

Leaders who engage in participative/shared decision-making (e.g., access to support) also empower employees through work autonomy/self determination to impact adaptive performance in uncertain environments (Wall et al., 2002). From this perspective, autonomy resulting from participative decision-making leads to higher adaptive performance (particularly in chaotic environments) because it enhances employee involvement, authority, and ability, which are essential for self-determination and the development of more creative solutions (Kantur & İşeri-Say, 2012).

Taken together, supervisors who coach, inform (communicate), lead by example, show concern, and encourage participative decision-making provide employees access to important power and opportunity structures that enhance the self-determination necessary for them to achieve work goals involving heightened adaptive performance during situations of high uncertainty. In line with the above logic and core assumptions of empowering leadership, which describe that such behaviors will release the motivation, autonomy, initiative, implicit knowledge, flexibility, involvement, and commitment required of employees to respond in increasingly competitive conditions (e.g., Wall et al., 2002), along with the empirical studies that show empowering supervisor behaviors to increase employee perceptions of autonomous control, adaptability, commitment, voice, creativity, and readiness (Ahearne et al., 2005; Albrecht & Andreetta, 2011; Gao et al., 2011; Srivastava et al., 2006; Zhang & Bartol, 2010), work autonomy/self-determination explains why immediate supervisor empowering behaviors leads to adaptive performance. While a specific hypothesis is not provided for simple mediation (since the primary hypothesis is that the mediator will depend on another variable), I outline expected results in proposition 1.

*Proposition 1: Work autonomy mediates the relationship between immediate supervisor empowering behaviors and adaptive performance.*

#### *Moderated Mediation*

Expanding upon the proposition above which explained simple moderation, I also propose that immediate supervisor empowering behaviors leads perceptions of work autonomy and increased adaptive performance when both immediate supervisor empowering behaviors and senior leader empowering behaviors is high, in that the effects become stronger.<sup>7</sup> This is because empowering senior leaders can facilitate employees' access to power and opportunity such that the indirect effect is stronger when senior leaders are more empowering, and is weaker when they are less empowering. These expectations suggest the presence of moderated mediation (Preacher et al., 2007), meaning that senior leader empowering behaviors may moderate the effect of work autonomy in mediating immediate supervisor empowering behaviors and adaptive performance. If senior leader empowering behaviors are high, for example, the indirect effects of immediate supervisor empowering behaviors to adaptive performance via work autonomy will be stronger since employees believe senior leadership supports their sentiment.

*Hypothesis 12: The indirect effect of immediate supervisor empowering behaviors on adaptive performance via work autonomy is moderated by senior leader empowering behaviors, such that the indirect effect is stronger when senior leaders are seen as more empowering and weaker when senior leaders are seen as less empowering.*

#### *Chapter 3 Summary*

In sum, Chapter 3 utilized structural and psychological empowerment theory to develop a series of hypotheses predicting department adaptive performance under conditions of high

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<sup>7</sup> Put differently, the magnitude of the indirect effect of immediate supervisor empowering behaviors on adaptive performance via work autonomy is contingent upon levels of empowering senior leadership.

complexity via the influence of empowerment practices/procedures (career development opportunities, work autonomy, voice with immediate supervisors and senior leadership) and empowering leadership behaviors (immediate supervisors and senior leadership). Such practices/procedures and leadership behaviors remove responders' power constraints, enabling them to make effective, autonomous decisions when the situation warrants. Tempo balance was hypothesized to moderate the empowerment practices/procedures – department adaptive performance relationships, Balanced workloads help responders become more resilient during stressful events by reducing levels of fatigue. Moderated mediation was also hypothesized for the immediate supervisor empowering behaviors – department adaptive performance relationship. Receiving the same empowering sentiment from both leadership referents (additive effects) should enhance responders' access to power and opportunity structures, where they feel more comfortable making necessary improvisations without fear of repercussions from upper management. In the next chapter (Chapter 4), I employ rigorous scale development procedures to validate the above constructs while detailing the sample and various analytical methods/procedures used to test the hypotheses.

## CHAPTER IV

### METHODOLOGY AND SCALE DEVELOPMENT PROCEDURES

This section describes this process of identifying, validating, and developing new measures through a methodological approach that utilizes scale development and construct validation techniques. In building the questionnaire, some previously established scales were used in their entirety with minor referent changes (e.g., de Waard et al., 2013), while other established scales were modified or expanded upon with the development of original items to ensure that the scale adequately accounted for all empowering behaviors in the fire context (van der Post et al., 1997). In addition, some constructs (e.g., tempo balance) required the development of entirely original scales with help from focus groups conducted in the fire service, and both practitioner and academic experts. Since the survey was developed for reasons beyond pure academic interest, permission to use established measures was also difficult to find which reinforced the logic to develop new scales and re-validate existing, yet less commonly used scales.

For example, in addition to tempo balance being a new measure, many of the constructs identified here operate differently in the fire service. Fire departments use a rigid hierarchical structure (ICS) to organize responders during emergency response operations (Cole, 2000; Wenger et al., 1990). This means that traditional measures of work autonomy, which are generally designed for use in private sector firms, are likely too lenient with the degree to which autonomy is provided for firefighters to relate to in their work environment. The ICS allows for minor improvisation, but strictly forbids freelancing behavior

as this can jeopardize the success of a response operation (Bigley & Roberts, 2001). Thus, since the most previously established and commonly used existing measures have largely been validated in traditional organizations and manifest similar issues, I argue that most are unable to accurately capture all empowerment issues in the fire service. Using such measures would run the risk of yielding inaccurate results. To address this problem, the present study develops and validates a survey instrument designed to capture empowering leadership behaviors and practices/procedures among different leadership referents, work autonomy, and adaptive performance specifically in the fire service context.

### *Development of New Scales*

For the measurement of constructs that demanded the development of entirely new items in order to accurately capture the phenomenon in the fire service, a number of scale development procedures were used. Scale development is a process of creating a valid and reliable measure of a construct in order to assess a concept of interest (Tay & Jebb, 2018). Research questions in management often require the measurement of organizational and psychological constructs, which are generally unobservable (e.g., employee attitudes, perceptions) and must be assessed through indirect means, such as self-report data (Tay & Jebb, 2018). Because organizational behavior scholars heavily rely on the use of questionnaires to collect such data, it is essential that appropriate steps are taken in the development of scales to ensure that survey instruments adequately represent constructs of interest (Hinkin, 1998). This can be a challenging task, however, as constructs are often quite abstract, meaning that it can be difficult to determine which items adequately represent them and do so consistently (Tay & Jebb, 2018). Poorly measured constructs, or those which fail to determine that indicators adequately capture the construct of interest, also limit the accuracy of scientific conclusions that one can draw from their use. Thus, scale development procedures are important for establishing a connection between theory and psychometric measurement, which is crucial for valid research conclusions.

### *Construct Validation Strategy*

Since the present study is not centered around the creation of a completely new construct, and is rather developing measures to better capture similar (or existing) constructs in the fire service, not all of the scale development steps are used here. Thus, the three primary steps of the construct validation process are used to develop new scales for existing concepts and to confirm the psychometric properties of existing scales (Klein et al., 2014) that received minor alterations in item wording to fit the context of the fire service.

Specifically, construct validation is the process of demonstrating that a measure reflects a construct of interest (Nunnally, 1979). The first step of construct validation is to establish content validity, or to take the appropriate steps to ensure that a strong conceptual linkage has been established between the items and construct domains (Klein et al., 2014). The second step is to develop and administer the questionnaire, and to demonstrate with analysis that the measures are psychometrically sound, have adequate variance and show expected dimensionality, and have high internal consistency reliability (Klein et al., 2014). The third step is to establish construct validity by demonstrating convergent, discriminant, and predictive validity with various procedures to confirm the measure operates as it should against other constructs in the nomological network (Klein et al., 2014).

#### *Step 1: Content Validity and Item Generation*

To establish content validity, there must be a logical argument that links the construct to the items intended to measure it (Hinkin, 1998). The items must capture all of the elements of the construct, and must also be designed to include accurate referents for the context in which the measure will be deployed. To maximize content validity, it is important for experts to review newly developed item pools so they can evaluate how relevant each item is for the measurement of the construct, and to assess whether additional items are needed to fully tap said construct



( DeVellis, 2016). That is, expert reviewers assess the extent to which the items represent each dimension and determine the extent to which each construct displays face validity.

To establish content validity in this way, the first step is to generate items that represent the construct by using the definition of the construct as a guide (Hinkin, 1998). According to Hinkin (1998), each item should reflect the definition of the latent variable. This means that each item should also be capable of serving as a substitute for every other item in the item pool.

Among numerous other strategies, important things to consider in the development of quality items include them being unambiguous, lacking unnecessary length and wordiness, written at appropriate reading levels, free from multiple negatives, double-barreled language, and clear of ambiguous pronoun references (DeVellis, 2016). To increase opportunities for variability in the underlying attribute, numerous items should be added to the scale along with numerous response options (DeVellis, 2016). Item reduction techniques may be deployed in later steps. In terms of measurement, the Likert scale is one of the most common ways to format items and response options for instruments measuring opinions, beliefs, and attitudes (DeVellis, 2016).

### *Performing Step 1*

Following these guidelines, the literature was searched in order to find definitions for each concept, evaluated particularly in terms of the definition's ability to apply to the context of the fire service. The scales identified, developed, and refined for the present study focused heavily on content validity and were all created with help from multiple experts from both the academic and practitioner spheres, along with guidance from numerous focus groups during the pilot study stage. Specifically, eight focus groups consisting either of six firefighters, six captains, or six battalion chiefs in two U.S. fire departments were performed in the pilot study. Additional theoretical and empirical evidence is also provided for the constructs' refined definitions in order to better describe the manner in which they operate. The concepts along with their definitions and

measures are presented below in the same order of the hypotheses; Table A below also summarizes the definitions, past usages, and changes made for each construct. Many of the constructs measured below are captured using scales from van der Post et al. (1997) an instrument designed to assess organizational performance via the impact of leadership managerial values

**Table A: Measure Descriptions, Sources, Past Usages, and Changes Made**

Measure	Description	Original Source	Past Usages	Changes Made	Items
Career Development Opportunities	The level in which departments provide their employees “opportunities for internal movement, continual growth, increased skills and abilities, and personal and professional development.”	Furnham & Goodstein's (1997) Career Development Scale	Luqman, Zia-ul-Islam, and Jabeen, (2020); Ghazo, Suifan, and Alnuaimi (2019)	Minor referent changes (from "company" to "department")	Model 1: q1-q5
Work Autonomy	The ability to influence one’s own behavior, in terms of being able to improvise when warranted by the situation.	Post et al.’s (1997) Locus of Authority Scale	Jacobs and Roodt (2008); Roodt, Rieger, and Sempene, (2002)	Minor referent changes (from "employees" to "we"); one original item added	Model 1: q6-q10 Model2: q13-q17
Employee Voice (with supervisors)	The degree to which employees feel they can speak up to immediate supervisors with discretionary information that is intended to improve organizational functioning despite the possibility of disrupting the status quo.	Post et al.’s (1997) Conflict Resolution Scale	Phaneuf, Boudris, Rousseau, and Brunelle, (2016); Fareed, Noor, Isa, and Salleh, (2016)	Minor referent changes (from "bosses" to "supervisors")	Model 1: q11-q13
Employee Voice (with department/senior leaders)	The degree to which employees feel they can speak up to senior (department) leaders with discretionary information that is intended to improve organizational functioning despite the possibility of disrupting the status quo.	Post et al.’s (1997) Conflict Resolution Scale	Phaneuf, Boudris, Rousseau, and Brunelle, (2016); Fareed, Noor, Isa, and Salleh, (2016)	Minor referent changes (from "organization" to "department")	Model 1: q14, q15
Immediate Supervisor Empowering Behaviors	The degree to which immediate supervisors coach, inform, lead by example, and show concern to reduce employees’ sense of powerlessness, eliminate organizational constraints, and delegate authority and responsibility to enhance employees’ motivational states.	Post et al.’s (1997) Management Style Scale	Kuo and Tsai (2019); Khoza (2005)	Minor referent changes (from "organization" to "department")	Model 2: q1-q6
Senior Leader Empowering Behaviors	The degree to which senior leaders coach, inform, lead by example, and show concern to reduce employees’ sense of powerlessness, eliminate organizational constraints, and delegate authority and responsibility to enhance employees’ motivational states.	Post et al.’s (1997) Management Style Scale.	Armstrong, Riemenschneider, and Liu, (2015); Strydom and Roodt (2006)	Minor referent changes (from "organization" to "department")	Model 2: q7-q12
Tempo Balance	The perceived balance of mandatory overtime policies and sufficient time off, in terms of the degree to which this perceived balance (imbalance) leads to more stress, exhaustion, fatigue, and burnout among firefighters.	Current Study	None	N/A	Model 1: q16-q19
Adaptive Performance	The average of employee perceptions on their ability to adapt to dynamic work environments to deal with uncertainty in emergency crisis situations	de Waard, Volberda & Soeters’ (2013) Responsiveness Scale	Waard, Volberda, and Soeters, (2014); Fernandez-Perez, Montes, and Garcia-Morales, (2014);	From "crisis incidents" to "complex incidents"; also minor referent changes	Model 1: q20-q29 Model 2: q18-q27

which determine how they treat employees. The instrument has been used extensively by previous researchers exploring leadership, culture, and performance (e.g., (Fareed et al., 2016; Jacobs & Roodt, 2008; Phaneuf et al., 2016; Roodt et al., 2002). All constructs are measured using the same 7-point Likert scale ranging from completely disagree (1) to completely agree (7).

*Constructs for Model 1 (Hypotheses 1-8)*

***Career Development Opportunities.***

Following Tansky and Cohen (2001, p.287), career development opportunities is defined here as the level in which departments provide their employees “opportunities for internal movement, continual growth, increased skills and abilities, and personal and professional development.”

*Measure:* Five items - Five previously validated items from the Organizational Climate Questionnaire developed by Furnham and Goodstein (1997).

1. Career development is taken seriously in this department.
2. My work is regularly reviewed with my development in mind.
3. I can develop my career within this department.
4. I have an opportunity to see my appraisal report and discuss it with my supervisor.
5. In general, there is an adequate system for career development in the department.

***Work Autonomy.***

In line with Spreitzer's (1996) conception of self-determination, work autonomy is defined here as the ability to influence one's own behavior, particularly in terms of being able to improvise when warranted by the situation. Special attention was given to finding a scale for work autonomy that was appropriate for the fire service, in that the items had to reflect the definition while tapping a more constrained type of autonomy that allowed for improvisation,

rather than freelancing. To measure work autonomy in a way that captures the conceptualization above, four previously established items from van der Post et al.'s (1997) Locus of Authority Scale were used, combined with 1 original item to add an aspect of empowerment highly familiar to firefighters.

*Measure:* Five items - from van der Post et al.'s (1997) Locus of Authority Scale, and one original item developed with help from focus groups and experts.

6. My leaders would support me if I needed to deviate from the plan to accomplish the mission (original).
7. We are not allowed to get on with our jobs because we have to double check all decisions with our leaders (R).
8. In this department we are empowered to make appropriate decisions.
9. We are encouraged to use our own initiative in doing our jobs.
10. We have the freedom and independence to do our jobs effectively.

***Employee Voice (with supervisors).***

Employee voice is defined here as the degree to which employees feel they can speak up to leaders with discretionary information that is intended to improve organizational functioning despite the possibility of disrupting the status quo (see Detert & Burris, 2007).

*Measure:* Three items - three previously validated items from van der Post et al.'s (1997) Conflict Resolution Scale.

11. I am not encouraged to reveal any differences of opinion which I may have with my supervisor (R).
12. My supervisor does not like to hear the other side of the story (R).
13. My supervisor is not interested in hearing views that do not agree with their views (R).

***Employee Voice (with senior leaders).***

The effectiveness of employee voice with senior leaders is defined and operationalized the same as above, with items similar to employee voice with immediate supervisors.

*Measure:* Two items - two previously validated items from van der Post et al.'s (1997) Conflict Resolution Scale.

14. Differences of opinion are welcomed in this department.
15. Differing views are encouraged in this department.

### ***Tempo Balance***

Work overload is loosely defined as the quantity of work that is allocated to an employee and the extent to which this pushes them to exhaustion (Qureshi et al., 2013; Skinner & Pocock, 2008). Based on focus groups, the specific dimension regarding the quantity of work focused on here is the excessiveness of mandatory overtime policies, which are specific to the fire service. Thus, as its own independent measure, tempo balance refers to the perceived balance of mandatory overtime policies and sufficient time off, in terms of the degree to which this perceived balance (imbalance) leads to more stress, exhaustion, fatigue, and burnout among firefighters.

*Measure:* Four items - Four original items developed with help from focus groups and experts.

16. The amount of overtime the department asks from me is about right.
17. The department's overtime policies pose risk to our readiness (R).
18. The department's overtime policies pose risk to our safety (R).
19. I can take sufficient time off.

### ***Adaptive Performance (DV).***

As the primary dependent variable, department adaptive performance is defined here as the average of employee perceptions towards their ability to adapt to dynamic work environments to deal with uncertainty in emergency crisis situations (Pulakos et al., 2000). No measures are available to capture performance from this perspective in a way that is highly relevant to the fire service, so a previously established scale (de Waard et al.'s (2013) Responsiveness scale) that was designed for use in the military was adapted to fit the fire context with help from focus groups, and both practitioner and academic experts.

*Measure:* Ten items – from de Waard et al.'s (2013) Responsiveness scale. Adjustments to items made with help from focus groups and experts.

20. During complex incidents our department can easily divide essential operational activities amongst each other.
21. During complex incidents our department can easily adjust to changing operational circumstances.
22. Whatever task our department undertakes, we can cooperate easily with one another during emergency operations.
23. During multi-agency emergency response operations our department cooperates easily with other departments.
24. Our command has the capacity to easily shift functions and tasks if required by the response conditions.
25. Our firefighters can easily take on alternative roles and tasks in case a response requires us to do so.
26. Our department is capable of repeatedly adjusting to changing mission contexts.
27. If needed our department can add new types of missions to existing operational missions.
28. Our department is proactive in seeking a fit between what it can offer and what our citizens are expecting.
29. Our department tries to serve their community best by being capable of dealing with all kinds of situations.

While the primary hypothesized model for empowerment practices/procedures is comprised of the above constructs and corresponding measures, three other variables in the

nomological network (perceived organizational support, goal clarity, procedural constraints) are also included that will serve to help validate the tempo balance construct, as its own independent measure.

### ***Perceived Organizational Support.***

As an extension to Blau's (1964) social exchange theory, Eisenberger et al. (1986, p.501) developed organizational support theory, which refers to the beliefs of employees about “the extent to which the organization values their contributions and cares about their well-being” (perceived organizational support, or POS).<sup>8</sup> POS is typically measured using Eisenberger’s scale, although the author did not grant permission to use the measure and thus an alternative measure was found. The scale below was chosen because it is highly reflective of the construct’s definition. Minor referent changes were also performed on the items.

*Measure:* Four items – four previously validated items from van der Post et al.'s (1997) Human Resources Orientation Scale.

30. This department does not really value its employees (R).
31. This department has a high regard for its employees.
32. This department does not treat its employees as if they are a valued resource (R).
33. This department views its employees as important contributors to the department's success.

### ***Goal Clarity.***

Goal clarity is defined as employees’ collective awareness and understanding of the goals and objectives of the organization (Locke, 1991). Goal clarity generates employees who are more

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<sup>8</sup> Being reflective of a high-quality social exchange relationship, high levels of POS among employees increases their willingness to contribute their skills and exert more effort in support of organizational goals and strategies (McClellan & Collins, 2011). Empirical research finds that practices which provide a caring and supportive work environment are important empirical determinants of POS (Allen et al., 2003).

satisfied with, committed to, and involved in their work (Moynihan & Pandey, 2007). Goal clarity has been found to predict organizational effectiveness (Chun & Rainey, 2005; Hu & Liden, 2011), and to explain why high autonomous teams achieve higher performance levels (Gonzalez-Mulé et al., 2016).

*Measure:* Three items – three previously validated items from van der Post et al.'s (1997) Goal Clarity scale.

34. We are sufficiently aware of the department's mission.
35. Employees in this department understand the mission of the department.
36. In this department the mission is not clearly defined.

***Procedural Constraints.***

Procedural constraints represent the extent to which employees feel constrained by organizational rules (Buchanan, 1975).<sup>9</sup> Like the tempo balance/workload measure, procedural constraints are frequently associated with increased stress and other negative physical and emotional outcomes (Pindek & Spector, 2016).

*Measure:* Six items – four previously validated items from van der Post et al.'s (1997) Task Structure Scale, and two original items developed with help from focus groups and experts.

37. Our standard operating procedures are properly weighted between safety and performance (original).
38. In this department there are too many standard operating procedures (R).
39. Employees in this department are not constrained by standard operating procedures in doing their jobs.

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<sup>9</sup> Employees in organizations that emphasize reliability can be constrained by rules such as being prohibited from making decisions in issues lying outside their spheres of expert competence (Consolini & LaPorte, 1991). In such organizations there are stacks of rules/policies/SOPs to guide routine decision-making, although they can be flawed and errors can never be completely avoided; judgmental and incremental decision-making strategies must be used in certain situations (Consolini & LaPorte, 1991).



40. Our rules and policies are properly weighted between safety and performance (original).
41. In this department there are too many rules and regulations (R).
42. Employees in this department are not constrained by rules and regulations in doing their jobs.

Next, constructs from the empowering leadership behaviors model are detailed. All analytic procedures are run separately for the practices/procedures model (the constructs above) and the empowering leadership behaviors model (the construct below).

*Constructs for Model 2 (Hypotheses 9-12)*

***Immediate Supervisor Empowering Behaviors.***

Immediate supervisor empowering behaviors is defined here as a group of leadership behaviors intended to reduce employees' sense of powerlessness, eliminate organizational constraints, and to delegate authority and responsibility to enhance employees' motivational states (van Dijke et al., 2012).<sup>10</sup>

Rather than senior leadership, the particular focus here is on perceptions the empowering behaviors of immediate supervisors. For example, according the focus groups, fire ranks of Captain are perceived to be immediate supervisors from the perspective of firefighters and engineers, while Battalion Chiefs are considered to be immediate supervisors from the perspective of Captains. Following Arnold et al.'s (2000) five key dimensions of empowering leaders, an existing scale complimented by additional original items was developed to measure immediate supervisor empowering behaviors. More specifically, items 43 and 44 below were

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<sup>10</sup> Empowering leadership behaviors is conceptually similar to considerate leadership behaviors, or the degree to which supervisors develop a work climate of psychological support, mutual trust and respect, helpfulness, and friendliness; research shows that this leads to higher organizational (affective) commitment (Dale & Fox, 2008; Steyrer et al., 2008), job satisfaction (Petty & Bruning, 1980), and organizational effectiveness (Edmondson & Moingeon, 1999). Considerate leaders are skilled at sensing and subsequently satisfying their followers needs (Steyrer et al., 2008).

originally developed, while the remaining items four items are based on van der Post et al.'s (1997) Management Style Scale (slightly adapted to be relevant in the fire context).

*Measure:* Six items - two original items with help from focus groups and experts, four items from van der Post et al.'s (1997) Management Style Scale.

43. My immediate supervisor's words and actions are aligned (original).
44. My immediate supervisor sets a good example for others to follow (original).
45. I have a low level of trust with immediate supervisors (R).
46. I cannot rely on immediate supervisors when needed (R).
47. Immediate supervisors in this department provide clear intent and direction.
48. My immediate supervisor is helpful and supportive when required.

#### ***Senior Leader Empowering Behaviors.***

The senior leader empowering behaviors construct is a mirror to the immediate supervisor empowering behaviors construct, in terms of both its definition and measures. The only difference is in the referent specified in the items.

*Measure:* Six items - two original items with help from focus groups and experts, four items from van der Post et al.'s (1997) Management Style Scale.

49. The words and actions of the senior leadership are usually aligned (original).
50. Senior leadership sets a good example for others to follow (original).
51. I have a low level of trust with senior leadership (R).
52. I cannot rely on senior leadership when needed (R).
53. Senior leadership in this department provides clear intent and direction.
54. My senior leadership is helpful and supportive when required.

#### ***Work Autonomy.***

Identical to the work autonomy construct/measure in the previous model, in line with Spreitzer's (1996) conception of self-determination, work autonomy is defined here as the ability to influence one's own behavior, particularly in terms of being able to improvise when warranted by the situation. Four previously established items from van der Post et al.'s (1997) Locus of Authority Scale were used, combined with 1 original item to add an aspect of empowerment highly familiar to firefighters.

*Measure:* Five items - van der Post et al.'s (1997) Locus of Authority Scale, and one original item developed with help from focus groups and experts (see pp. 60 for items).

### ***Adaptive Performance.***

Identical to the department adaptive performance construct/measure described for model 1, department adaptive performance is defined here as the average of employee perceptions towards their ability to adapt to dynamic work environments to deal with uncertainty in emergency crisis situations (Pulakos et al., 2000).

*Measure:* Ten items – from de Waard et al.'s (2013) Responsiveness scale. Adjustments to items

In sum, Step 1 was primarily concerned with establishing content validity for each construct. Content validity was assessed by conducting eight focus groups consisting of either six firefighters, six captains, or six battalion chiefs in two fire departments; also assessments from practitioner and academic experts. The participants and experts confirmed that the items were accurate measures of the constructs, and suggested better ways to word referents in order to make the items most relevant to firefighters. For example, item referents from the adaptability scale were altered from “unit” to “department”.

### *Step 2: Questionnaire Administration: Pre-Test*

In Step 2, the questionnaire is deployed to a sample representative of the population of interest (firefighters) to measure the constructs under examination, in terms of how well the items create strong psychometric properties of the measures (Hinkin, 1998). Here, the item pools are tested to find the extent to which they display high internal consistency reliability, unidimensionality, and adequate variance.

First, survey items require internal consistency, dependability, and repeatability (free of errors of measurement) if they are to be used to form a reliable scale (Harvill, 1991). Thus, examining the scales for evidence of reliability is the *first step of Step 2*, which can be done in numerous ways. Coefficient alpha is one of the most common ways to measure how closely a set of items are related to each other as a group, meaning it is used to determine reliability, or internal consistency of the items in a scale (Cortina, 1993). The literature generally states the alpha levels must at least reach .70 to be acceptable, although alphas of .80 or .90 are preferred because higher alpha levels indicate increased scale reliability. For example, an alpha coefficient of .82 would suggest relatively high internal consistency among the items of a scale, while an alpha coefficient of .95 would suggest very high internal consistency. Cortina (1993) also states that alpha appropriateness varies based on the number of items in a scale. According to Hinkin (1998), reliability is considered to be a necessary but not sufficient condition for construct validity.

To improve scale reliability, a number of statistics can be evaluated. Item-total correlations, for example, looks at the correlation between an individual item in a multi-item scale and the sum or total score of the remaining items from that scale. To illustrate, to assess and possibly improve the reliability of a work autonomy scale that contained 5 items, there would be 5 item-total correlations to examine. Each item of the autonomy scale would be tested for correlation with the sum of the remaining 4 items, producing 5 item-total correlations. The goal is

for the individual item to be correlated with the sum of the remaining items as a whole. An item that correlates poorly with the scale of the remaining items (e.g., less than .02 or .03) can be considered for removal because it could be measuring a different construct.

Next, *in the second step of step 2*, exploratory factor analysis should be used to provide insight on the dimensionality of the constructs and further item reduction considerations. Factor loadings are the correlation of the items and the latent construct, or the strength of the relationships between each scale item and latent factor. They are completely standardized estimates of regression slopes predicting the indicators by the latent variable, or factor (Brown, 2015). In other words, they determine the extent to which the items group around or are correlated strongly with a latent construct, where intercorrelations among measures exist because they are influenced by the same construct. Concepts should be unidimensional in the sense that single factor models should fit the data well (Klein et al., 2014). Factor loadings vary from -1 to 1, where indicators affect the factor more as they get closer to -1 or 1. The overlap of the correlated items is defined as the latent factor, and the remaining is error (the extent to which the items do not correlate with each other). Items, or indicators should have factor loadings of at least .40 to be considered as being related to the factor.

If the development of scales is performed appropriately and carefully, the number of factors that emerge on the Kaiser (indicated by eigenvalues greater than 1) and scree plot should equal the number of scales being developed (Hinkin, 1998). Only items that load on to a single factor above .40 should be retained, as these items accurately reflect the content domain of the underlying construct (Hinkin, 1998). If items from different factors are loaded on the same factor, or if items from a single construct load on multiple factors, then there is evidence that the constructs are not unique. However, EFA is unable to quantify the goodness of fit of a resulting factor structure, so Confirmatory Factor Analysis (CFA) is needed as the *third step of step 2*, to confirm the dimensionality of the construct (Hinkin, 1998). Even items that properly load onto

factors in EFA may demonstrate poor fit in a measurement model that has multiple indicators by lacking external consistency (Gerbing & Anderson, 1984; Hinkin, 1998). Based on the variance-covariance matrix of the items, CFA allows researchers to assess both the factor loadings and overall model significance using goodness of fit statistics (Hinkin, 1998). This can show, for example, whether a single-factor or multiple-factor model performs better through fit statistics such as CFI and RMSEA.

### *Performing Step 2*

#### ***Participants for Model 1.***

To validate the constructs of the empowerment practices/procedures model (Model 1), the sample consisted of all uniformed employees (Firefighters, Engineers, Captains, Battalion Chiefs etc.) from three separate fire departments located in the Western and Midwest U.S. In

- Department 1: Approximately 500 employees.
- Department 2: approximately 1100 employees.
- Department 3: approximately 100 employees.

total, 903 completed responses were collected, resulting in a 53% response rate overall.

#### ***Participants for Model 2.***

To validate the constructs of the empowering leadership behaviors model (Model 2), the sample consisted of all uniformed employees (Firefighters, Engineers, Captains, Battalion Chiefs etc.) from one fire department located in the Western U.S. In total, 352 complete responses were collected, resulting in a 35% response rate.

- Department 4: approximately 1000 employees.

For Model 1, the cross-sectional survey was administered online in March 2018 for the first department, December 2018 for the second department, and July 2019 for the third department. For Model 2, the cross-sectional survey was administered online in January 2018. An email containing the survey link was sent to each department's Fire Chief, who then sent an email on my behalf to all operational department members (Dillman, Smyth, & Christian, 2014). The questionnaire collected self-reported data and was kept open for three weeks. The Fire Chiefs sent department employees two reminders at one week apart. All subjects were informed that the survey was voluntary and that all responses would remain anonymous. The questionnaire items for each model are displayed in Tables 1 and 2. An open ended question was also provided at the end of the survey which asked respondents to expand upon their department's culture, which are presented in the discussion section to provide additional insights on the quantitative findings.

*Internal Homogeneity - Reliability of the Indices (step one of step two)*

The reliability of the indices used in the present study were assessed using Cronbach's alpha reliability test. Also shown in Table 1, for the Model 1 sample, Cronbach's alpha for career development opportunities was  $\alpha = .78$ ; for autonomy,  $\alpha = .92$ ; for voice with immediate supervisors,  $\alpha = .84$ ; for voice with senior leaders,  $\alpha = .90$ ; for tempo balance,  $\alpha = .84$ ; for adaptive performance,  $\alpha = .91$ ; for POS,  $\alpha = .94$ ; for goal clarity,  $\alpha = .95$ ; and for procedural constraints,  $\alpha = .84$ . Also shown in Table 2, for the Model 2 sample, Cronbach's alpha for immediate supervisor empowering behaviors was  $\alpha = .89$ ; for senior leader empowering behaviors,  $\alpha = .92$ ; for work autonomy,  $\alpha = .87$ ; and for adaptive performance,  $\alpha = .87$ . Together, Cronbach's alpha tests showed that the instruments and its indices are reliable (Croasmun & Ostrom, 2011; Santos, 1999). Only one scale showed a large increase in  $\alpha$  contingent on removing an item: q60 in the career development opportunities scale. Further testing is needed before considering removing the item from the scale.

**Table 1: Questionnaire Items**

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*Career Development Opportunities* ( $\alpha = .78$ )

- 1 Career development is taken seriously in this department.
- 2 My work is regularly reviewed with my development in mind.
- 3 I can develop my career within this department.
- 4 I have an opportunity to see my appraisal report and discuss it with my supervisor.
- 5 In general, there is an adequate system for career development in the department.

*Work Autonomy* ( $\alpha = .92$ )

- 6 My leaders would support me if I needed to deviate from the plan to accomplish the mission.
- 7 We are not allowed to get on with our jobs because we have to double check all decisions with our leaders (R).
- 8 In this department we are empowered to make appropriate decisions.
- 9 We are encouraged to use our own initiative in doing our jobs.
- 10 We have the freedom and independence to do our jobs effectively.

*Employee Voice (with supervisors)* ( $\alpha = .84$ )

- 11 I am not encouraged to reveal any differences of opinion which I may have with my supervisor (R).
- 12 My supervisor does not like to hear the other side of the story (R).
- 13 My supervisor is not interested in hearing views that do not agree with their views (R).

*Employee Voice (with department/senior leaders)*( $\alpha = .90$ )

- 14 Differences of opinion are welcomed in this department.
- 15 Differing views are encouraged in this department.

*Tempo Balance* ( $\alpha = .84$ )

- 16 The amount of overtime the department asks from me is about right.
- 17 The department's overtime policies pose risk to our readiness (R).
- 18 The department's overtime policies pose risk to our safety (R).
- 19 I can take sufficient time off.

*Adaptive Performance* ( $\alpha = .91$ )

- 20 During complex incidents our department can easily divide essential operational activities amongst each other.
- 21 During complex incidents our department can easily adjust to changing operational circumstances.
- 22 Whatever task our department undertakes, we can cooperate easily with one another during emergency operations.
- 23 During multi-agency emergency response operations our department cooperates easily with other departments.
- 24 Our command has the capacity to easily shift functions and tasks if required by the response conditions.
- 25 Our firefighters can easily take on alternative roles and tasks in case a response requires us to do so.
- 26 Our department is capable of repeatedly adjusting to changing mission contexts.
- 27 If needed our department can add new types of missions to existing operational missions.
- 28 Our department is proactive in seeking a fit between what it can offer and what our citizens are expecting
- 29 Our department tries to serve their community best by being capable of dealing with all kinds of situations.

*Perceived Organizational Support (POS)* ( $\alpha = .94$ )

- 30 This department does not really value its employees (R).
- 31 This department has a high regard for its employees.
- 32 This department does not treat its employees as if they are a valued resource (R).
- 33 This department views its employees as important contributors to the department's success.

*Goal Clarity* ( $\alpha = .95$ )

- 34 We are sufficiently aware of the department's mission.
- 35 Employees in this department understand the mission of the department.
- 36 In this department the mission is not clearly defined.

*Procedural Constraints* ( $\alpha = .84$ )

- 37 Our standard operating procedures are properly weighted between safety and performance.
- 38 In this department there are too many standard operating procedures (R).
- 39 Employees in this department are not constrained by standard operating procedures in doing their jobs.
- 40 Our rules and policies are properly weighted between safety and performance.
- 41 In this department there are too many rules and regulations (R).
- 42 Employees in this department are not constrained by rules and regulations in doing their jobs.

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**Table 2: Empowering Leadership Behaviors (Model 2) Questionnaire Items**

*Immediate Supervisor Empowering Behaviors ( $\alpha = .89$ )*

- 1 My immediate supervisor's words and actions are aligned.
- 2 My immediate supervisor sets a good example for others to follow.
- 3 I have a low level of trust with immediate supervisors (R).
- 4 I cannot rely on immediate supervisors when needed (R).
- 5 Immediate supervisors in this department provide clear intent and direction.
- 6 My immediate supervisor is helpful and supportive when required.

*Senior Leader Empowering Behaviors ( $\alpha = .92$ )*

- 7 The words and actions of the senior leadership are usually aligned.
- 8 Senior leadership sets a good example for others to follow.
- 9 I have a low level of trust with senior leadership (R).
- 10 I cannot rely on senior leadership when needed (R).
- 11 Senior leadership in this department provides clear intent and direction.
- 12 My senior leadership is helpful and supportive when required.

*Work Autonomy ( $\alpha = .87$ )*

- 13 My leaders would support me if I needed to deviate from the plan to accomplish the mission.
- 14 We are not allowed to get on with our jobs because we have to double check all decisions with our leaders (R).
- 15 In this department we are empowered to make appropriate decisions.
- 16 We are encouraged to use our own initiative in doing our jobs.
- 17 We have the freedom and independence to do our jobs effectively.

*Adaptive Performance ( $\alpha = .87$ )*

- 18 During complex incidents our department can easily divide essential operational activities amongst each other.
- 19 During complex incidents our department can easily adjust to changing operational circumstances.
- 20 Whatever task our department undertakes, we can cooperate easily with one another during emergency operations.
- 21 During multi-agency emergency response operations our department cooperates easily with other departments.
- 22 Our command has the capacity to easily shift functions and tasks if required by the response conditions.
- 23 Our firefighters can easily take on alternative roles and tasks in case a response requires us to do so.
- 24 Our department is capable of repeatedly adjusting to changing mission contexts.
- 25 If needed our department can add new types of missions to existing operational missions.
- 26 Our department is proactive in seeking a fit between what it can offer and what our citizens are expecting
- 27 Our department tries to serve their community best by being capable of dealing with all kinds of situations.

*Exploratory Factor Analysis (step two of step two)*

Since tempo balance is a new construct, and some of the items from the other scales were originally developed, factor analysis procedures on all measures were performed to establish further validity and reliability among the constructs. Common factor analysis with the maximum likelihood option was used. Common factor analysis was used over PCA because I assume that both the unique variance and error variance are not of interest in defining the structure of the variables (Hair, Black, Babin, 2014). The loadings were then rotated using the Promax option since the variables are all assumed to be correlated to some extent. Tables 1 and 2 display all the questionnaire items used in the EFA analyses, while Tables 3 and 4 display the EFA results for

the samples of Model 1 and Model 2. The eigenvalue criterion of greater-than-1.0 was used (Pulakos et al., 2000), resulting in a nine factor model that mirrors the expected nine constructs in Model 1 (Table 3), and a four factor model that mirror the expected four constructs in Model 2 (Table 4).

**Table 3: EFA Maximum Likelihood Analysis (Model 1)**

Item	1	2	3	4	5	6	7	8	9	Uniqueness
q9auton	1.00									.10
q8auton	.93									.11
q10auton	.89									.15
q6auton	.67									.29
q7auton	.58									.39
q30pos		.98								.13
q31pos		.84								.18
q32pos		.82								.24
q33pos		.63								.28
q24adapt			.90							.24
q20adapt			.85							.29
q22adapt			.83							.28
q21adapt			.79							.29
q26adapt			.72							.39
q27adapt			.69							.47
q23adapt			.65							.53
q28adapt			.46							.58
q25adapt			.45							.81
q29adapt			.30				.25			.67
q35goal				.93						.17
q34goal				.87						.17
q36goal				.75						.34
q38const					.91					.23
q41const					.83					.41
q40const					.58		.26			.44
q37const					.57					.44
q39const					.49					.57
q42const					.47					.58
q15voiceSL						.99				.00
q14voiceSL						.66				.32
q5career							.67			.40
q1career							.60			.46
q4career					-.39		.55			.57
q3career							.55			.43
q2career							.52			.60
q18tempo								1.00		.07
q17tempo								.91		.18
q16tempo								.64		.47
q19tempo								.39		.64
q13voiceIS									.94	.09
q12voiceIS									.91	.17
q11voiceIS									.55	.59

Note: all factor loadings below .25 were deleted from table. Extraction method: Maximum Likelihood. Rotation method: Promax

**Table 4: EFA Maximum Likelihood Analysis (Model 2)**

Item	1	2	3	4 Uniqueness
q8empSL	.87			.22
q9empSL	.87			.28
q10empSL	.85			.27
q7empSL	.83			.29
q11empSL	.80			.34
q12empSL	.78			.31
q22adapt		.87		.25
q18adapt		.87		.31
q19adapt		.85		.27
q20adapt		.85		.27
q24adapt		.69		.38
q25adapt		.68		.50
q21adapt		.66		.55
q23adapt		.50		.78
q26adapt	.30	.41		.66
q27adapt		.38		.72
q15auton			.94	.10
q16auton			.93	.14
q17auton			.83	.18
q14auton			.68	.47
q13auton			.63	.30
q2empIS				.96 .16
q1empIS				.94 .18
q6empIS				.82 .35
q4empIS				.69 .42
q3empIS				.69 .41
q5empIS				.54 .52

Note: all factor loadings below .25 were deleted from table.  
 Extraction method: Maximum Likelihood. Rotation method:  
 Promax

As seen in Table 3, nearly all factor loadings (aside from q29adapt and q19tempo) were above the desired threshold of .40 (Hinkin, 1998), and there was only minimum evidence of cross-loading. In Table 4, all factor loadings were above the desired threshold of .40, and only one item (q26) showed evidence of cross-loading. However, since the factor loadings of the cross-loading items do not surpass .40 in either sample, no further action (such as removing items from scales) is necessary for now. Thus, the EFA results provide preliminary support for the validity of the constructs in the hypothesized models.

*Confirmatory Factor Analysis (step three of step two)*

Subsequent Confirmatory factor analysis was next performed to further assess the dimensionality of the constructs. Since no model modifications were made in the scale development and refinement process, cross validating the psychometric properties is not performed using new subsamples (MacKenzie et al., 2011). For Model 1's sample, the CFA showed good model fit with statistics all meeting conventions for acceptable fit. As recommended by scholars such as Baumgartner & Homburg (1996), the root mean square error of approximation (RMSEA) was less than .08 (RMSEA = .07) and the comparative fit index (CFI) was greater than .90 (CFI = .94) for the original hypothesized five factor model (goal clarity, procedural constraints, and POS not included in CFA). Thus, the hypothesized model for empowerment practices/procedures is considered to be acceptable in terms of its ability to provide an adequate explanation of the relationships in the data.

For Model 2's sample, while the RMSEA was .09, implying marginal fit, the CFI value was .91, implying good fit for the three factor model. These goodness-of-fit values are stronger than shown in the two factor model (RMSEA = .10, CFI = .93) where senior leader empowering behaviors was removed, suggesting that the three factor model is acceptable, although further actions may be required to improve the model if it does not perform well. For now, the model is considered to be acceptable in terms of validity and reliability, contingent upon more rigorous validity testing.

Overall, the results of the pre-test (step 2) demonstrate that the measures for both models are psychometrically sound, have adequate variance and display expected dimensionality, and have strong internal consistency reliability (Klein et al., 2014).

### *Step 3: Construct Validity*

The final step is to establish construct validity by ensuring that the constructs operate in a predictive way with other constructs in the nomological network, based on theory and prior empirical evidence (Klein et al., 2014). For a measure to demonstrate construct validity, there should be strong evidence of convergent validity, nomological validity, and discriminant validity. To establish convergent validity, the measure should be related to other measures (alternative measures) designed to measure similar constructs. To demonstrate nomological validity, the measure should be related to other constructs specified in the construct's theoretical network (MacKenzie et al., 2011). To show discriminant validity, the measure should be distinguishable from the measures of different, but conceptually similar constructs that are potentially confounded with the focal construct (Hinkin, 1998; MacKenzie et al., 2011).

On one hand, construct validity can be assessed using EFA and CFA, where factor loadings .60 or higher on a single factor indicate the presence of convergent validity, and loadings .30 or less on all other factors indicate the presence of discriminant validity. However, to rigorously evaluate construct validity, both correlation and regression procedures are typically performed in tests that evaluate the focal construct with other variables in the nomological network. It is for this reason that the present study added more constructs to the survey which are not part of the primary hypothesized empowerment practices/procedures model (goal clarity, procedural constraints, POS). Due to the tempo balance measure being unique to the fire service, no alternative measures were added to the survey to assess convergent validity. Thus, the following analyses assess construct validity through discriminant and nomological validity tests only. Since Model 2 did not develop new constructs, assessing construct validity with more rigorous testing is only performed for Model 1's sample.

*Performing Step 3 (Consensual, Discriminant, and Nomological validity)*

First, the scales have high face validity, because the items were carefully selected to represent the constructs of interest, and because the EFA and CFA analyses presented above indicate factorially distinct scales relating to these constructs.

To assess discriminant validity of the new tempo balance construct, we should expect tempo balance to produce only weak correlations with procedural constraints, which is a broader measure of organizational stressors based on bureaucratic culture. Other studies have reported correlations between work overload (similar to tempo balance) and procedural constraints at  $r = .51$  (e.g., Aslam et al., 2018). Future studies should measure both work overload and the new tempo balance construct to conduct an even more rigorous assessment of discriminant validity. Scholars such as MacKenzie et al. (2011) suggest correlations less than .71 are sufficient to demonstrate discriminant validity. As shown in Table 5, tempo balance is correlated with procedural constraints only at  $r = .41$ , showing that tempo balance is a distinct type of organizational stressor. Moreover, tempo balance shows a weak correlation with goal clarity  $r = .32$ , indicating that the focal construct is even less related to more theoretically distant constructs that are often included in the nomological network as potential confounders (e.g., Dishop et al., 2019). To also note, the empowerment practices (career development opportunities, autonomy, employee voice) all show intercorrelations less than .71 among each other, suggesting they are also distinguishable managerial practices.

**Table 5**  
*Descriptive Statistics and Model 1 Variable Intercorrelations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Career Development Opportunities	4.56	1.46	-								
2. Autonomy	4.61	1.53	.47	-							
3. Voice with Supervisors	5.17	1.64	.41	.36	-						
4. Voice with Senior Leaders	3.42	1.73	.45	.60	.31	-					
5. Tempo Balance	4.44	1.78	.15	.41	.12	.37	-				
6. Procedural Constraints	4.13	1.30	.27	.61	.16	.46	.41	-			
7. Perceived Organizational Support	4.10	1.82	.57	.66	.29	.67	.40	.45	-		
8. Goal Clarity	4.31	1.78	.39	.52	.19	.49	.32	.47	.54	-	
9. Adaptive Performance	5.33	1.18	.50	.59	.29	.48	.38	.45	.54	.47	-

*Note* : N = 894; all correlations significant at  $p < .001$  level; Model 1 = Empowerment practices and procedures model

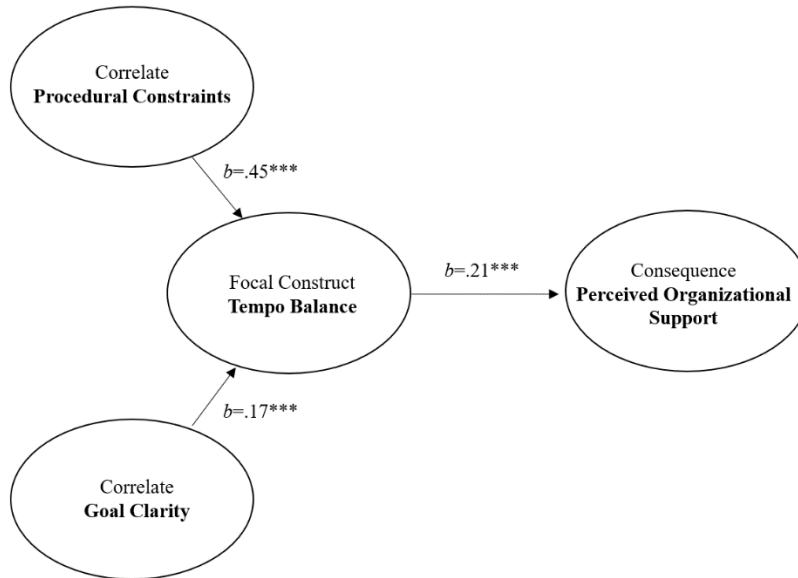
Next, to assess nomological validity, the relationships between the focal construct (tempo balance) and its potential antecedents, correlates, and consequences are examined. The hypothesized model (Figure 3) here includes variables separate from the primary hypothesized model to provide additional preliminary support for nomological validity. As MacKenzie et al. (2011) state, if the coefficients for these paths are statistically significant, it implies that the focal construct relates to other constructs in its nomological network (which establishes nomological validity). Figure 3 displays the hypothesized model and results for the nomological network test, based on social exchange theory<sup>11</sup> and findings from previous models in studies such as Dishop et al. (2019). Other specific studies have shown that work exhaustion (similar to tempo balance) predicts POS (R. J. Burke, 2003), similar to its correlate, procedural constraints (Pindek & Spector, 2016). Goal clarity is also seen to produce effects on affective outcomes with work exhaustion via the social exchange approach (Dishop et al., 2019).

As shown in Figure 3, the focal construct operates appropriately in its nomological network as tempo balance is significantly related to POS ( $b=.21$ ), while procedural constraints  $b=.45$  and goal clarity  $b=.17$  are both significantly related to tempo balance. Thus, the results demonstrate high nomological validity for tempo balance. Taken together, performing the three step process of construct validation demonstrated high content validity, expected variance and dimensionality, high reliability, discriminant validity, and nomological validity for tempo balance and the constructs included in the primary hypothesized models. The constructs are thus ready for theory testing in both hypothesized adaptive performance models.

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<sup>11</sup> Blau (1964) described social exchange as a process whereby employees feel obligated to reciprocate goodwill or other forms of favorable treatment initiated by the organization. Resources exchanged are those which are highly valued by individuals, and resemble actions based on support, care, and concern, rather than more tangible economic benefits.

Figure 3: Nomological Network Model



Note: Hierarchical Regression analysis; N=899; Model for Tempo Balance as DV, (Adj.  $R^2=.19$ ,  $F(2,896)=103.48, p<.001$ ); Model for POS as DV (Adj.  $R^2=.37$ ,  $F(3,895)=177.03, p<.001$ ).

### Hypothesis Testing

Table 6 recaps all hypotheses formulated for Model’s 1 and 2.

Table 6

**Model 1 (Hyp 1-8) and Model 2 (Hyp 9-12) Hypotheses**

- Hyp 1: *Perceptions of career development will be positively related to department adaptive performance.*
- Hyp 2: *Perceptions of work autonomy will be positively related to department adaptive performance.*
- Hyp 3: *Perceptions of employee voice with immediate supervisors will be positively related to department adaptive performance.*
- Hyp 4: *Perceptions of employee voice with senior leaders will be positively related to department adaptive performance.*
- Hyp 5: *Tempo balance moderates the relationship between perceptions of career development and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*
- Hyp 6: *Tempo balance moderates the relationship between perceptions of work autonomy and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*
- Hyp 7: *Tempo balance moderates the relationship between perceptions of employee voice with immediate supervisors and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*
- Hyp 8: *Tempo balance moderates the relationship between perceptions of employee voice with senior leaders and department adaptive performance such that the relationship is stronger when tempo balance is high and weaker when it is low.*
- Hyp 9: *Immediate supervisor empowering behaviors (coaching, informing, leading by example, showing concern, encouraging participative decision-making) will be positively related to work autonomy.*
- Hyp 10: *Senior leader empowering behaviors moderates the relationship between immediate supervisor empowering behaviors and work autonomy such that the relationship is stronger when senior leader empowering behaviors is high and weaker when it is low.*
- Hyp 11: *Work autonomy will be positively related to adaptive performance.*
- Hyp 12: *The indirect effect of immediate supervisor empowering behaviors on adaptive performance via work autonomy is moderated by senior leader empowering behaviors, such that the indirect effect is stronger when senior leaders are seen as more empowering and weaker when senior leaders are seen as less empowering.*



### *Participants*

The same samples used for the pre-test are used to test all hypotheses (see Participants section on page x for full description). As previously described in more detail, the sample for Model 1 included all operational firefighters from three separate U.S. fire departments (1700 members) – 903 completed responses were returned. Model 2 included all operational firefighters from one U.S. fire department (1000) members – 352 completed responses were returned. All subjects understood that the survey was voluntary and that all responses would remain anonymous. See page x for more information on survey administration.

### *Measures*

Tables 1 and 2 also list the indices used to capture the variables in the hypothesized models, including their Cronbach's alpha scores.

### *Analysis method*

For hypotheses 1-8, multiple regression analysis was performed. To test for interactive effects, variables were mean-centered to reduce effects of multicollinearity (Ahearne et al., 2005). Hypotheses 9-12 are instead tested using the PROCESS macro developed by Preacher and Hayes (2004, 2008), which also tests for mediation using bootstrapping procedures to test for indirect effects. This method is preferred over the causal steps approach or Sobel test due to its high power and reasonably controlled Type 1 error rate (Preacher & Hayes, 2008). Indirect effects were calculated with 5,000 bootstrap resamples; the significance of an indirect effect is determined by assessing bias-corrected 95% confidence intervals (CIs) that correct for median bias and skew (Hayes, 2018; Simonoff et al., 1994). The effect is considered to be significant if

the CIs do not contain zero. The PROCESS macro by Preacher and Hayes (2004, 2008) is also used to test the moderating role of senior leader empowering behaviors on immediate supervisor empowering behaviors and work autonomy. To test for interaction effects, the variables are mean-centered to reduce effects of multicollinearity (Ahearne et al., 2005). Finally, the PROCESS macro by Hayes (2015) and Preacher et al. (2007) is also used to test for moderated mediation, or the conditional indirect effects of immediate supervisor empowering behaviors on adaptive performance via work autonomy across different levels of empowering senior leadership. High levels and low levels of empowering senior leadership are set respectively at one standard deviation above or below its mean score.

#### *Chapter 4 Summary*

Chapter 4 performed extensive scale development and construct validation procedures to ensure the measures reflect their constructs of interest in three broad steps. First, I established content validity to ensure strong conceptual linkages exist between the items and construct domains (Klein et al., 2014). Second, I administered the questionnaire and showed with analytical procedures that the measures are psychometrically sound, show expected dimensionality, and have high internal reliability (Klein et al., 2014). Third, I confirmed that the measures demonstrate construct validity via convergent, discriminant, and predictive validity tests (Klein et al., 2014). With the measures performing well in all construct validation procedures, the participants, measures, and analytical procedures used to test the hypotheses were described. The results are presented in Chapter 5 below, which also includes a detailed discussion of the findings.

## CHAPTER V

### QUANTITATIVE RESULTS AND DISCUSSION

This chapter presents the results for all hypotheses. Descriptive statistics are first presented for each model separately, followed by the numerous analytical procedures used to test the main hypotheses. A detailed discussion of the results supported by open-ended comments is also provided.

#### *Descriptive Statistics and Correlations for Model 1*

H1-H4 hypothesized that the empowerment practices (career development, work autonomy, employee voice with supervisors and senior leaders) would be positively related to department adaptive performance. In large part, the Pearson correlation results (Table 7) do support the hypothesized relationships. Career development ( $r = .50, p < .001$ ), work autonomy ( $r = .59, p < .001$ ), and employee voice with senior leaders ( $r = .48, p < .001$ ) significantly correlate with adaptive performance. However, while significant, employee voice with immediate

**Table 7**

*Descriptive Statistics and Model 1 Variable Intercorrelations for Hypothesized Model*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Career Development Opportunities	4.56	1.46	-					
2. Autonomy	4.61	1.53	.47	-				
3. Voice with Supervisors	5.17	1.64	.41	.36	-			
4. Voice with Senior Leaders	3.42	1.73	.45	.60	.31	-		
5. Tempo Balance	4.44	1.78	.15	.41	.12	.37	-	
6. Adaptive Performance	5.33	1.18	.50	.59	.29	.48	.38	-

*Note* : N = 903; all correlations are significant at the  $p < .001$  level.

supervisors ( $r = .29, p < .001$ ) has a rather low correlation with adaptive performance. Tempo balance also correlates with adaptive performance ( $r = .38, p < .001$ ), while medium level correlations are found between tempo balance and the empowerment practices of autonomy ( $r = .41, p < .001$ ) and employee voice with senior leaders ( $r = .37, p < .001$ ).

*Descriptive Statistics and Correlations for Model 2*

H9 and H11 hypothesized that immediate supervisor empowering behaviors would be positively related to work autonomy, and that work autonomy would be positively related to department adaptive performance. The results in Table 8 provide preliminary support for the hypothesized relationships, showing that immediate supervisor empowering behaviors ( $r = .43$ ) significantly correlates with work autonomy, and work autonomy ( $r = .49$ ) significantly correlates with adaptive performance, both with positive correlation coefficients. While not specifically hypothesized, senior leader empowering behaviors also significantly correlates with both work autonomy ( $r = .50$ ) and adaptive performance ( $r = .52$ ).

**Table 8**

*Descriptive Statistics and Model 2 Variable Intercorrelations for Hypothesized Model*

<b>Variable</b>	<b>M</b>	<b>SD</b>	1	2	3	4
1. Immediate supervisor empowering behaviors	5.94	1.05	-			
2. Senior leader empowering behaviors	4.98	1.49	.43	-		
3. Work autonomy	5.29	1.10	.43	.50	-	
4. Adaptive performance	5.84	.82	.31	.52	.49	-

*Note* : N = 352; all correlations are significant at the  $p < .001$  level.

*Main Hypothesis Testing*

To test the main (direct) effects of the empowerment practices on department adaptive performance (hypothesis 1-4), multiple regression analysis was conducted. The initial results of this analysis without tempo balance included in the model are shown in Table 9. As shown in Table 9, the four predictors explained 42% of the variance in the dependent variable, adaptive performance (Adj. R<sup>2</sup>=.42, F(4,901)=164.62, p<.001). The main impacts of career development opportunities ( $\beta$ =.21, p<.001), autonomy ( $\beta$ =.30, p<.001), and employee voice with senior

**Table 9**  
Regression results for Hypotheses 1-4

Independent variables	Dependent variable: adaptive performance			
	$\beta$	Total R <sup>2</sup>	Adj R <sup>2</sup>	F
Career Development	.21***			
Autonomy	.30***			
Voice (with supervisors)	.01			
Voice (with senior leaders)	.09***			
		.42	.42	164.62***

Note. N = 906;  $\beta$  = Unstandardized Coefficients

\* p<.05.

\*\* p<.01.

\*\*\* p<.001.

leaders ( $\beta$ =.09, p<.001) on adaptive performance were positive and statistically significant, supporting H1, H2, and H4 which predicted that the empowerment practices would positively influence department adaptive performance. Employee voice with immediate supervisors, however, was not significantly related to the dependent variable (H3 not supported).

Table 10 further tests the main effects hypothesized by H1-H4 with tempo balance included as a covariate, along with the interaction terms for the predictors. As compared to the first model (Table 9) which ran the predictors alone and explained 42% of the variance in the dependent variable, the model shown in Table 10 explains 46% of the variance (Adj. R<sup>2</sup>=.46, F(9,893)=88.05, p<.001). Thus, including tempo balance and the interactive terms in the model

appears to improve its explanatory power by 5%. The main effects of career development opportunities ( $\beta=.23$ ,  $p<.001$ ), autonomy ( $\beta=.25$   $p<.001$ ), and employee voice with senior leaders ( $\beta=.07$ ,  $p<.001$ ) on adaptive performance were similar to the previous model, again showing positive and statistically significant relationships with adaptive performance. This further supports H1, H2, and H4. Tempo balance ( $\beta=.10$ ,  $p<.001$ ) also showed a positive and significant result with the outcome variable, implying that properly balanced overtime policies and adequate time off significantly enhances adaptive performance. Employee voice with immediate supervisors, however, again failed to produce a significant result.

Next, I tested for interactive effects. Results are shown in the bottom of Table 10. The variables (excluding the DV) were mean-centered to reduce effects of multicollinearity (Ahearne, Mathieu, & Rapp, 2005). As shown in Table 10, career development opportunities ( $\beta=-.06$ ,  $p<.001$ ) and work autonomy ( $\beta=-.05$ ,  $p<.01$ ) both interacted negatively and significantly

**Table 10**  
Regression results for Hypotheses 5-8

Independent variables	Dependent variable: adaptive performance			
	$\beta$	Total R <sup>2</sup>	Adj R <sup>2</sup>	F
Career Development	.23***			
Autonomy	.25***			
Voice (with supervisors)	.01			
Voice (with senior leaders)	.07***			
Tempo Balance	.10***			
Career Development * Tempo Balance	-.06***			
Autonomy * Tempo Balance	-.05**			
Voice (with supervisors) * Tempo Balance	.02			
Voice (with senior leaders) * Tempo Balance	.01			
		.47	.46	88.05***

Note. N = 903; B = Unstandardized Coefficients; All variables except for DV are mean centered

\*  $p<.05$ .

\*\*  $p<.01$ .

\*\*\*  $p<.001$ .

with tempo balance to influence adaptive performance. However, tempo balance did not significantly interact with employee voice with supervisors nor employee voice with senior leaders. Thus, while H7 and H8 were not supported, H5 and H6 did receive support.

To demonstrate the interaction, I computed a series of estimates of tempo balance at low (mean – 1 SD) and high (mean + 1 SD) values of the moderator, and I conducted the interaction plots. Table 11 shows the results for the conditional effects. The relationship between career development opportunities and adaptive performance is stronger when tempo balance is low ( $\beta = .33$ , 95% CI: .27, .40) versus high ( $\beta = .12$ , 95% CI .06, .18). Also shown in Table 11, the relationship between work autonomy and adaptive performance is stronger when tempo balance is low ( $\beta = .34$ , 95% CI: .28, .40) versus high ( $\beta = .15$ , 95% CI: .09, .22).

**Table 11**  
Results for Conditional Effects at Values of the Tempo Balance

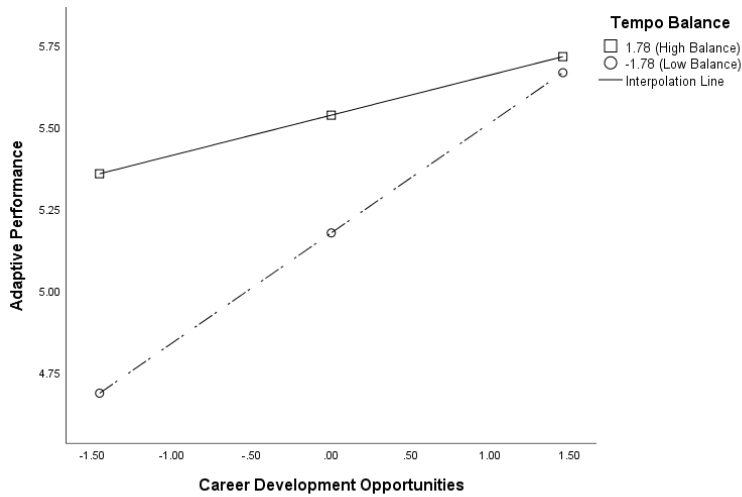
Independent variable: Career Development	Dependent variable: adaptive performance		
	$\beta$	LLCI	ULCI
Low Tempo Balance (-1 SD)	.33***	.27	.40
Mean (0)	.23***	.18	.28
High Tempo Balance (+1SD)	.12***	.06	.18
Independent variable: Work Autonomy	Dependent variable: adaptive performance		
	$\beta$	LLCI	ULCI
Low Tempo Balance (-1 SD)	.34***	.28	.40
Mean (0)	.25***	.19	.30
High Tempo Balance (+1SD)	.15***	.09	.22

Note. N = 903; B = Unstandardized Coefficients; All variables mean centered except for DV; 95% CI  
p < .001

Figures 4 and 5 present simple slopes plots of the moderating effects of tempo balance on the career development opportunities, work autonomy, and adaptive performance relationships. Illustrating the results in Table 11, Figure 4 shows that at both low and high levels of the moderator (low and high tempo balance), career development opportunities has effects on adaptive performance. While high levels of tempo balance and high levels of career development

opportunities produce the highest levels of adaptive performance, at low levels of tempo balance (strong tempo *imbalance*), the interactive effect becomes much stronger. Specifically, career

Figure 4: The interactive effects of tempo balance and career development opportunities on adaptive performance.

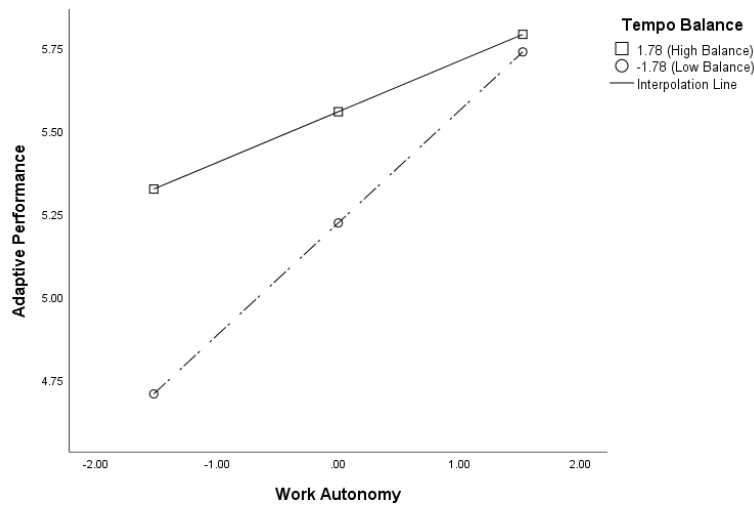


development opportunities become highly important for achieving high adaptive performance under low tempo balance conditions. Figure 5 also shows that work autonomy has effects on adaptive performance at both high and low levels of tempo balance, with the effect being stronger when tempo balance is low. That is, high levels of tempo balance and high levels of work autonomy generate the highest levels of adaptive performance, but work autonomy becomes much more important to achieve high levels of adaptive performance under low levels of the moderator.

Next, to test the main effects of immediate supervisor empowering behaviors on work autonomy (H9) and senior leader empowering behaviors' multiplicative effects with immediate supervisor empowering behaviors on work autonomy (H10), regression analysis was performed. All variables aside from the DV were mean-centered to reduce effects of multicollinearity (Ahearne et al., 2005). The results of this analysis are shown in Table 12, Model 1.



Figure 5: The interactive effects of tempo balance and work autonomy on adaptive performance.



As shown in Table 12, the predictors explain 31% of the variance in the dependent variable, work autonomy ( $R^2 = .31$ ,  $F(3,348)=52.7$ ,  $p<.001$ ) in Model A. H9 received support, as the main effects of immediate supervisor empowering behaviors ( $\beta=.25$ ,  $p<.001$ ) on work autonomy was found to be positive and significant. In addition, while not specifically hypothesized, senior leader empowering behaviors ( $\beta=.28$ ,  $p<.001$ ) also showed to be a positive and significant predictor of work autonomy. Also shown in Table 12, Model A, the results for the interaction effects provided that immediate supervisor empowering behaviors and senior leader empowering behaviors do not significantly interact to predict work autonomy. Thus, H10, which predicted multiplicative effects from empowering behaviors at both leadership levels on work autonomy, failed to receive empirical support. This result also means that H12 is not supported, which predicted moderated mediation, such as that the indirect effects of immediate supervisor empowering behaviors on adaptive performance via work autonomy would be moderated by senior leader empowering behaviors.

Model B in Table 12 shows the regression results for H11, which predicted that work autonomy would significantly predict adaptive performance. As shown, the predictors included in

Model B explain 24% of the variance in adaptive performance ( $R^2 = .24$ ,  $F(2,349)=53.8$ ,  $p<.001$ ). H11 was supported, as work autonomy ( $\beta=.32$ ,  $p<.001$ ) produced a positive and significant coefficient on adaptive performance. Moreover, while not specifically hypothesized, immediate supervisor empowering behaviors ( $\beta=.08$ ,  $p<.05$ ) showed to be significant predictors of adaptive performance.

Table 12  
*Regression Results for Hypotheses 9-11*

Variable	Dependent variable: work autonomy			
	B	SE	Total R <sup>2</sup>	F
<i>Model A</i>				
Immediate supervisor empowering behaviors (ISEB)	.25***	.05		
Senior leader empowering behaviors (SLEB)	.28***	.04		
ISEB*SLEB	-.04	.03		
			.31	52.763***
<i>Model B</i>				
Immediate supervisor empowering behaviors (ISEB)	.08*	.04		
Senior leader empowering behaviors (SLEB)				
Work Autonomy	.32***	.04		
			.24	53.827***

Note: N = 352; \*\*\*p < .001, \*\*p < .01, \*p < .05; unstandardized regression coefficients are reported

To test whether work autonomy mediates immediate supervisor empowering behavior and adaptive performance (Proposition 1), I ran bootstrapping procedures for indirect effects via work autonomy for both immediate supervisor empowering behaviors and senior leader empowering behaviors (see Table 13). Immediate supervisor empowering behaviors and senior leader empowering behaviors were run separately in simple mediation models with each other entered as covariates in order to isolate their bootstrap estimates (Hayes, 2018). As seen in Table 13, the bootstrapping results for the predictors suggest that work autonomy mediated the positive relationships between the empowering leadership behaviors of both immediate supervisors and

Table 13  
*Results for Bootstrapping Indirect Effects (Simple Mediation)*

Variable	Dependent variable: adaptive performance			
	<i>Bootstrap results for indirect effect: work autonomy</i>			
	<i>Estimate</i>	<i>SE</i>	LL 95% CI	UL 95% CI
Immediate supervisor empowering behaviors (ISEB)	.06	.02	.03	.10
Senior leader empowering behaviors (SLEB)	.06	.02	.03	.90

*Note* : N = 352; unstandardized regression coefficients are reported; Bootstrap sample size = 5000; LL = lower limit; CI = confidence interval; UL = upper limit

senior leaders ( $\beta^1 = .06$ ; CI = .03 to .10,  $\beta^2 = .06$ ; CI = .03 to .90). These indirect effects are considered to be significant as none of the CIs contained zero (Hayes, 2018). Thus, Proposition 1 was supported.

### *Discussion*

The results above primarily support the present study’s overall theory which predicted that empowerment practices/procedures (career development opportunities, work autonomy, and employee voice with supervisors and senior leaders) and empowering leadership behaviors would enhance department adaptability in complex response scenarios due to their positive influence on firefighters’ sense of meaning, competence, self-determination, and impact at work. Excessive rules, policies, and procedures are prominent in bureaucratic organizations such as the fire service. While highly effective for success in routine response operations, such hierarchical constraints are not seen to be effective in complex emergency incidents because they limit responders’ abilities to adapt to changing circumstances (Bigley & Roberts, 2001). This research shows that empowerment practices help bypass these hierarchical constraints and enhance department adaptability during complex incidents, specifically.

The results for the main effects in Model 1 (Hyp 1-4) suggest that access to sufficient career development opportunities enhances firefighters’ skills and abilities, and this helps them be

more competent and confident in their decision-making during conditions of high uncertainty; a finding which supports works such as (Dekker, 2003). Also provided adequate work autonomy, the findings show that firefighters are granted more access to power and opportunity, have more decision-making latitude, and as such have a greater ability to improvise when warranted by the situation. In effect, firefighters with autonomy are more determined to use their skills and abilities to make adaptive decisions when response conditions are unpredictable, a result also shown by (Charbonnier-Voirin & El Akremi, 2011).

Moreover, senior leaders who incorporate firefighters' opinions and input into important decision-making processes help them feel they have more impact, where firefighters are more motivated to engage in adaptive behaviors, because they believe they can truly influence outcomes at work (e.g., Wall et al., 2002). Support for employee voice with supervisors, however, does not appear to influence department adaptability. This is an unexpected result; compared to their immediate supervisors, employees have far less interactions with senior leaders in hierarchical organizations (Waldman & Yammarino, 1999). However, since senior leaders establish organizational strategies and SOPs, and become more involved in such activities during complex events, it is not surprising that employees feel their input matters more for this referent in predicting adaptive performance.

That is, senior leaders have the primary responsibility for facilitating flexibility and adaptability when complex threats emerge to impact the organization. This task involves the use of relevant behaviors and decision strategies by senior leaders, such as involving employees in problem-solving and decision-making in order to help make major changes in strategies or tactics needed to avoid a disaster (Yukl & Mahsud, 2010). Immediate supervisors, however, typically only manage employees at lower levels and have far less delegating authority. Aware of this, employees are more likely to view opportunities to express their opinions with senior leaders as

more empowering and thus more influential on their adaptive behaviors, particularly during complex events where top-management becomes more involved in operations.

Moreover, in organizations utilizing the command and control model, such as the fire service, immediate supervisors can only operate under what has been prescribed by senior leaders. Consequently, whatever the Chain of Command says or allows becomes the guiding principle for all levels below. Even if immediate supervisors promote employee voice without support from senior leaders, they alone cannot truly empower employees during complex events because most employees would feel that speaking up for important decisions is unwanted or simply a waste of time (Detert & Treviño, 2010). Senior leaders must be willing to both listen and implement input from lower levels in organizational strategy and tactics in order for employee voice to enhance employees' psychological empowerment and in turn, adaptive performance. In addition, immediate supervisors not only serve as an indirect channel by which employees often provide input to upper ranks, they also depend on senior leaders' willingness to incorporate their own input in strategic decision-making, which is critical for adaptive success. This is because immediate supervisors are often the first in charge at an emergency scene and are thus in a position to see the first signs of major problems that will require an unconventional response (Yukl & Mahsud, 2010). Employee voice with senior leaders may therefore perform a more significant role in its ability to predict department adaptive performance.

During complex incidents, the ability of firefighters to engage numerous adaptive behaviors is in large part, determined by the extent to which senior leaders are risk averse, where extensive checklists, fear of repercussion from errors, breaking SOPs, improper improvisations can hinder accurate and timely decision-making by firefighters on the ground (Jahn, 2019). This research shows that senior leaders who allow for employee input in such situations thus allow for these issues to be heard and potentially addressed so that their performance behaviors are less likely to be constrained. It is also possible that the non-significant findings for employee voice

with immediate supervisors is due to the scale items being reverse-coded. While reverse-coded items can correct for agreement bias and act as cognitive “speed bumps”, including such items in scales can also produce undesirable unintended consequences, such as lower scale reliability (as compared to regular items), poor fit in factor models, and lower factor loadings (Weijters et al., 2013). However, since all the evidence from our preliminary tests (e.g., Cronbach’s alpha, factor analysis) indicate that the construct and overall measurement model displays strong psychometric properties, I assume the results here are not a product of the reverse item phenomenon.

It is also important to highlight the positive and significant relationship between tempo balance and department adaptability, which shows that a more balanced workload designed to keep employees from becoming too tired, stressed, or fatigued helps firefighters be more resilient when response conditions are expanding. Overall, the insights from the results of the direct relationships show how leaders in bureaucratic organizations can buffer the constraints of the hierarchy detailed by scholars such as Bigley and Roberts (2001) when the situation demands: outside of routine response, and during large response incidents of high uncertainty, unpredictability, or complexity.

Moreover, the results from the interactive effects in Model 1 (H5-H8) imply that adaptive performance will be lowest when career development opportunities, work autonomy, and tempo balance are each at low levels. When firefighters are stressed and fatigued from imbalanced workloads (tempo balance = low), however, providing access to career development opportunities and work autonomy are extremely important for increasing adaptive performance, as compared to when firefighters are not stressed and fatigued (tempo balance = high). This is likely because firefighters are able to overcome stress and fatigue during complex incidents by relying on their training and ability to improvise. Thus, departments that require excessive amounts of mandatory overtime policies from their firefighters and limit their ability to take sufficient time off should invest more resources in the development of firefighters’ skills and abilities, and latitude to

improvise so they can better cope with exhaustion. Research has clearly shown that imbalanced workload contributes to work exhaustion, reduced commitment and satisfaction, and poor job performance (De Cuyper & De Witte, 2006; Karatepe, 2013; Moore, 2000; Zeytinoglu et al., 2007). Essentially, work overload communicates the organization's lack of concern and disregard for employee well-being (Bowling et al., 2015). As potentially mitigating effects, the research here shows how focusing department resources on developing firefighters' competence and enhancing their self-determination can reduce the influence that work overload via excessive mandatory overtime policies has on organizational performance. While outcomes are best when tempo balance and both career development opportunities and work autonomy is high, it is not always possible to have workload policies perfectly balanced between safety and performance. During situations that force firefighters to miss work (e.g., from seasonal illnesses to pandemics), for example, fire departments heavily rely on employees to work longer, consecutive shifts. The findings here suggest that departments can nonetheless compensate for poor tempo balance by empowering their employees, which is most important for successful operations in conditions of high uncertainty.

The results for the main effects in Model 2 (H9 and H11) also supported the primary theory which predicted that immediate supervisor empowering behaviors would positively influence work autonomy (H9) and that work autonomy would lead to heightened adaptive performance (H11). The relationships were both positive and significant. Work autonomy also showed to mediate the relationships between immediate supervisor empowering behaviors, senior leader empowering behaviors, and adaptive performance with bootstrapping procedures for indirect effects (Proposition 1). However, the moderated and moderated mediation hypotheses for senior leader empowering behaviors (H10 and H12) were not supported. This result means that that regardless of how empowering senior leadership is perceived to be, immediate supervisors are strong drivers of employees' experience of work autonomy such as that empowering

supervisors can compensate for risk averse senior leaders in this regard. That is, the compensatory effects shown here imply that immediate supervisors should be able to compensate for non-empowering senior leaders and influence work autonomy when they display high empowering behaviors of their own. This finding can be due to a number of reasons.

First, research shows that immediate supervisors display a variety of supportive or inhibiting behaviors without always reinforcing broader influences from senior leadership (Detert & Treviño, 2010). Second, hierarchical organizations provide far more interactions between employees and immediate supervisors as compared to employees and senior leaders (Waldman & Yammarino, 1999), where mid-level leaders provide most of the praise, punishment, and reward (Mayer et al., 2009). Third, immediate supervisors can protect employees from negative senior leadership influences by intervening during difficult interactions (Detert & Treviño, 2010). For example, when an employee makes an error and senior leadership considers punishment, supervisors who privately expressed support for their idea can choose to voice it to upper ranks during the interaction. Fourth, according to the strategic contingency perspective, power accumulates to those in structural positions with the greatest ability to resolve the organization's key uncertainties (Detert & Treviño, 2010). During a response operation, fire departments use a single incident commander (who heads the hierarchy) to manage the event's operations, logistics, planning, and finances/administration. When a response scenario increases in size and complexity, the incident commander divides these responsibilities among different sections that are headed by different individuals. In either case, the Incident Commander and section leader(s) of fire departments are typically of mid-level, supervisory ranks (e.g., Captains). Thus, since mid-level ranks in the fire service generally hold most of the decision-making authority of which operational issues are handled, immediate supervisors should be influential alone in the extent to which employees feel empowered. Finally, employees' relationships with their immediate supervisors can be their strongest organizational connections (Wayne et al., 1997). Overall, as



compared to senior leadership, research suggests that immediate supervisors have a stronger influence on employees' daily work behaviors (Mayer et al., 2009; Meglino et al., 1989).

Model 2's findings ultimately show that empowering immediate supervisors are crucial in departments where senior leaders lack empowering behaviors, which appears to be the case with senior leadership in the sample. On average, respondents were undecided ( $M = 4.98$ ) on the degree to which their senior leaders are empowering, while they tended to agree ( $M = 5.94$ ) that their immediate supervisors are, instead, empowering. To further explain these findings, at the end of the questionnaire, an open ended question was provided that asked respondents to expand upon their department's culture which provided additional insight on the importance of empowering immediate supervisors to overcome senior leadership deficiencies and achieve higher levels of work autonomy in the fire service.

To illustrate, one respondent noted that when an employee chooses to improvise during an event and makes a decision to go outside an SOP, "an immediate assumption of wrong doing is assumed [by senior leadership] and investigation talk is ensued". Senior leadership's lack of trust in employees ultimately limits their willingness to improvise in various situations which can diminish operational effectiveness, especially considering that, as another respondent explained, their department's "250 policies are out of date and are never kept current". Another respondent, of the Captain rank, also described that their "SOPs and policies are outdated and convoluted, often contradicting each other".

Moreover, firefighters noted the hypocrisy in senior leadership's current perspective on improvisation. One stated, "I don't think we should have executive leaders that have been guilty of breaking rules, SOP's, and laws who have cost the department money in lawsuits telling us how to act and disciplining us for minute things". Another stated similarly, "Our executive leadership is hypocritical and incompetent at times... senior leaders should lead by example, or

else the ‘troops’ won’t have the buy in to what they are selling... what about empowering the rank and file to do their jobs to the best of their abilities and not sweat the small stuff?” Another respondent wrote in frustration, “Let your firemen do their jobs!”

Other respondents described the problem underlying senior leadership and their refusal to empower employees as being due to their tendency to micro-manage. For example, one respondent noted that their agency has regressed to a “1980s ‘bully leadership style’, evidenced by micro-management from executive leadership despite “talk” of empowerment” ... and further described how this is “killing trust / faith in leadership”. A higher rank employee similarly stated that senior leaders often “get in the weeds when they should be in the sky giving us direction”, while another described that “Chief officers need to focus on challenges at their level instead of getting involved in station level minutia”.

Numerous respondents believe senior leaders do not practice what they preach, and operate on a “do as I say, not as I do” style of leadership with little accountability. One middle-level manager stressed the need for Battalion Chiefs to be empowered, noting that “too much focus is given to a more centralized command structure and not enough on our leaders in the field”. Overall, micro-management was a common term attributed to senior leadership in the samples that clearly inhibited feelings of personal empowerment. However, as one respondent noted, “I have to keep my opinions to myself because I do not want backlash”. To further explore the nature of these findings, the next chapter (Chapter 6) employs the qualitative component of the sequential explanatory mixed methods design. Chapter 7 then summarizes the results together before discussing practical implications, future research avenues, and study limitations.

## CHAPTER VI

### QUALITATIVE RESULTS

The purpose of this sequential explanatory mixed methods design was to provide more meaning to the quantitative results and to better understand the nuances of empowering leadership behaviors and empowerment practices/procedures, in terms of the specific aspects of these constructs that firefighters see as driving the hypothesized relationships. In the quantitative component, the focus was on lower level firefighter ranks and how they perceive and interact with leadership. This is because both quantitative models theorized that adaptive performance is influenced by the degree to which firefighters feel empowered via the behaviors and practices/procedures of leaders. In this section, the perspectives from leaders are added in with lower level firefighters to provide a more comprehensive analysis on the nuances of empowerment. In general, the focus group participants modeled their discussion around what can be described as threats to empowerment, where they not only ascertained the present study's empowerment model, but also demonstrated an expanded model of empowering leadership behaviors and empowerment practices/procedures in the fire service by highlighting extra dimensions for each construct that can either increase or hinder its influence on perceptions of psychological empowerment and consequent outcomes.

This chapter directs the qualitative phase in which data analysis and interpretation are presented using thematic analysis, a process used to reveal leadership and managerial factors perceived by focus groups participants as having influenced their affect, behaviors, and overall

operations of the department. This chapter first describes the focus group participants and their characteristics, followed by an explanation of the focus group procedures, and lastly a delineation of common essential themes, primary themes, and sub-themes with discussions throughout.

*Focus Group Characteristics*

In total, seven focus groups were conducted throughout the course of the pilot study stage. Four focus groups were conducted in a large fire department (Department 1: 1000 employees) and the remaining three were conducted in a medium sized fire department (Department 2: 500 members), both located on the West Coast of the U.S. Table 14 presents the characteristics for each focus group, which were organized by the Fire Chiefs and Battalion Chiefs for each department on my behalf.

**Table 14: Focus Group Characteristics**

<i># (1-7)</i>	<i>Department</i>	<i># of Participants</i>	<i>Ranks Included</i>
1	1	6	Firefighters and Engineers
2	1	5	Captains
3	1	5	Battalion Chiefs
4	1	6	Firefighters, Enginners, Lifeguards
5	2	5	Single Role Paramedics
6	2	6	Firefighters
7	2	6	Administrative Staff

The focus groups took place in the pilot study stage, so questions were not asked about the nature of the quantitative findings relative to empowerment and adaptive performance. Initially, I analyzed the qualitative data to check the face validity of measures, and analyzed it after the quantitative analysis to capture context to elucidate meaning in the quantitative data. Thus, the timing of this sequential design is atypical, as the qualitative procedures were conducted in the middle of the study, rather than the end. The focus groups were planned to be heterogeneous (different between groups) to generate rich discussion (Lamont et al., 2015). Groups were also planned to consist of like ranks to ensure that participants did not feel

uncomfortable speaking about leadership in front of their supervisors. Semi-structured questions were used for the focus groups, which lead to organic discussions about leadership and managerial factors that pose threats to the culture of operations. For example, one of the semi-structured questions asked participants to talk about the organizational culture of their departments, and how this influences operations; hence generating discussion on leadership and management. Since the semi-structured questions were more directed towards culture, leadership, and management, there was little discussion on adaptive performance in particular. Rather, the primary contribution of this chapter comes from participants highlighting specific threats to the empowerment constructs, which may then be assumed to degrade adaptive performance, or other relevant outcomes of empowerment.

### *Analysis Approach*

The essential themes identified in the present study manifested from an analysis of the data gathered from focus group participants' responses and resulting organic discussion to four semi-structured general questions directed towards assessing leadership, culture, and operations within the departments. All focus group audio was taped and transcribed verbatim by Rev Speech-to-Text Services into Microsoft Word documents. Each transcript was read while listening to their respective recordings for accuracy. I followed Marshall and Rossman's (2014) framework to conduct the analytical process of data organization, immersion, category and theme generation, coding, and memo/report writing. The formal coding process was conducted following Hahn's (2011) Level 1 through Level 4 coding scheme, with the former representing the lowest conceptual level and the latter representing the highest. This allowed for items from each transcript to be grouped so that distinctions could be made with comparison at each level of analytic work (Charmaz, 2014). An open, inductive coding approach was used for Level 1 and Level 2, which allowed for better characterization of the Level 3 and Level 4 concepts. A theory driven, focus coding deductive approach was used for the Level 3 and Level 4. Memo-writing

was crucial in manifesting emerging themes and theoretical concepts by helping capture comparisons and connections (Charmaz, 2014).

### *Qualitative Findings*

Following Hahn's (2011) coding scheme, the following four essential thematic interpretations were revealed which aligned with the structural and psychological empowerment dimensions used for the theoretical framework, including Ascribing Competence, Summoning Meaning, Building Opportunity and Impact, and Codifying Self-Determination (and a fifth theme of Tempo Balance). Each essential thematic interpretation was influenced through the discovery of primary themes found through coding and categorizing data from the focus group participants, which are consistent with empowering leadership behaviors and empowerment practices/procedures, and each primary theme was influenced through the identification of sub-themes. For example, the four sub-themes of Lack of Constructive Criticism, Lack of Proactive Feedback and Training, Lack of Consistent Expectations, and Lack of Formalized Evaluation Process influenced the primary themes listed as Access to Coaching and Mentoring and Access to Career Development Opportunities, which influenced the essential theme of Ascribing Competence. Any quotation is derived from participants from the focus groups and is transcribed exactly as it appears in the transcript. No attempts were made to correct grammar or alter syntax, as I deemed this would alter the essence of true meaning.

#### *Essential Theme I: Threats to Ascribing Competence*

Focus group participants echoed support for the hypothesized model, indicating that Competence, or Self-efficacy (Psychological Empowerment Dimension 1) is ascribed as the primary themes of Access to Career Development Opportunities (empowering managerial practices/procedures), Access to Coaching, and Access to Mentoring (empowering leadership

behaviors). Participants detailed specific behaviors and procedures which stuck out as specific threats to both of these primary empowerment themes, demonstrating how their competence is

influenced negatively. These sub-themes, or threats, include leaders failing to provide a) constructive criticism, b) consistent expectations, c) formalized evaluation processes, and d) proactive feedback and training.

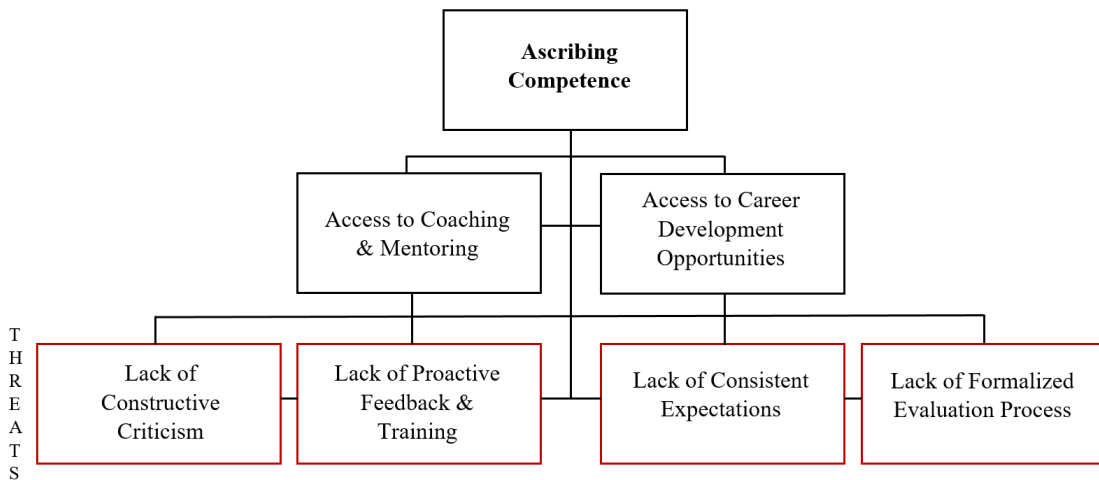


Figure 6: Ascribing Competence

***Access to Constructive Criticism.***

Single Role Paramedics, who are lower/newer ranks that rely most on coaching, mentoring, and access to development opportunities for success, provided most of the insights for the Ascribing Competence section. Participants consistently described the best coaches and mentors as leaders who provide constructive criticism. Receiving constructive criticism is particularly important for developing newer firefighters and paramedics, as one Single Role Paramedic (Department 2) noted:

And I like being at the stations where the criticism is constructive. If I do something wrong I want somebody to come back and say, "Hey, you did this wrong. This is what

went wrong on the call. Here's what I would have done differently. Here's what you can work on next time. Can I help you work on this?" Or if I ask if they're willing to do drills or run fake scenarios with me, if they're willing to do all that, that makes a difference for me because that's helping me become a better employee, a better paramedic for the district.

However, participants often felt like supervisors, Captains in particular, struggled at providing constructive criticism, which makes it difficult for employees with less experience (e.g., single roles and probationary recruits) to gain adequate knowledge and skills. As one Single Role Paramedic (Department 2) said,

We have captains, they know they're supposed to teach, they try to teach but they're just not good at it. It's not natural for them, not that they're not trying, but it doesn't come naturally. Where there's some captains who naturally have that nurture, I'm going to educate you, I'm going to mold you into the firefighter I want you to be. So that's what I would put it at. It's not that people don't want to, it's just it's not natural for them.

Another Single Role Paramedic (Department 2) mentioned,

Some stations are super supportive and want to throw everything they have in to help that probie be successful, and there's some stations that just look for reasons to fire him.

### ***Proactive Feedback and Training.***

Participants also expressed that proactive feedback and training, particularly from Captains, was reflective of their access to both opportunities for career development, coaching, and mentorship, which are instrumental in empowering employees by developing their skills and abilities. The key here is that such feedback and training is *proactive*, in that supervisors consistently reach out to employees and inform them of how they can improve their performance. However, participants often thought many supervisors were not proactive in this sense, as one Single Role Paramedic (Department 2) noted:

I've never had any feedback saying, "You are doing good", or 'You really need to work on this and this if you want to be successful in the next 20 years.' Never had that, and maybe the new hires too.



Others were less decisive about Captains and their willingness to provide proactive feedback, as another Single Role Paramedic (Department 2) said:

So the culture is that they're here to help us, but the difference is some stations you will get without pulling you aside, "Hey, I want to talk about this and address it." Versus some will wait for you to approach them or some will say, "I don't really want to deal with it.

Another Single Role Paramedic (Department 2) noted:

Captains, they'll pull both of us aside and go, "Here's something that both of you can work on, because if you want to move on through this department you will need to be a paramedic." Some captains will do that, others have looked at me and said, "We'll talk about this later. We'll deal with this with you another time.

However, some participants placed blame on firefighters for not being proactive themselves by failing to reach out to supervisors and ask for help to learn from their mistakes, as one firefighter (Department 2) put:

Nobody takes ownership of their own actions or their own mistakes or has enough self motivation or self work to go, "Hey, I'm lacking at throwing ladders or I'm lacking at pulling hose or I can't climb up a flight of stairs without being winded, I need to figure out something.

Particularly since newer firefighters do not gain the same operational experience with major fires today, leaders failing to provide constructive criticism and proactive feedback and training are unable to adequately empower firefighters for complex response conditions. As one firefighter (Department 2) noted:

A lot of what we do is built on our past experiences and I'm one of the newer guys and I think 80% is supposed to be under 5 years in the backseat so the people that are going in, lighting a fire, pulling victims out, we don't have a lot to draw on, from past experiences and with an approved fire code, how buildings are built, we're really not getting those career fires that a lot of people got earlier on in their career because buildings just don't burn like they used to. So only having 5 years on, I mean maybe back when buildings weren't built so well and we got a lot of fires in 5 years, that's probably like 15 years of experience for us new guys because we're just not getting.

This becomes a ripple effect since many younger firefighters are being promoted to Captain and do not have the experience that previous Captains had, which impacts their ability to coach and mentor, particularly in a way that could help prepare Single Role Paramedics and firefighters for complex emergencies.

*Access to Consistent Expectations.*

According to participants, receiving inconsistent expectations is another part of the problem impacting their ability to develop and feel empowered. Participants attribute this largely to heavy supervisor and leadership changes, as one Administrative Staff (Department 2) member said:

As a fire inspector, within a year I had gone through three different supervisors. So I'm like playing musical supervisor. Each supervisor having a different expectation or a different way that they want you to do something, I don't know which way is the right way, and but then I'm being tested on it. Well, who's way am I supposed to do it? So you have this constant fear of always being wrong. Because you don't know which way you're supposed to do it today, who are you supposed to please today? And there's just a true lack of consistency.

Echoing the same sentiment, another Administrative Staff (Department 2) member noted:

Well, because it takes somebody, I always say even for us, it takes a good year just to learn your job. So then by year two you can finally start doing something, and then they're out the door. And then the next person comes in and completely flips it out, so now we all have to figure out what is going.

This issue is particularly significant for Administrative Staff, who work closely with senior leadership. Referring to senior leadership specifically, another Administrative Staff (Department 2) member stated:

It's the DCs, some of the ACs, so it's every level. It's everyone's coming in and changing everything. So it's you get used to how one thing is doing it and then six months later you have a new AC, and they change it. Then six months later we have a new VC. It's constantly. It's not just a two year cycle, it's a constant cycle.

Another from Administrative Staff at the same site said in agreement:

It's vision, direction, all of it. Yeah. I feel like if somebody were in there for five years you would have a little bit of consistency and stability.

***Access to Formalized Evaluation Processes.***

Participants commonly described important aspects of career development opportunities as access to formalized evaluation processes. However, it was clear that most “performance” evaluations took place informally. As one Single Role Paramedic (Department 2) put it:

I think our culture I think tends to go more towards addressing things face to face. So it's rarely documented, there's not a structured format like, all right I have to make sure everyone at six months gets evaluated. It's just, "Hey, I've been running a lot of calls with you. You're doing great. But you can use improvement in this area." And I think a lot of that, it's very individualized. One kid needs more attention than the other kid kind of situation.

If leaders are not adequately providing constructive criticism and proactive feedback and training, the informal coaching and mentoring system can become ineffective, as another Single Role Paramedic (Department 2) said:

Maybe the problem is that we don't have a formalized evaluation process for us for a lot of scenarios, because if something goes wrong I've had somebody send me a message saying, "Next time XYZ, double check this." Or if something goes really well I've had feedback where a captain walks up and says, "Hey, that call went really well. You did a good job." But I've never had a written, formalized evaluation of my performance.

Showing distaste for the lack of formal evaluations, a member of Administrative Staff (Department 2) agreed:

We don't know if we're doing a good job ever.

Overall, a) employees (particularly Single Role Paramedics) who lack access to formalized evaluation processes depend on their supervisors and their ability to coach and mentor, who b) participants often believe cannot do so effectively because supervisors rarely provide constructive criticism and proactive feedback and training, which c) often times can be caused, complicated, or exacerbated by frequent leadership changes that produce inconsistent

expectations. In turn, particularly newer firefighters are at a constant disadvantage in developing their skills and abilities and likely feel least empowered due to these empowerment threats. The qualitative results thus demonstrate how coaching, mentoring, and career development opportunities can become extremely nuanced in the fire service, and thus difficult to provide firefighters despite their increasing importance for empowering them to handle complex response conditions, where experience is increasingly lacking. It is not merely enough to have access to career development opportunities, coaching, and mentoring; these results show how the confidence, skills, and abilities of firefighters depends on how each behavior and procedure is provided and by whom.

*Essential Theme II: Threats to Summoning Meaning (Buy-in)*

Focus group participants also demonstrated support for the hypothesized model, suggesting that Meaning (Buy-in) (Psychological Empowerment Dimension II) is fostered via the primary themes of Leading by Example, and Showing Concern and Support (all empowering leadership behaviors). Participants detailed specific leadership behaviors and procedures which stuck out to them as threats to both of these primary empowerment themes, demonstrating how their Meaning (Buy-in) can be influenced negatively. These sub-themes, or threats, include leaders who lack, a) appreciation for employee proposals and complaints, b) heavy disciplinary focus by BCs, and c) lack of administrative training and operational experience in leader positions.

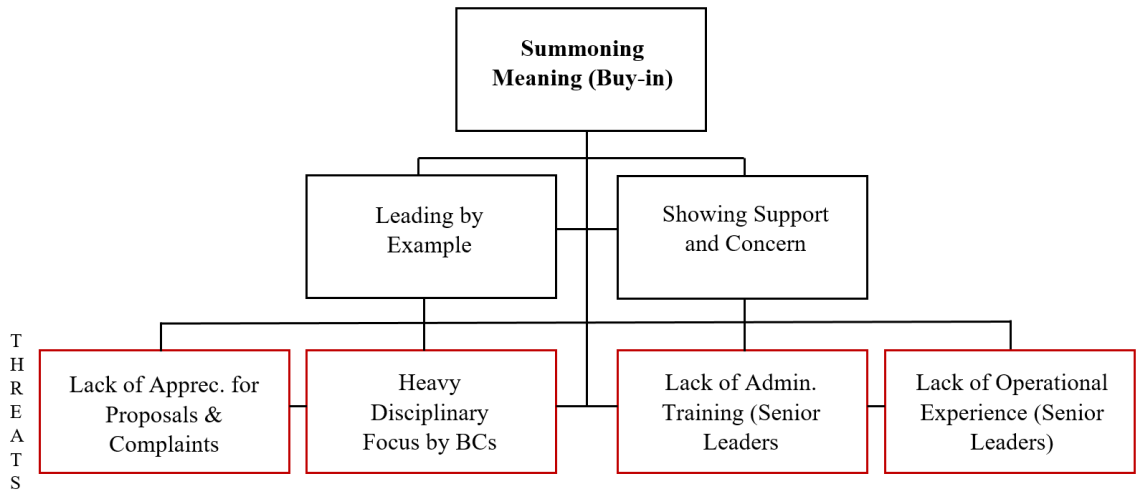


Figure 7: Summoning Meaning

***Appreciation for Employee Proposals and Complaints.***

Focus group participants consistently expressed that leaders who lead by example, show concern, and show support (and thus influence employee meaning in terms of buy-in), are those who demonstrate appreciation for employee proposals and complaints. However, as one Administrative Staff (Department 2) participant noted, leaders often fail to do this which in turn leads to less effective policies and procedures:

You're not out there in the field doing it so you're blind to it. Use your resources and appreciate it. If someone's complaining about something maybe listen... And it's not even a complaint. It could be a true concern and you want to come up with a more efficient and better process for something. And so I think now you have this viewed as, "Oh, they're just a problem child. Let's put a target on their back and just hope that they go away."

Echoing the same sentiment, a Captain (Department 1) described how this is an ongoing issue at the station-level that makes their job especially difficult:

As a supervisor who is living with the crews, who sees the conditions that they [firefighters] are placed in and you recognize it. It's either an inherent safety violation or it needs to be repaired for just comfort and convenience of the crews. You do your best to talk them down, to calm everyone down. So okay, well I'll be the, kind of the, middle broker and work with management on it. But when you initiate the phone call and the

response you get back is like hostile and adversarial in nature. What did you do wrong? Why did your guys do this? How did you break this? You immediately have to go through an investigative process rather than just "Oh, hey, okay, I got that. Hey, we're really busy.

Senior leaders who do not show appreciation for employee complaints is particularly frustrating for employees because they do not have the ability to address them on their own. As another Captain (Department 1) said:

It's just when we get back in the station, we would like maybe a little bit of support from the people who can only provide that to us. We can't... I don't have the authority to start fixing things at a fire station. If I did, I would. I would just make things happen but I don't have that.

Another Captain (Department 1) similarly described how increased rules and regulations inhibit their ability to handle issues on their own:

We used to be able to fix our own things. We would do. We were doers. We would take it upon ourselves to take care of it. And now, there's rules and regulations regarding having things fixed in your station. You can't do it anymore. You have to call someone to do it and there's where the back-up comes.

Administrative Staff (Department 2) described how this also makes them feel like they are not trusted:

It's like you don't trust me to do my job, or you don't trust these other people that are in these positions. It's like let them do their jobs. That's why they're there. So it's just... I think that's where we're at. There's this level of distrust.

### ***Heavy Disciplinary Focus by BCs.***

Focus group participants also consistently expressed that the disciplinary emphasis of BCs, specifically, is indicative of the degree to which they show support and concern. Firefighters described how BCs used to take a more relationship-based approach based on care, concern, and consideration, but in recent years they have focused primarily on discipline. For example, according to one firefighter/engineer (Department 1):

When I first came on the job, the BCs kind of hung out a little bit more in the stations. They knew the crews a little bit more. We've had a large changeover in the BC rank, at this point. So we have a lot of very new BCs, where they're finding their way. When I came on the job, my first BCs that were in charge of the battalion, those guys had been chiefs for years. So they were very comfortable. They came in, they gave the notes, they talked, they were strong leadership roles. Now it seems when you see a BC, it's for a discipline.

Echoing the same sentiment, another firefighter/engineer (Department 1) said:

They're also bringing discipline if you refuse a mandatory, or something like that, which are running rampant. So right now, our BCs at that level, for at least a lot of the younger generations in the fire service, that's all they know of BCs, as coming to give discipline, for the most part.

In addition to discipline, participants also described how BCs will only show up as bearers of bad news, as another firefighter/engineer (Department 1) noted:

So the BC rank unfortunately has, I feel, changed in the last couple years, to more of the bearer of bad news, rather than "How's things going at the station. What do you guys need?" It's more along the ranks of that.

Both the lack of appreciation for employee complaints and proposals, along with the heavy disciplinary focus by BCs, was also attributed to the lack of administrative training and operational experience for senior leaders.

#### ***Lack of Administrative Training and Operational Experience for Senior Leaders.***

Focus group participants also largely attributed the lack of Administrative Training and Operational Experience to senior leaders' ability to lead by example and show concern and support, and thus their ability to summon meaning (in terms of buy-in) among employees. As one Administrative Staff (Department 2) member noted:

They don't know what we do because these guys who we're talking about, they're ultimately firefighters. They've never worked in an office in their lives. They don't know what we all do, and so because they can't relate to that I think there's just this disconnect that they just don't... They just don't figure it out.

Echoing the same sentiment, another Administrative Staff (Department 2) member said:

But then once they get to these other levels, they don't have background in HR, they don't have a finance background. They've never cracked open a code book. So as fire Marshall, how do you know what codes to enforce? So I think it's almost like a hit to your ego to have to reach out to the people below you, and they don't want to do that, so they just keep it all with themselves or with their little group that's at the same level. And that's where there's problems is you have to reach out to the people below you to get an understanding of what the issues are out there and how you can fix them.

Participants largely attributed the issue at the senior leader level, but also described how Captains receive little administrative training as well. As one BC (Department 1) put it:

The top of the group are considered executive staff. But there's no executive development, there's no real training. There's really no ... Well, there's some training now, but it's usually after the fact. When I made captain, they gave me a helmet and they gave me my bugle, they gave me the badge. I had absolutely no training on the role of captain and I was sitting in a seat. Today they put them through an academy, but I never got that.

Moreover, participants described how many leaders in administrative positions do not possess operational experience, which diminishes their ability to lead by example and demonstrate care and support (e.g., by appreciating and considering employee complaints and proposals), as they cannot relate to many salient issues. In turn, employees lose trust and respect for such leaders, as one firefighter (Department 2) said:

And that's, I think, a problem that you'll continue to have, is that you have people along the way that you don't earn the trust and respect of the people that you work with before you start moving up and then you start asking them to do things and you've never actually done it yourself. And that doesn't sit well with people because it's like, why are you going to tell me to do this? Or no, we can't go in or no, get off the roof or whatever, when you don't have any experience in that because you went to some class and watched a video on it and now you're an expert.

Echoing the same sentiment, another firefighter (Department 2) noted:

I think part of the problem is too, is that like we said before, you have people that are well liked, well respected, that did the job, worked the busy stations, earned the respect of the guys, and we have other people that didn't do that on their way up or were the biggest offenders of everything that they're now preaching for us to do.

Another firefighter (Department 2) noted how this impacts buy-in among personnel:



For 20 years, you did the complete opposite, you treated people like crap, you didn't go on the calls, you didn't go train, you didn't do any of those things and now you're telling me to do it. Why? Because you have the badge." And then they put the badge out there. It's like, how am I going to buy in on that?

Overall, focus group participants demonstrated that their meaning and buy-in capacity is determined by the ability of leaders to lead by example and show support and concern, which is threatened, or negatively influenced by a number of interrelated behaviors and factors. First, leaders who fail to show appreciation for employee complaints and proposals are seen to lack support and concern since employees do not have the ability to address numerous salient issues on their own due to increasing constraints. Moreover, since those in the field have important operational insights, failing to consider proposals for new policies and procedures (e.g., from Captains) is likely to limit the ability of the department to perform most efficiently and effectively in a myriad of conditions. Second, BCs who are primarily focused on providing discipline and only show up to deliver bad news are also seen to lack support and concern for employees since they fail to, a) address and consider the needs of Captains and firefighters at stations, and thus, fail to b) develop relationships based on reciprocal respect and trust. Third, senior leaders often display these behaviors and are seen as unsupportive, because they receive little administrative training for their positions and lack operational experience, which would help them relate to salient issues that Captains cannot address or handle on their own. The resulting disconnect threatens the ability of firefighters to operate in an environment that they believe prioritizes their safety, well-being, and performance, and thus how empowered they feel via the degree to which they experience high levels of meaning and buy-in. Since senior leaders create tactics and strategy for operational incidents, particularly for complex events, it is especially important that they receive adequate trust and buy-in from firefighters. However, when leaders lack the trust of their members, they lose the ability to influence them which degrades operational effectiveness in risk-laden situations (Sweeney, 2010).

*Essential Theme III: Threats to Building Opportunity and Impact*

Focus group participants demonstrated support for the hypothesized model, suggesting that Opportunity and Impact (Psychological Empowerment Dimension III) is built by the primary themes of Informing, Participative Decision-making, and Employee Voice. Participants detailed specific leadership behaviors, procedures, and factors which stuck out to them as threats to both of these primary empowerment themes, demonstrating how their Opportunity and Impact can be influenced negatively. These sub-themes, or threats, include a) lack of clear and consistent communication by leaders (also related to rumors), b) lack of including everyone in conversations (related to vertical distance), c) lack of employee input in important decisions, and d) lack of allowing and encouraging differing views.

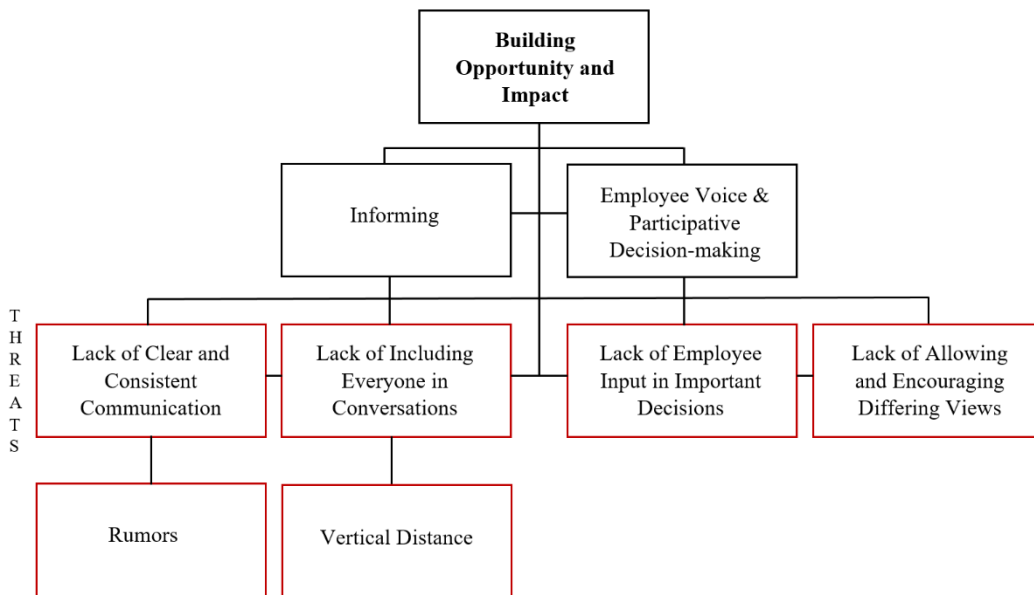


Figure 8: Building Opportunity and Impact

***Lack of Clear and Consistent Communication.***

Focus group participants frequently attributed the inability of leaders to inform to a lack of clear and consistent communication. As one Administrative Staff (Department 2) member noted on whether senior leaders communicate:

And they don't. Or they do and it's not all inclusive of all the information you need. Then depending on what day of week you ask you're going to get a slightly different answer. And we do things like videos that we send out, we used to do a WebEx where the chief would get on and talk, and there's fire chief forums now, but even in those instances, they have pretty much a script to read most of the time and they don't, it's not consistent.

Along the same line, another Captain (Department 1) elaborated on the lack of clear communication, highlighting how there is little explanation for directives and how this impacts buy-in.

Now I do agree that the communication with the senior staff who are up above us is difficult. I think they are a little more closed off. There's a disconnect. It would be nice... decisions come down and they tell us how to do a certain thing but they don't always give us the explanation behind it. I think if they included us more in this is why we are doing it, we'd be more on board.

### ***Rumors.***

Participants also noted how there is a direct relationship between the lack of clear and consistent communication and the manifestation of rumors. One BC (Department 1) explained:

And we're shuffling crew's around and there's all this talk and there're rumors flying and the information isn't coming down, but you're hearing almost through the rumor mill on what is going to take place, which crews are going to go there, who's going to back fill the station that they're vacating, and just this craziness.

Another BC (Department 1) shared:

It's weird because we get these rumors where they go around and you're thinking, "No, that rumor can't be true, there's no way," and then you find out, the rumor was true and it really happens. And you wonder how did everybody know, but the person responsible for it? Or, how does it get out and get that widespread without key people ever hearing about it?

One BC (Department 1) attributed the source of the development of rumors to the disregard for confidentiality in the fire service:

I think a piece of it too, in the communication is that you've got friendships or relationships and someone high up says something to a friend who's in a different part of the organization, different level, and then the next thing you know that person tells someone, "But don't tell anyone." "Okay I'm going to tell you, but don't tell ..." "Okay, well I'll tell you but don't tell anyone," and the next thing you know the rumors rampant and it's going straight from the top, across the bottom and we're in the middle and nobody is talking to us and so there's definitely, I think, a ... I think our family and the closeness and our friendships have totally disregarded any level of confidentiality that should exist in our department. When people know who's getting promoted before the list is ever out, that's a problem.

### ***Lack of Including Everyone in Conversations.***

Failing to include everyone in conversations is another threat to effective communication, which subsequently reduces empowerment via employees' minimal opportunity and impact. As one Administrative Staff (Department 2) participant described:

I'm not even included in the meetings, so there's no minutes, so I have no idea what's going on. I find out about things about my division from my people outside because I walk around and talk to people, and that's how I find out stuff that's going with my boss and my division. And I'm like, that's just... It's frustrating. But it's trickling down everywhere because if you don't have people capturing the information to distribute it, then nobody knows anything.

Another Administrative Staff (Department 2) member described the potential performance impacts of failing to be included in conversations:

I'm constantly second-guessing myself, making just ridiculous small errors because I'm worried that I'm following, but I'm not sure if I'm supposed to be. I can't even imagine the responsibility of being a firefighter and having to respond to someone's worst tragic moment not knowing, and it just gave me the chills sorry, not knowing if I'm doing the right thing, or how I'm supposed to be doing. I can't even imagine how that plays into them physically handling a patient.

### ***Senior Leader Vertical Distance.***

When employees are not included in conversations, it is also difficult for them to seek missed information and instructions from senior leader positions. Participants noted that this is due to high levels of vertical distance between themselves and senior leaders. Foremost, senior leaders rarely visit the station, as one Single Role Paramedic (Department 2) put it:

The captains are line captains, we work with them on a daily basis, we run calls with them and we are in the station with them. Where the only time you're really in the station with a battalion chief or somebody above a captain is if you're at one of the stations where the chief's there.

Other newer Single Role employees (Department 2) especially agreed:

Exactly, you're not ever with them.”

Additionally, employees do not feel they can reach out to senior leaders outside the station for information, as one firefighter/engineer (Department 1) said:

I've been told years and years ago, you never talk to a chief if you are a fire fighter. It was like taboo.”

Instead, proper chain of command must always be followed to communicate with the Chief, as another firefighter/engineer (Department 1) described:

You don't want to go outside of the chain of command though, because that will get you in trouble. If you are going to talk to the chief about something that's important, maybe the chief even wants you to talk to him or her, you want to let your captain know, because you don't want to your captain to be blindsided. "Oh shit. What happened? Why didn't I know about this?

### ***Lack of Employee Input in Important Decisions and Lack of Differing Views.***

Focus group participants consistently attributed the primary threats to employee voice and participative decision-making to the lack of employee input in important decisions, and allowing and encouraging different views. Highlighting the former, one BC (Department 1) explained the issue and provided a relevant example:

I notice decisions get made regarding individual battalions, and those battalion chiefs who command those battalions are never even consulted. I'm okay not being the final decision maker, but at least having input from the people who are running that battalion, to me, is important. An example is, we're opening a new fire station downtown, that's where I am... And at no point, were any one of the three chiefs who command that battalion, asked what their opinion was on who went where, and why?

Sharing the same sentiment, a Captain from the same department (Department 1) provided an additional example while noting impacts on trust:

There was no opportunity for the work force to weigh in on any proposed change to the EMS contract which, again, we are delivering the service. Even if you don't involve us as the field level provider, I know for a fact, they didn't include EMS division. Only the Deputy Chief of EMS got part of the plan well after the plan was set into motion but EMS staff was not included in how to make that plan come to fruition until very late in the game where they said "This is the plan. This is what we're doing." And by that time, EMS staff didn't have an opportunity to weigh in and amend and provide any input for some pretty obvious problems that they saw with it. Now we are bearing the brunt of that lack of collaboration and like Maureen said, that lack of trust. You have a whole EMS division, how do you not include them on such a radical change. It just, I don't understand that.

Single Role Paramedics (Department 2) also noted issues with leaders on the subject of allowing for and encouraging differing views, as one explained leaders encourage it but try to correct their thinking:

I'm encouraged to have an opinion or think differently on a situation, but then that leads to a conversation to correct my thinking to the [department] way, if that makes sense. Rather than I'm not punished for having it, but they don't want us all to be an out ... some people over here, some people over here, some people over here. They want us to be more in a certain rogue area, but that we're not penalized for having different thoughts, we're then educated.

A Captain (Department 1) described how input and differing views are more likely to be accepted for basic problems, rather than complex problems:

For me, my experience has been it depends on the division that you are talking about. So it, and it depends upon the complexity of the problem. So if it's an easy solution within our operations, they generally adopt it pretty quickly. But as the problems become more complex, you, I experience more push back and especially if those problems affect divisions outside of emergency operations. If it has to do with either health and safety or logistics, there's a lot of push back. There are a lot of headwinds there.

Taken together, the primary threats to empowerment in terms of opportunity and impact include a) hindrances to information (lack of clear and consistent communication, rumors, lack of including everyone in conversations, and senior leader vertical distance), and b) hindrances to employee voice and participative decision-making (both lack of employee input in important decisions and lack of allowing and encouraging different views). For example, participants describe hindrances to information in particular, as highly problematic to their ability to receive clear organizational goals and objectives. Since communication is often unclear and inconsistent, employees also often fill in the gaps on their own in the form of rumors. BCs complained about rumors while the firefighters complained about a lack of clear and consistent communication, where the latter appears to be the primary cause of the former. As a result, such lack of information negatively impacts knowledge, coordination, and as research shows, the ability of firefighters to control their work conditions in the face of adverse situations (Kantur & İşeri-Say, 2012). Hindrances to employee voice and participative decision-making, on the other hand, present threats to empowerment because this reduces employee involvement, authority, and ability (otherwise opportunity and impact), which are important for self-determination and the development of more creative solutions (Kantur & İşeri-Say, 2012).

#### *Essential Theme IV: Threats to Codifying Self-determination*

Focus group participants again expressed support for the hypothesized model, suggesting that Self-determination (Psychological Empowerment Dimension IV) is codified by the primary theme of Work-autonomy. Participants detailed specific practices/procedures which stuck out to them as threats to this primary empowerment theme, demonstrating how levels of their Self-determination can be influenced negatively. These sub-themes, or threats, include a) lack of diversity in operational decision-making, b) excessive rules, policies, and procedures, c) fear of repercussion from errors, and d) lack of prepared improvisations within established rules.

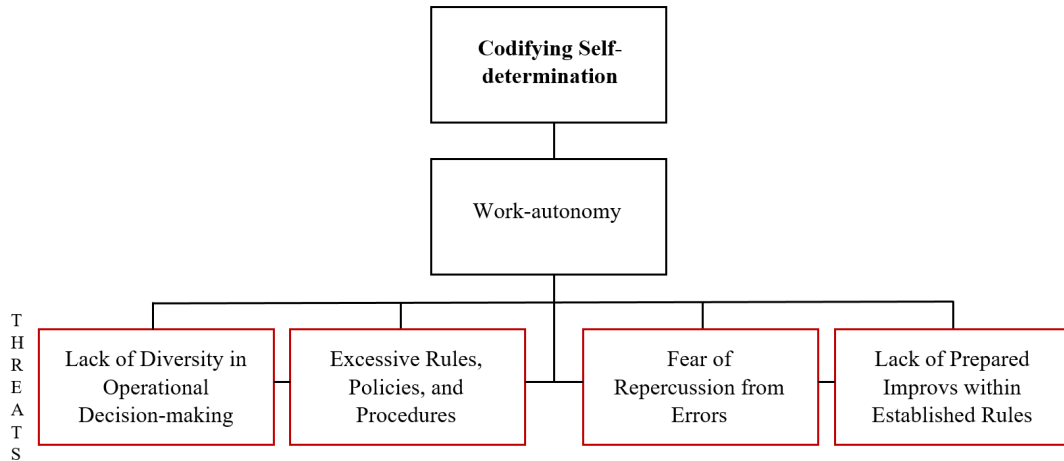


Figure 9: Self-determination

***Lack of Diversity in Operational Decision-making.***

Focus group participants consistently described the importance of work-autonomy in terms of how it provides diversity in operational decision-making, which is important for generating the best outcome in various response contexts, as opposed to always relying strictly on SOPs. As one firefighter (Department 2) explained:

We learn all these books in school about the textbook chest pain or a textbook bread and butter fire. They don't exist, there is no bread and butter of anything. There's always that gray variance of every call, and so how do you define that as one particular thing? And like I said, I think it's all very gray. So you can say, "Hey, do the right thing." Well, 75% of people are probably on the same page with what does doing the right thing look like? Well, for some people, you got to say, "Hey, this is actually what the right thing is, or this is what my expectation is," or something like that.

On the same page, another Single Role Paramedic (Department 2) noted:

If everybody was exactly on the same page, I don't think that would be good. I think that diversity is good.

Leaders who devalue diversity in decision-making are thus likely to pose threats to work-autonomy and consequent levels of self-determination among firefighters.



### ***Excessive Rules, Policies, and Procedures and Fear of Repercussion from Errors.***

Participants also described how excessive rules, policies, and procedures poses a threat to effective autonomous decision-making, as there is not a guideline for every incident. Moreover, these excessive rules, policies, and procedures make responders (particularly newer responders) fear repercussion from any errors they make, which reduces their willingness to improvise in the first place; a trend that carries employees through promotion to establish a culture. As one firefighter (Department 2) said:

And then we go out and now you're running a command on fire, and you're trying to go checkbox. "Okay, I need two out on this." Well, run what the fire's asking you. Not what the incident, not because there's a SOG, this is just a guideline. You can't put a guideline in every incident we have. Now you got those... If that makes sense. They start as a paramedic, now they're a captain and they're afraid of their own shadow. "Am I going to get in trouble?" Run the call what's right for the person.

Sharing an EMS example, another firefighter (Department 2) noted:

We are running every paramedic call, worried about what CQI, which is our Continuing Quality Improvement Committee, is going to review our tags... so I'd see guys that were raised in this EMS system, run a call and then go, "Why are you putting this little ditty on backward? You're going to do more harm than good on..." Ryan (00:37:18): So I don't want CQI, this committee that reviews all the tags, to come back and get me in trouble. So when I was at [redacted], my counterpart there. I'm like, "We'll run the call based on what's right for the patient, not what [redacted] is going to say," which is our peers. All these paramedics got worried and ran every call worried about this committee that was heavy handed and could fire you based off trends.

Providing more insight on fears of getting in trouble from autonomous decision-making or breaking SOPs, another firefighter (Department 2) shared:

Then they'll take that same paramedic seven years down the road, now they're captains and I know when I went in for my chief's interview, with the chief that no longer is here, he said to the room of [inaudible] and I, "If you guys fuck up, I will demote you." And we just had a battalion chief demoted. That was fresh on all our minds. We're like, "Fuck, don't fuck up, don't fuck up."

### ***Lack of Prepared Improvisations within Established Rules.***

Other participants expressed that effective autonomous decision-making is carried out by responders who are well prepared for their position and improvise within the policies and procedures to meet organizational goals. As one firefighter/engineer (Department 1) stated:

But learning more and actually studying and preparing for the position, you hope and think, well I think, that is we have these policies and procedures and rules and stuff we have memorized. But the end game was to put the fire out, or give the best quality medical aid care, or perform a rescue in a certain way. How you get there, how you get from A to Z, doesn't matter, as long as Z is done, and all of your policies and procedures are followed. You're not doing a vehicle rescue, and you're doing it in your flip-flops.

A Single Role Paramedic (Department 2) clarified:

The actual how you put your hands on the patient is in line with the SOP, but whether or not you work from the head or from the feet first is what we're talking about.

In general, experienced department employees felt they are able to adapt to situations while following the rules, as one firefighter (Department 1) noted:

We have rules we got to follow but the ability of officers to adapt to the situation and the way they ran the stations, it's been remarkable. So that's my experience and it's been a very positive thing, and I think generally, at least the people I've worked for have just been not constrained by the rules. They think independently and take action using a framework for the values but they do the right thing regardless of the situation.

In sum, threats to autonomy and consequent levels of empowerment via self-determination include lack of diversity in operational decision-making, excessive rules, policies, and procedures, fear of repercussion from errors, and lack of prepared improvisations within established rules. A quote from one Administrative Staff (Department 2) member concisely summed up the logic explaining why, describing that:

You have one opportunity to do the right thing, and if you don't, excuse my French, that's going to be fucked. So to not be mentally sound, feel enabled and powered, know what your guidelines are, how do you expect them to actually perform like they're supposed to?

This is particularly the case when attempting to best adapt to changing conditions, where effective autonomous decision-making within the guidelines (not freelancing) is important for generating adaptive performance (Wall et al., 2002).

*Essential Theme V: Tempo Balance, an Administrative Threat to Empowerment*

Finally, participants expressed that when tempo balance was poor, it was a primary overall threat to all forms of empowerment. The sub-themes which participants attributed as threats to tempo balance, leading it to become poor, include the interrelated administrative functions, a) excessive mandatory overtime policies, b) lack of sufficient time off, c) understaffing issues, and d) demands for more personnel. In support of the hypothesized model and quantitative results, participants in the qualitative phase described that poor tempo balance reduces empowerment levels and consequent performance outcomes by negatively influencing firefighter burnout (exhaustion and fatigue) and morale, and safety and performance.

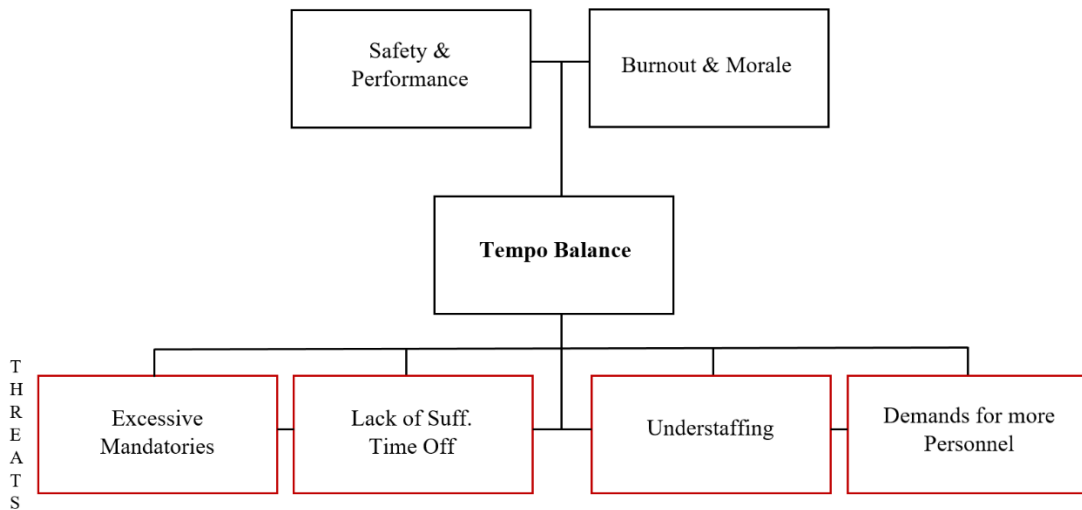


Figure 10: Tempo Balance: An Administrative Threat to Empowerment

***Excessive Mandatories and Lack of Sufficient Time Off.***

Participants described excessive mandatories and sufficient time off as being major threats issues in the department. As one firefighter (Department 1) stated:

Oh, yeah, every weekend. I mean I know already I'm going to get mando. We call it "mandatory". So I know this weekend, I'm getting mandatory. Hands down and it happens every weekend. If I'm working on Friday and I'm supposed to be off Saturday, I'm getting hit Saturday. If I'm working Saturday, I'm supposed to get off Sunday. I'm getting hit Sunday.

A Captain (Department 1) agreed and did not think the issue could be avoided:

And I don't know if it can be avoided. I mean, sometimes we call them mandatory callbacks but you get mandatoried for certain days in a row. I was at a station for a week straight, got mandatoried like three or four times in a row when I wanted to go home. I had things to do. I had appointments to cancel.

One firefighter (Department 1) mentioned having to work 20 days in a single month, mentioning that all levels of leadership are aware of their excessiveness and lack of time off:

At the captain level, the chief level, I'm sure they're aware of it. Curtis said, it's affecting a lot of guys. There's affecting... the month of December, I worked 20 days.

### ***Overworking Firefighters due to Understaffing and Demands for More Personnel.***

Participants attribute the overworking of firefighters and resulting poor tempo balance to understaffing and demands for more personnel, as a firefighter (Department 1) explained:

The fact that they're not enough fire stations for the amount of people we actually serve. Done studies on that. So I think that contributes to it all but I don't think, it's not really... I know upper management, they know about it, right, about everybody being overworked and stuff.

Others are more ambivalent towards the issue, as one firefighter at the other department (Department 2) stated while describing variance in demands during the summer:

That's a cycle. It's a long cycle, but it is a cycle. Anybody who's been here the last five years probably, has been pretty consistent with summers get very busy, and then ranks can be very decimated based on what we've done for hiring. But for most people who liked overtime, you're probably not going to get them to say that the mandatories are too much. For me, it is part of the job, but it is absolute, our process is probably the more

important of the mandatories, because not everybody works the mandatories. For some people, it becomes harder and for some people, it does wear on them.

However, the majority of participants shared the sentiment along the lines of how this BC

(Department 1) described:

I mean, specific to our department, there's staffing issues. I think that's the biggest one is that when there's weather events we have to up staff a lot of our units. What it does is it keeps people in the stations for days, weeks at a time when they all have families and other parts of your life. When you are always told from the beginning, I've been told family first, fire department, faith, however you want to rank them but your family comes first. However, you can't allow that to happen in certain situations. Sometimes your family gets pushed to the side because of this situation that's created.”

A Captain (Department 1) described how the understaffing issue as communicated by senior leadership is troubling:

Well, we've heard the fire chief say is we are fully staffed. There is no staffing issue in our department. So are their words aligned? I would say no because my reality is maybe they have a spreadsheet somewhere that says "Yup, we're fully staff." But we are not.

### ***Poor Tempo Balance and Threats to Burnout and Morale.***

Participants also described how poor tempo balance leads to increased exhaustion and fatigue (burnout) and decreased morale. One firefighter (Department 1) noted, for example:

I think our medics get run pretty hard. I mean I'm a firefighter, I'm not a medic but I know that it can draining. A lot of hours, mandos, you get forced to work pretty frequently. I think call volume had a lot to contribute to that.

Explaining with an example, another firefighter (Department 1) said:

It is burning guys out. I mean, I had a fire medic. This is a perfect example. He ran, during one of those heat waves, we ran 32 calls and 24 hours and no ALS skills, there were no life-saving skills performed in 32 calls. The only thing we did was blood sugar which is now a BLS skill. So we did no ALS skills in 32 calls. He even said it was like education day. Guys call, he's getting leg cramps. How did this become a Level I because he was doing yard work, he was in the heat all day long. It's like so just burns out. Since then, he's been out, he needs a break. He's gone to a slower station. It's been good for him and his family life so.

Another firefighter (Department 1) described the fatigue and exhaustion in more detail:

The amount that people are working so that not only do they wake up multiple times at night which is great increase from the past, we're supposed to work 10 days a month, 56 hour week. There are people that are working 16, 17 days.

Likewise, another BC (Department 1) stated:

There's all this great thing going but where we're failing, I think as an organization, is the fatigue that were putting on our personnel because when crews are running 20 plus calls a shift, we're lucky that nothing has taken place. But I think in my experience, we've always stepped our game up when a call comes in.

Highlighting how poor tempo balance impacts morale, specifically, another Captain (Department 1) explained:

And I got off easy. My fire medic, I think he did something like 60 something so that guy, he's got a newborn baby. He never gets to see his kid. It's not, I get that they need to meet the mission and we need to serve the public but we are not, again, we are not adequately resourced to do that under this current model. It's just not sustainable. I think that's where we sucked it up and we made it happen this last year. If it continues like that this next summer, I'm very concerned about what that's going to do to the morale of our department and I think we're going to start seeing an uptick in discipline issues. We are going to see an uptick in performance issues and in conduct. It's going to start bubbling to the surface. I already know of guys who they're going through divorces because their wives are like "Yeah, I'm done. I'm not doing this anymore. This is stupid.

Another firefighter/engineer (Department 1) explained how poor tempo balance impacts morale levels by limiting recovery time:

Well, the number one thing for mentally strong people is rest and time off. Vacation to decompress from this job. So the issue, is it morale versus our culture? Our culture is amazing. I think we have one of the best cultures in the nation. But morale is low, and then what you're doing is if you overwork us, no time off, we have no time to decompress and recover. So morale is going lower and lower and lower, and it's causing all sorts of fissures in our department.

***Poor Tempo Balance and Threats to Safety and Performance.***

Finally, focus group participants noted the impact of poor tempo balance on the safety and performance of firefighters, which they attributed to a variety of poor tempo balance

symptoms such as reduced sleep and unhealthy coping mechanisms. For example, one BC

(Department 1) noted:

It's the correlation between what fatigue does to a blood alcohol and it's something like, I think, after 16 or 18 hours of not sleeping, you're at a 0.08. We do that on strike teams all the time for like two to three weeks. Like he says, it's amazing that we haven't had more accidents. You're driving a big red down the street and you're starting at 15 tons and you're going faster than you should be and just hoping it all works out. You get there and it's like ... As drivers, we've all had near misses, or even been in accidents and it's a terrible feeling.

Another firefighter (Department 1) described the potential for accidents and mistake in more detail:

If I'm beat up and I'm working 3 or 4 days in a row and I make a mistake and push a medication that's wrong, whatever it is and usually if I got a captain here that's a medic or they'll usually, "Hey, son, that's not right or this way." But you just never know so if I make a mistake and I kill someone or I'm going on a kid... and most of our calls aren't that but there's always that one call that I go on and this is for real, it's 4-year old kid, he choked or it's this or it's that and I screw that but it's because I've being overworked or whatever, whatever, then it's like that falls on me, for sure, because it's my responsibility to take care of that but still it's like, "Wow," bigger picture, that's patient care that I'm affecting so I don't know what the solution is in order to make it all work but that's scary. Now what happens if a kid dies on me or whatever it is due to me making a mistake because of what was happening.

A BC (Department 1) also said:

I think the longer that you keep somebody in a fire station, you start to exponentially increase the potential, or the percentage of the possibility of an accident... whether it's injury to your hand using a tool, or the person driving.

Another BC (Department 1) described a specific incident where a mandatory took place just before an accident:

Right, not every day, but they are having accidents. I sent a fire engineer home, after he had an accident and before I went to investigate it, I looked at his call history the day before because he was mandatory.

A BC (Department 1) described how minor injuries may be a common result of poor tempo balance as well:

Your knee, your ankle ... Some of these things, you don't really hear about, these workers comp injuries. Who knows? But seriously injured firefighters is not manifesting itself in that. We're not killing firefighters. They're not falling off of roofs or off of ladders and stuff like that.

Commenting on the unhealthy coping mechanisms, another firefighter/engineer (Department 1) stated:

The drug use is horrible. Alcohol, horrible, divorce, all of that is increasing, because guys are just getting crushed. We're just overworked.

Another firefighter (Department 1) described the impacts of lack of sleep in more detail and how it can impact decision-making:

But with the sleep thing, I mean back to that, again I don't suffer but that is not good for your brain. You're likely aware but I mean there's a connection between substance abuse, infidelity, risk-taking behavior and sleep deprivation, so that's I think pretty widely accepted. So, it's a problem.

Taken together, like the quantitative phase suggested, the qualitative phase showed that poor tempo balance is a product of excessive mandatory overtime policies and lack of sufficient time off, which participants describe is commonly associated with understaffing issues and demands for more personnel. Also in line with the quantitative findings, the focus group participants described how poor tempo balance can diminish perceptions of empowerment to ultimately constrain adaptive behaviors, specifically by negatively influencing exhaustion, fatigue, decision-making, and morale among firefighters, which reduces their safety and performance behaviors. For the same reasons, it is also clear why access to career development opportunities and work-autonomy is highly important to achieve adaptive performance despite levels of poor tempo balance, as firefighters can rely on their confidence and training and self-determination to combat the negative effects of stress, fatigue, exhaustion, and morale. This discussion is continued in the conclusion, where specific recommendations are also provided.



## CHAPTER VII

### CONCLUSION

The present study has argued that leaders can bypass hierarchical constraints to be more adaptive in increasingly competitive conditions by empowering employees, which the findings show here is the result of management implementing specific HRM practices/procedures, along with immediate supervisors demonstrating empowering behaviors that create a supportive work environment (Wall et al., 2002). Supervisors who coach, inform, lead by example, show concern, and encourage participative decision-making, complimented by practices/procedures that provide employees power and opportunity structures, ultimately enhance the self-determination, self-efficacy and ability to improvise that is required to enhance department adaptive performance under conditions of high complexity. Some studies have linked empowering leadership to adaptive performance, or an individuals' ability to modify their behavior to meet the demands of a changing environment (e.g., Charbonnier-Voirin & El Akremi, 2011), while psychological empowerment has also been found to mediate leadership behaviors and adaptive performance (Qiu et al., 2018); although no research on the topic exists in the fire service, a context where existing measures for empowerment lack face validity.

Theory suggested that when senior leaders also engage in these empowering leadership behaviors, the indirect effects of immediate supervisor empowering behaviors on department adaptive performance via work autonomy would become stronger because employees feel even more support and encouragement to engage in improvisation. However, the results did not find support for interactive effects and instead showed that empowering immediate supervisors can

compensate for risk averse, non-empowering senior leaders in their ability to personally empower firefighters on their own. That is, the findings suggest that the extent to which employees feel empowered should depend primarily on the behaviors of immediate supervisors, regardless of the extent to which senior leadership is considered to be an effective, empowering leader. Since senior leaders are often criticized for being too overly bureaucratic, risk averse, resistant to change, and displaying other non-empowering behaviors (Wankhade et al., 2020), this study shows how immediate supervisors are key to overcoming senior leader deficiencies and producing adaptability and operational success during conditions of high complexity. This also sheds light on the importance of accounting for different leadership referents in any study assessing employee responses to leadership behaviors, practices, or procedures. Future research should explore other outcomes in relation to leadership behaviors and their interactions with other leadership referents. This area is not well understood in the literature, with many avenues for future direction.

In addition, this research showed how levels of tempo balance influence adaptability and alongside determine the importance of empowerment practices/procedures. Despite poor tempo balance, the performance of firefighters has the potential to produce better outcomes if the organization they work for creates an atmosphere that is satisfactory in implementing empowerment practices, specifically in career development opportunities and providing decision-making latitude for employees at work. These findings support structural and psychological empowerment theory, namely the dimensions of competence and self-determination. Tempo balance was also developed here as its own construct with extensive scale development and construct validation procedures, ensuring it is a valid and reliable measure similar to, but independent of work overload/exhaustion in the fire service. This is discussed further in the limitations section. Moreover, these results lend support to Burns and Stalker's (1961)

organizational theory, in that activating more organic organizational features results in organizations being better equipped to handle complex situations.

### *Practical Implications*

The above suggests that mechanic features are more suitable for ICS success in routine and predictable crisis events, while organic features are instead more appropriate in expanding crisis incidents. Thus, the effectiveness of the ICS is largely dependent on the ability of leadership to recognize when networking, cooperation, and improvisation should be emphasized over centralized decision-making. Specifically, in expanding disaster incidents, the results from Model 2 show that senior leadership should focus on providing information and advice to responders rather than instructions to increase adaptability and effectiveness of the ICS in such events. To reach the same effect, senior leadership should also consult lower level ranks to make appropriate decisions. In expanding disasters, senior leadership is likely to be far removed from the location of the incident. Thus, it is more difficult for senior leadership to gain accurate insights without incorporating the perspectives of on-the-scene responders in the strategic decision-making process. In addition, prohibiting responders the ability to improvise could lag response efforts as communicating instructions can take time to reach responders, particularly in large disaster events. Allowing for improvisation can actually lead to more effective response, considering that on-the-scene responders have more information at their disposal. This is the case as long as improvisation is directed towards achieving the overall goal of the response effort, and is not considered freelancing (Bigley & Roberts, 2001). Many fire service leaders come from the military where the command and control model dominates and thus, such leaders are likely to over rely on mechanic characteristics in expanding disaster scenarios. Not all fire service leaders possess management knowledge beyond employing a strict hierarchical structure. Therefore, it is important to train leaders on how to manage organic organizations, and how to identify when

organic features would serve to be more appropriate in disaster response. The present study provides pragmatic insight for leaders to address both of the above issues.

Moreover, the administrative and structural changes (EMS emphasis and increased volume) in the fire service has led to a tempo balance problem - excessive mandatory overtimes and limited time off - and this research shows that the consequent negative impacts on firefighter fatigue and exhaustion are a significant buffer on adaptive performance behaviors, and as the qualitative data shows, typical firefighter safety performance behaviors. To address this issue, there are a number of potential strategies that departments might utilize. Foremost, hire more people. However, if politicians will not provide the funding to do this, and they likely will not, there are other options. For example, Larger departments might also implement a program of system status management, a model that allows flexible staffing and equipment placement in response to statistically calculated volume periods and robust geographic call loads. Many firefighters believe the high presence of low acuity calls needs to be addressed with tiered or triaged dispatch systems to match the resources deployed and response times to callers' needs (Cannuscio et al., 2016). Either way, one way to help relieve EMS crews with high call volume is by cross-training firefighters in EMS (and vice versa), so they can relieve an ambulance provider – the two swap positions (IAFC, 2008). However, many departments have not exercised these options adequately and as the qualitative data shows, the brunt of the increased responsibility falls on existing staff, which comes in the form of added shifts and increased mandatory overtimes.

Moreover, the qualitative component of the present study's sequential explanatory mixed method design provided specific insights for leaders of fire service organizations, in how to avoid posing threats to responders' competence, meaning, impact, opportunity, and self-determination. Specifically, leaders of response organizations (particularly the fire service) should attempt to provide responders the following:

- 1) Constructive criticism, proactive feedback and training, consistent expectations, formalized evaluation processes (particularly to lower, newer ranks).
- 2) Appreciation for employee proposals and complaints.
- 3) Less disciplinary focus from BCs.
- 4) More administrative training and operational experience in leadership positions.
- 5) Clear, consistent communication. Dispelling of rumors.
- 6) Including everyone in conversations, allowing for input in important decisions, encouraging different views, diversity in decision-making.
- 7) Reducing vertical distance between operational ranks and senior leadership.
- 8) Limit excessive rules, policies, and procedures.
- 9) Reduce fear of repercussion from errors.
- 10) Encourage prepared improvisations within established rules when situation warrants.
- 11) Reduce excessive mandatories, allow for sufficient time off, limit understaffing, satisfy demands for more personnel (see discussion above).

It must be noted that focus group participants largely discussed how empowerment threats such as poor communication, lack of performance feedback, excessive mandatories and limited time off impact routine performance (e.g., car accidents), rather than performance in complex incidents (e.g., incidents requiring response from multiple agencies). However, I argue that the same mechanisms participants describe influencing routine performance, should impact performance in complex incidents to an even greater extent. For example, poor tempo balance and consequent levels of fatigue might slightly reduce response times during routine emergencies, particularly when responders are accustomed to ‘non-emergency’ calls, although the scene is often familiar and responders can primarily rely on SOPs. On the other hand, in a complex emergency (e.g., a large structure fire), responders need to make competent, adaptive decisions when SOPs more commonly do not apply, which is more difficult to carry out while exhausted under rapidly changing and uncertain conditions, particularly where safety becomes a major concern. As another related example, threats to work autonomy should display exacerbated

effects on performance during complex events, as compared to routine events, because the former requires more improvisations and creative solutions than the latter.

### *Future Research and Limitations*

There are a number of other avenues for future research. Foremost, future works are needed to explore and further validate tempo balance in other samples. Tempo balance could explain when, and possibly why a number of relationships occur in various models under the organizational behavior and HRM umbrella of (e.g., coping models with firefighter/emergency responder burnout as the outcome). Research should explore the relationships between empowerment practices and traditional performance outcomes in the fire service (e.g., firefighter injury, organizational citizenship behaviors etc.), alongside the role of tempo balance. It is possible that certain empowerment practices might even reduce performance outcomes that are measured in routine conditions where the hierarchy seems to better operate (Neal & Phillips, 1995). Furthermore, testing whether personal characteristics such as experience in the fire service, number of years in current position, age, and/or gender act as predictors or even moderators of the empowerment – adaptive performance relationship could provide valuable insights into the dynamics which determine success in complex events. Future research should also explore empowerment practices, performance outcomes, and potential interactive effects from tempo balance in other types of high risk, emergency response organizations such as police or military.

The present study also has a number of limitations that need to be addressed. First, the new tempo balance construct needs to be tested in additional fire departments and other types of response organizations that utilize mandatory overtime policies to further establish validity. For example, more rigorous tests of construct validity should be performed by collecting data on work overload, work exhaustion, and tempo balance, and conducting the necessary discriminant

validity tests. Second, the outcome variable was subjective in nature and confined to the realm of adaptive performance. While I am confident that the measure accurately captures adaptive performance, this study could be more rigorous by including objective performance measures as well (e.g., response time, human life and property loss etc.). Third, there are a number of other empowerment practices that I did not consider such as communication, specific training practices, and rewards. Future research should also explore these other empowerment practices and potentially identify others that are relevant to emergency response organizations. Fourth, my scale for employee voice with immediate supervisors was comprised of reverse-coded items, which could potentially explain the non-significant findings. However, since appropriate analysis supported the scale's validity and reliability and confirmed the psychometric properties of the measurement model, I assume the findings can be explained by the alternate explanations detailed in the discussion section. Fifth, my measures of empowerment and adaptive performance are at the department level, rather than the individual or team level. While past research suggests individual adaptive behaviors that lack support and elude detection by management can undermine department-level performance in complex emergencies (e.g., Pettersen & Schulman, 2019), my definition is only concerned with the adaptive performance dimensions noted to be most important for the emergency context and is not concerned with the level of individual perceptual agreement. Sixth, the present study did not have sufficient data to test for multi-level effects, such as empowering leadership behaviors perceived at the station level. Theoretically, each station has a different leader (who could vary on the extent to which they empower), which could explain some variance at the group level - where stronger and weaker relationships exist with their own regression line. Seventh, it was not possible to test all hypotheses included in Model 1 and Model 2 with the same data. This is because tempo balance (and some other relevant constructs) was only included in the questionnaire after receiving feedback from the first department included in the sample, meaning that the sample used for Model 1 did not receive tempo balance on the questionnaire, while the sample used for Model 2 did. As a result, it was not

possible to perform an analytical procedure such as SEM to combine the models, and test them together. My own future research will focus on using SEM to run a combined model upon gathering additional data.



## REFERENCES

- Ahearne, M., Mathieu, J., & Rapp, A. (2005). To empower or not to empower your sales force? An empirical examination of the influence of leadership empowerment behavior on customer satisfaction and performance. *Journal of Applied Psychology, 90*(5), 945–955. <https://doi.org/10.1037/0021-9010.90.5.945>
- Albrecht, S. L., & Andreetta, M. (2011). The influence of empowering leadership, empowerment and engagement on affective commitment and turnover intentions in community health service workers: Test of a model. *Leadership in Health Services, 24*(3), 228–237. <https://doi.org/10.1108/17511871111151126>
- AlGhabra, N. (2017). The Effect of Empowerment Dimensions on Volunteers' Intention to Leave. *International Journal in Management and Social Science, 5*(8), 1689–1699.
- Allen, D. G., Shore, L. M., & Griffeth, R. W. (2003). The role of perceived organizational support and supportive human resource practices in the turnover process. *Journal of Management*. [https://doi.org/10.1016/S0149-2063\(02\)00222-2](https://doi.org/10.1016/S0149-2063(02)00222-2)
- Allworth, E., & Hesketh, B. (1997). Construct based biodata and the prediction of adaptive performance. *American Psychological Association Conference*.
- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2001). Do high performance work systems pay off? *Research in the Sociology of Work*. [https://doi.org/10.1016/s0277-2833\(01\)80022-4](https://doi.org/10.1016/s0277-2833(01)80022-4)

- Armstrong, C. P., & Sambamurthy, V. (1999). Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures. *Information Systems Research*.  
<https://doi.org/10.1287/isre.10.4.304>
- Arnold, J. A., Arad, S., Rhoades, J. A., & Drasgow, F. (2000). The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors. *Journal of Organizational Behavior*, 21(3), 249–269.  
[https://doi.org/10.1002/\(sici\)1099-1379\(200005\)21:3<249::aid-job10>3.0.co;2-%23](https://doi.org/10.1002/(sici)1099-1379(200005)21:3<249::aid-job10>3.0.co;2-%23)
- Aslam, U., Muqadas, F., Imran, M. K., & Rahman, U. U. (2018). Investigating the antecedents of work disengagement in the workplace. *Journal of Management Development*.  
<https://doi.org/10.1108/JMD-06-2017-0210>
- Ahearne, M., Mathieu, J., & Rapp, A. (2005). To empower or not to empower your sales force? An empirical examination of the influence of leadership empowerment behavior on customer satisfaction and performance. *Journal of Applied Psychology*, 90(5), 945–955.  
<https://doi.org/10.1037/0021-9010.90.5.945>
- Albrecht, S. L., & Andretta, M. (2011). The influence of empowering leadership, empowerment and engagement on affective commitment and turnover intentions in community health service workers: Test of a model. *Leadership in Health Services*, 24(3), 228–237.  
<https://doi.org/10.1108/17511871111151126>
- AlGhabra, N. (2017). The Effect of Empowerment Dimensions on Volunteers' Intention to Leave. *International Journal in Management and Social Science*, 5(8), 1689–1699.

- Allen, D. G., Shore, L. M., & Griffeth, R. W. (2003). The role of perceived organizational support and supportive human resource practices in the turnover process. *Journal of Management*. [https://doi.org/10.1016/S0149-2063\(02\)00222-2](https://doi.org/10.1016/S0149-2063(02)00222-2)
- Allworth, E., & Hesketh, B. (1997). Construct based biodata and the prediction of adaptive performance. *American Psychological Association Conference*.
- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2001). Do high performance work systems pay off? *Research in the Sociology of Work*. [https://doi.org/10.1016/s0277-2833\(01\)80022-4](https://doi.org/10.1016/s0277-2833(01)80022-4)
- Armstrong, C. P., & Sambamurthy, V. (1999). Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures. *Information Systems Research*. <https://doi.org/10.1287/isre.10.4.304>
- Arnold, J. A., Arad, S., Rhoades, J. A., & Drasgow, F. (2000). The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors. *Journal of Organizational Behavior*, 21(3), 249–269. [https://doi.org/10.1002/\(sici\)1099-1379\(200005\)21:3<249::aid-job10>3.0.co;2-%23](https://doi.org/10.1002/(sici)1099-1379(200005)21:3<249::aid-job10>3.0.co;2-%23)
- Aslam, U., Muqadas, F., Imran, M. K., & Rahman, U. U. (2018). Investigating the antecedents of work disengagement in the workplace. *Journal of Management Development*. <https://doi.org/10.1108/JMD-06-2017-0210>
- Austin, J. T., Villanova, P., Kane, J. S., & Bernardin, H. J. (1991). Construct Validation of Performance Measures: Issues, Development, and Evaluation of Indicators. In G. R. Ferris

- & K. M. Rowland (Eds.), *Research in Personnel and Human Resources Management* (Vol. 9, pp. 159–233). JAI Press.
- Baard, S. K., Rench, T. A., & Kozlowski, S. W. J. (2014). Performance Adaptation: A Theoretical Integration and Review. *Journal of Management*.  
<https://doi.org/10.1177/0149206313488210>
- Baba, V. V., Tourigny, L., Wang, X., & Liu, W. (2009). Proactive personality and work performance in China: The moderating effects of emotional exhaustion and perceived safety climate. *Canadian Journal of Administrative Sciences*, 26(1), 23–37.  
<https://doi.org/10.1002/cjas.90>
- Barnett, B. R., & Bradley, L. (2007). The impact of organisational support for career development on career satisfaction. *Career Development International*, 12(7), 617–636.  
<https://doi.org/10.1108/13620430710834396>
- Basinska, B. A., Wiciak, I., & Dåderman, A. M. (2014). Fatigue and burnout in police officers: The mediating role of emotions. *Policing*. <https://doi.org/10.1108/PIJPSM-10-2013-0105>
- Bass, B. M. (1990). Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications (3rd ed.). In *Bass Stogdills handbook of leadership Theory research and managerial applications 3rd ed.*
- Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, 13(2), 139–161. [https://doi.org/10.1016/0167-8116\(95\)00038-0](https://doi.org/10.1016/0167-8116(95)00038-0)

- Becker, B. I. (2016a). Leadership Characteristics and Educational Levels Prevalent Among Senior-Level Fire Service Personnel in the United States. *Urban Publications*.  
[https://engagedscholarship.csuohio.edu/urban\\_facpub/1348](https://engagedscholarship.csuohio.edu/urban_facpub/1348)
- Becker, B. I. (2016b). Leadership Characteristics and Educational Levels Prevalent Among Senior-Level Fire Service Personnel in the United States. *Urban Publications*, 174.  
[https://engagedscholarship.csuohio.edu/urban\\_facpub/1348](https://engagedscholarship.csuohio.edu/urban_facpub/1348)
- Bergiel, E. B., Clenney, B. F., Nguyen, V. Q., & Stephen Taylor, G. (2009). Human resource practices, job embeddedness and intention to quit. *Management Research News*, 32(3), 205–219. <https://doi.org/10.1108/01409170910943084>
- Bigley, G. A., & Roberts, K. H. (2001). The Incident Command System: High-Reliability Organizing for Complex and Volatile Task Environments. *Academy of Management Journal*, 44(6), 1281–1299. <https://doi.org/10.5465/3069401>
- Blau, P. (1964). Power and exchange in social life. In *International Journal of Business and Social Science* (2nd ed.). J Wiley & Sons.
- Blickle, G., Below, A. von, & Johannen, A. (2011). Self-Ratings of Political Skill in Job Application: A within- and between-subjects field experiment. *International Journal of Selection and Assessment*. <https://doi.org/10.1111/j.1468-2389.2010.00537.x>
- Blumberg, M., & Pringle, C. D. (1982). The Missing Opportunity in Organizational Research: Some Implications for a Theory of Work Performance. *Academy of Management Review*, 7(4), 560–569. <https://doi.org/10.5465/amr.1982.4285240>

- Boersma, K., Comfort, L., Groenendaal, J., & Wolbers, J. (2014). Incident Command Systems: A Dynamic Tension among Goals, Rules and Practice. *Journal of Contingencies and Crisis Management*, 22(1), 1–4. <https://doi.org/10.1111/1468-5973.12042>
- Bowers, D. G., & Seashore, S. E. (1966). Predicting Organizational Effectiveness With a Four-Factor Theory of Leadership. *Administrative Science Quarterly*.  
<https://doi.org/10.2307/2391247>
- Bowling, N. A., Alarcon, G. M., Bragg, C. B., & Hartman, M. J. (2015). A meta-analytic examination of the potential correlates and consequences of workload. *Work and Stress*, 29(2), 95–113. <https://doi.org/10.1080/02678373.2015.1033037>
- Brown, T. (2015). Confirmatory Factor Analysis for Applied Research, Second Edition. In *Guilford Publications*.
- Buchanan, B. (1975). Red-Tape and the Service Ethic: Some Unexpected Differences Between Public and Private Managers. *Administration & Society*.  
<https://doi.org/10.1177/009539977500600403>
- Buck, D. A., Trainor, J. E., & Aguirre, B. E. (2006). A critical evaluation of the incident command system and NIMS. *Journal of Homeland Security and Emergency Management*.  
<https://doi.org/10.2202/1547-7355.1252>
- Burke, R. J. (2003). Nursing staff attitudes following restructuring: The role of perceived organizational support, restructuring processes and stressors. *International Journal of Sociology and Social Policy*, 23(8–9), 129–157.

<https://doi.org/10.1108/01443330310790679>

Burke, R. P. (2018). Command and Control: Challenging Fallacies of the ‘Military Model’ in Research and Practice. *International Journal of Mass Emergencies and Disasters*.

Burns, T., & Stalker, G. M. (1961). The Management of innovation: mechanistic and organic systems. In *Classics of Organization theory*.

Cannuscio, C. C., Davis, A. L., Kermis, A. D., Khan, Y., Dupuis, R., & Taylor, J. A. (2016). A Strained 9-1-1 System and Threats to Public Health. *Journal of Community Health*.

<https://doi.org/10.1007/s10900-015-0142-x>

Carter, L. F., Stogdill, R., & Coons, A. E. (1958). Leadership Behavior: Its Description and Measurement. *Administrative Science Quarterly*. <https://doi.org/10.2307/2391024>

Ceschi, A., Demerouti, E., Sartori, R., & Weller, J. (2017). Decision-making processes in the workplace: How exhaustion, lack of resources and job demands impair them and affect performance. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00313>

Chan, D. (2000). Understanding adaptation to changes in the work environment: Integrating individual difference and learning perspective. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (18th ed., pp. 1–42). JAI Press.

Chang, H. H. (2017). A literature review and analysis of the incident command system. *International Journal of Emergency Management*, 13(1), 50–67.

<https://doi.org/10.1504/IJEM.2017.081193>

Charbonnier-Voirin, A., & El Akremi, A. (2011). The effect of empowerment on employees' adaptive performance. In *Relations Industrielles* (Vol. 66, Issue 1).

<https://doi.org/10.7202/1005109ar>

Charbonnier-Voirin, A., El Akremi, A., & Vandenberghe, C. (2010). A multilevel model of transformational leadership and adaptive performance and the moderating role of climate for innovation. *Group and Organization Management*.

<https://doi.org/10.1177/1059601110390833>

Charbonnier-Voirin, A., & Roussel, P. (2012). Adaptive performance: A new scale to measure individual performance in organizations. *Canadian Journal of Administrative Sciences*,

29(3), 280–293. <https://doi.org/10.1002/CJAS.232>

Charmaz, K. (2014). Constructing Grounded Theory - Kathy Charmaz - Google Books. *Google Scholar*.

Chen, J. R., Chou, T. C., & Wang, T. W. (2010). The organizational context, job embeddedness, and effectiveness of managing knowledge work teams. *Journal of Applied Business*

*Research*, 26(5), 19–28. <https://doi.org/10.19030/jabr.v26i5.315>

Choi, B. K., Schnall, P. L., Dobson, M., Garcia-Rivas, J., Kim, H. R., Zaldivar, F., Israel, L., & Baker, D. (2014). Very long (> 48 hours) shifts and cardiovascular strain in firefighters: A theoretical framework. *Annals of Occupational and Environmental Medicine*, 26(1), 5.

<https://doi.org/10.1186/2052-4374-26-5>

Chun, Y. H., & Rainey, H. G. (2005). Goal ambiguity and organizational performance in U.S.



- federal agencies. In *Journal of Public Administration Research and Theory*.  
<https://doi.org/10.1093/jopart/mui030>
- Cole, D. (2000a). the Incident Command System: a 25-Year Evaluation By California Practitioners. *National Fire Academy, Maryland, U.S.A., February*, 201–230.  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.113.2426&rep=rep1&type=pdf>
- Cole, D. (2000b). *The incident command system: A 25-year evaluation by California practitioners*.
- Consolini, T. R., & LaPorte, P. M. (1991). Working in Practice but Not in Theory: Theoretical Challenges of “High-Reliability Organizations.” In *Journal of Public Administration Research and Theory*.
- Cortina, J. M. (1993). What Is Coefficient Alpha? An Examination of Theory and Applications. *Journal of Applied Psychology*, 78(1), 98–104. <https://doi.org/10.1037/0021-9010.78.1.98>
- Cox, A. T. (2012). *The Significance of Fire Service Culture as an Impediment to Effective Leadership in the Homeland Security Environment* (Issue March).  
<https://apps.dtic.mil/docs/citations/ADA560585>
- Cropanzano, R. S., Ambrose, M. L., Colquitt, J. A., & Rodell, J. B. (2015). Measuring Justice and Fairness. *The Oxford Handbook of Justice in the Workplace*, 187–202.  
<https://doi.org/10.1093/oxfordhb/9780199981410.013.8>
- Cutter, S. L., Ismail-Zadeh, A., Alcántara-Ayala, I., Altan, O., Baker, D. N., Briceño, S., Gupta, H., Holloway, A., Johnston, D., McBean, G. A., Ogawa, Y., Paton, D., Porio, E.,

- Silbereisen, R. K., Takeuchi, K., Valsecchi, G. B., Vogel, C., & Wu, G. (2015). Global risks: Pool knowledge to stem losses from disasters. *Nature*, *522*(7556), 277–279.  
<https://doi.org/10.1038/522277a>
- Dale, K., & Fox, M. L. (2008). Leadership style and organizational commitment: Mediating effect of role stress. *Journal of Managerial Issues*.
- Day, A., Crown, S. N., & Ivany, M. (2017). Organisational change and employee burnout: The moderating effects of support and job control. *Safety Science*, *100*, 4–12.  
<https://doi.org/10.1016/j.ssci.2017.03.004>
- De Cuyper, N., & De Witte, H. (2006). Autonomy and workload among temporary workers: Their effects on job satisfaction, organizational commitment, life satisfaction, and self-rated performance. *International Journal of Stress Management*, *13*(4), 441–459.  
<https://doi.org/10.1037/1072-5245.13.4.441>
- De Waard, E., Volberda, H. W., & Soeters, J. (2013). Drivers of Organizational Responsiveness: Experiences of a Military Crisis Response Organization. In *Journal of Organization Design* (Vol. 2, Issue 2). <https://doi.org/10.7146/jod.7850>
- Dekker, S. (2003). Failure to adapt or adaptations that fail: Contrasting models on procedures and safety. *Applied Ergonomics*, *34*(3), 233–238. [https://doi.org/10.1016/S0003-6870\(03\)00031-0](https://doi.org/10.1016/S0003-6870(03)00031-0)
- Densten, I. L. (2003). Senior police leadership: Does rank matter? *Policing*, *26*(3), 400–418.  
<https://doi.org/10.1108/13639510310489467>

- Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal*. <https://doi.org/10.5465/AMJ.2007.26279183>
- Detert, J. R., & Treviño, L. K. (2010). Speaking up to higher-ups: How supervisors and skip-level leaders influence employee voice. *Organization Science*, *21*(1), 249–270.  
<https://doi.org/10.1287/orsc.1080.0405>
- DeVellis, R. F. (2016). *Scale Development Theory and Applications* ( Fourth Edition Robert). *SAGE Publication*.
- Dishop, C. R., Green, A. E., Torres, E., & Aarons, G. A. (2019). Predicting Turnover: The Moderating Effect of Functional Climates on Emotional Exhaustion and Work Attitudes. *Community Mental Health Journal*. <https://doi.org/10.1007/s10597-019-00407-7>
- Dockel, A., Basson, J. S., & Coetzee, M. (2006). The Effect Of Retention Factors On Organisational Commitment: An Investigation Of High Technology Employees. *SA Journal of Human Resource Management*, *4*(2). <https://doi.org/10.4102/sajhrm.v4i2.91>
- Dodd, N. G., & Ganster, D. C. (1996). The interactive effects of variety, autonomy, and feedback on attitudes and performance. *Journal of Organizational Behavior*, *17*(4), 329–347.  
[https://doi.org/10.1002/\(SICI\)1099-1379\(199607\)17:4<329::AID-JOB754>3.0.CO;2-B](https://doi.org/10.1002/(SICI)1099-1379(199607)17:4<329::AID-JOB754>3.0.CO;2-B)
- Dollard, M. F., & Winefield, A. H. (1998). A test of the demand-control/support model of work stress in correctional officers. *Journal of Occupational Health Psychology*.  
<https://doi.org/10.1037/1076-8998.3.3.243>
- Duxbury, L., & Halinski, M. (2018). It's not all about guns and gangs: role overload as a source

- of stress for male and female police officers. *Policing and Society*.  
<https://doi.org/10.1080/10439463.2017.1342644>
- Duxbury, L., Higgins, C., & Halinski, M. (2015). Identifying the Antecedents of Work-Role Overload in Police Organizations. *Criminal Justice and Behavior*.  
<https://doi.org/10.1177/0093854814551017>
- Dynes, R. R. (1994). Community Emergency Planning: False Assumptions and Inappropriate Analogies. *International Journal of Mass Emergencies and Disasters*.
- Edmondson, A., & Moingeon, B. (1999). "Learning trust and organizational change."  
*Organizational Learning and the Learning Organisation*.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived Organizational Support. *Journal of Applied Psychology*, 71(3), 500–507. <https://doi.org/10.1037/0021-9010.71.3.500>
- Elsetouhi, A. M., Hammad, A. A., Nagm, A. E. A., & Elbaz, A. M. (2018). Perceived leader behavioral integrity and employee voice in SMEs travel agents: The mediating role of empowering leader behaviors. *Tourism Management*, 65, 100–115.  
<https://doi.org/10.1016/j.tourman.2017.09.022>
- Engel, R. S. (2001). Supervisory styles of patrol sergeants and lieutenants. *Journal of Criminal Justice*, 29(4), 341–355. [https://doi.org/10.1016/s0047-2352\(01\)00091-5](https://doi.org/10.1016/s0047-2352(01)00091-5)
- Fareed, M., Noor, W. S. W. M., Isa, M. F. M., & Salleh, S. S. M. M. (2016). Developing human capital for sustainable competitive advantage: The roles of organizational culture and high

performance work system. *International Journal of Economic Perspectives*.

Fernet, C., Austin, S., & Vallerand, R. J. (2012). The effects of work motivation on employee exhaustion and commitment: An extension of the JD-R model. *Work and Stress*, 26(3), 213–229. <https://doi.org/10.1080/02678373.2012.713202>

Fleishman, E. A. (1953). The description of supervisory behavior. *Journal of Applied Psychology*. <https://doi.org/10.1037/h0056314>

Fry, B. R., & Raadschelders, J. C. N. (2017). Mastering Public Administration: From Max Weber to Dwight Waldo. In *Mastering Public Administration: From Max Weber to Dwight Waldo*. <https://doi.org/10.4135/9781506374529>

Furnham, A., & Goodstein, L. D. (1997). The organizational climate questionnaire (OCQ). In *The 1997 Annual*.

Gabris, G. T., & Ihrke, D. M. (2007). No end to hierarchy: Does rank make a difference in perceptions of leadership credibility? *Administration and Society*, 39(1), 107–123. <https://doi.org/10.1177/0095399706296616>

Gao, L., Janssen, O., & Shi, K. (2011). Leader trust and employee voice: The moderating role of empowering leader behaviors. *Leadership Quarterly*, 22(4), 787–798. <https://doi.org/10.1016/j.leaqua.2011.05.015>

Gerbing, D. W., & Anderson, J. C. (1984). On the Meaning of within-Factor Correlated Measurement Errors. *Journal of Consumer Research*, 11(1), 572. <https://doi.org/10.1086/208993>

Gillet, N., Gagné, M., Sauvagère, S., & Fouquereau, E. (2013). The role of supervisor autonomy support, organizational support, and autonomous and controlled motivation in predicting employees' satisfaction and turnover intentions. *European Journal of Work and Organizational Psychology, 22*(4), 450–460.

<https://doi.org/10.1080/1359432X.2012.665228>

Goldfarb, T. (1997). Putting the incident command system in perspective. *Fire Engineering, 150*(1), 64–72.

Gonzalez-Mulé, E., Courtright, S. H., DeGeest, D., Seong, J. Y., & Hong, D. S. (2016).

Channeled Autonomy: The Joint Effects of Autonomy and Feedback on Team Performance Through Organizational Goal Clarity. *Journal of Management.*

<https://doi.org/10.1177/0149206314535443>

Gould-Williams, J. (2007). HR practices, organizational climate and employee outcomes:

Evaluating social exchange relationships in local government. *International Journal of Human Resource Management, 18*(9), 1627–1647.

<https://doi.org/10.1080/09585190701570700>

Griffin, M. A., Parker, S. K., & Mason, C. M. (2010). Leader Vision and the Development of

Adaptive and Proactive Performance: A Longitudinal Study. *Journal of Applied Psychology.* <https://doi.org/10.1037/a0017263>

Groenendaal, J., & Helsloot, I. (2016). A Preliminary Examination of Command and Control by

Incident Commanders of Dutch Fire Services during Real Incidents. *Journal of Contingencies and Crisis Management.* <https://doi.org/10.1111/1468-5973.12096>

- Groenendaal, J., Helsloot, I., & Scholtens, A. (2013). A critical examination of the assumptions regarding centralized coordination in large-scale emergency situations. *Journal of Homeland Security and Emergency Management*. <https://doi.org/10.1515/jhsem-2012-0053>
- Gulick, L., & Urwick, L. (1937). Notes on the theory of organization, from Papers on the Science of Administration. In *Classics of Organization Theory*.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Addison-Wesley.
- Hahn, C. (2011). Doing Qualitative Research Using Your Computer. In *Doing Qualitative Research Using Your Computer*. <https://doi.org/10.4135/9780857024411>
- Hair, Black, Babin, A. (2014). *Multivariate Data Analysis* (Pearson ne). Pearson Higher Ed.
- Han, T. Y., & Williams, K. J. (2008). Multilevel investigation of adaptive performance: Individual- and team-level relationships. In *Group and Organization Management* (Vol. 33, Issue 6, pp. 657–684). <https://doi.org/10.1177/1059601108326799>
- Harcourt, H., & Ateke, B. W. (2018). Customer-Contact Employee Empowerment and Resilience of Quick Service Restaurants. *European Journal of Human Resource Management Studies*, *1*(2), 1–18. <https://doi.org/10.5281/zenodo.1147175>
- Harvill, L. M. (1991). An NCME Instructional Module on. Standard Error of Measurement. *Educational Measurement: Issues and Practice*, *10*(2), 33–41. <https://doi.org/10.1111/j.1745-3992.1991.tb00195.x>
- Hayes, A. F. (2015). An Index and Test of Linear Moderated Mediation. *Multivariate Behavioral*

- Research*, 50(1), 3–40. <https://doi.org/10.1080/00273171.2014.962683>
- Hayes, A. F. (2018). Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach. In *the Guilford Press* (2nd ed.). Guilford Publications. [www.guilford.com/MSS](http://www.guilford.com/MSS)
- Haynes, H. J. G., & Molis, J. L. (2016). U.S. Firefighter Injuries - 2015. *Nfpa, October*, 1–38.
- Herrbach, O., Mignonac, K., Vandenberghe, C., & Negrini, A. (2009). Perceived HRM practices, organizational commitment, and voluntary early retirement among late-career managers. *Human Resource Management*, 48(6), 895–915. <https://doi.org/10.1002/hrm.20321>
- Hersey, P., & Blanchard, K. H. (1969). Life Cycle Theory of Leadership. *Training and Development Journal*.
- Hesketh, B., & Neal, A. (1999). Technology and performance. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance: Implications for staffing, motivation, and development* (pp. 21–55). Jossey-Bass.
- Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. In *Organizational Research Methods* (Vol. 1, Issue 1, pp. 104–121). SAGE Publications Inc. <https://doi.org/10.1177/109442819800100106>
- Hoandră, M. G. (2017). The mediating role of task conflict and cross-understanding in the relation between transactional leadership and team adaptive performance. *Psihologia Resurselor Umane*. <https://doi.org/10.24837/pru.2017.1.5>



- Honold, L. (1997). A review of the literature on employee empowerment. *Empowerment in Organizations*, 5(4), 202–212. <https://doi.org/10.1108/14634449710195471>
- Hopkinson, S. G., Oblea, P., Napier, C., Lasiowski, J., & Trego, L. L. (2019). Identifying the constructs of empowering nurse leader communication through an instrument development process. *Journal of Nursing Management*, 27(4), 722–731. <https://doi.org/10.1111/jonm.12729>
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*. <https://doi.org/10.1177/014920639702300306>
- Howe, M. (2019). General mental ability and goal type as antecedents of recurrent adaptive task performance. *Journal of Applied Psychology*, 104(6), 796–813. <https://doi.org/10.1037/apl0000379>
- Hu, J., & Liden, R. C. (2011). Antecedents of Team Potency and Team Effectiveness: An Examination of Goal and Process Clarity and Servant Leadership. *Journal of Applied Psychology*. <https://doi.org/10.1037/a0022465>
- Huang, J. L., Ryan, A. M., Zabel, K. L., & Palmer, A. (2014). Personality and adaptive performance at work: A meta-analytic investigation. *Journal of Applied Psychology*, 99(1), 162–179. <https://doi.org/10.1037/a0034285>
- Huntsman, D., & Greer, A. (2019). Antecedents of Trust in Leadership : A Multilevel Perspective in the Fire Service. *International Fire Service Journal of Leadership & Management*, 13.
- IAFC. (2008). *We're Here for Life: The Orange Ribbon Report - Leading and Managing EMS in*

*Volunteers and Combination Fire Departments.*

Iliopoulou, K. K., & While, A. E. (2010). Professional autonomy and job satisfaction: Survey of critical care nurses in mainland Greece. *Journal of Advanced Nursing*, 66(11), 2520–2531. <https://doi.org/10.1111/j.1365-2648.2010.05424.x>

*Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method.* (2014). John Wiley & Sons.

J.M., V., M.E., A., T.A., H., D., F., L.E., C., & C.M., B. (2011). Adiposity in policing: Mental health consequences. *International Journal of Emergency Mental Health.*

Jacobs, E., & Roodt, G. (2008). Organisational culture of hospitals to predict turnover intentions of professional nurses. *Health SA Gesondheid*, 13(1), 63–78. <https://doi.org/10.4102/hsag.v13i1.258>

Jahn, J. L. S. (2019). Shifting the safety rules paradigm: Introducing doctrine to US wildland firefighting operations. *Safety Science*, 115, 237–246. <https://doi.org/10.1016/j.ssci.2019.02.002>

James T Croasmun, & Lee Ostrom. (2011). Using Likert-type scales in the social sciences. *Journal of Adult Education*, 40(1), 19–22. <http://eric.ed.gov/?id=EJ961998>

Jensen, J., & Thompson, S. (2016). The Incident Command System: A literature review. *Disasters*, 40(1), 158–182. <https://doi.org/10.1111/disa.12135>

Jensen, J., & Waugh, W. L. (2014). The United States' experience with the incident command

system: What we think we know and what we need to know more about. *Journal of Contingencies and Crisis Management*, 22(1), 5–17. <https://doi.org/10.1111/1468-5973.12034>

Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55(6), 1264–1294. <https://doi.org/10.5465/amj.2011.0088>

Joung, W., Hesketh, B., & Neal, A. (2006). Using “war stories” to train for adaptive performance: Is it better to learn from error or success? *Applied Psychology*. <https://doi.org/10.1111/j.1464-0597.2006.00244.x>

Jundt, D. K., Shoss, M. K., & Huang, J. L. (2015). Individual adaptive performance in organizations: A review. *Journal of Organizational Behavior*. <https://doi.org/10.1002/job.1955>

Kannan-Narasimhan, R., & Lawrence, B. S. (2012). Behavioral Integrity: How Leader Referents and Trust Matter to Workplace Outcomes. *Journal of Business Ethics*, 111(2), 165–178. <https://doi.org/10.1007/s10551-011-1199-9>

Kanten, P., Kanten, S., & Gurlek, M. (2015). The Effects of Organizational Structures and Learning Organization on Job Embeddedness and Individual Adaptive Performance. *Procedia Economics and Finance*, 23, 1358–1366. [https://doi.org/10.1016/s2212-5671\(15\)00523-7](https://doi.org/10.1016/s2212-5671(15)00523-7)

- Kanter, R. M. (1977). *Men and Women of the Corporation*. Basic Books.
- Kanter, R. M. (1979). Power failure in management circuits. *Harvard Business Review*, 57(4), 65–75. <https://doi.org/10.4324/9781315250601-21>
- Kanter, Rosabeth Moss. (1977). *Men and women of the corporation* Basic Books. In *New York*.
- Kanter, Rosabeth Moss. (1985). *The change masters : corporate entrepreneurs at work*. Unwin Paperbacks.
- Kantur, D., & İşeri-Say, A. (2012). Organizational resilience: A conceptual integrative framework. *Journal of Management & Organization*, 18(6), 762–773. <https://doi.org/10.1017/s1833367200000420>
- Karatepe, O. M. (2013). High-performance work practices and hotel employee performance: The mediation of work engagement. *International Journal of Hospitality Management*, 32(1), 132–140. <https://doi.org/10.1016/j.ijhm.2012.05.003>
- Karter. (2018). *NFPA statistics - Fire department calls*. NFPA Survey. <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/the-fire-service/fire-department-calls/fire-department-calls>
- Katz, D., & Kahn, R. (2015). The social psychology of organizations. In *Organizational Behavior 2: Essential Theories of Process and Structure*. <https://doi.org/10.2307/2989929>
- Klein, H. J., Cooper, J. T., Molloy, J. C., & Swanson, J. A. (2014). The assessment of commitment: Advantages of a unidimensional, target-free approach. *Journal of Applied*

*Psychology*, 99(2), 222–238. <https://doi.org/10.1037/a0034751>

Kraimer, M. L., Seibert, S. E., & Liden, R. C. (1999). Psychological empowerment as a multidimensional construct: A test of construct validity. *Educational and Psychological Measurement*, 59(1), 127–142. <https://doi.org/10.1177/0013164499591009>

Kunte, M., Gupta, P., Bhattacharya, S., & Neelam, N. (2017). Role overload, role self distance, role stagnation as determinants of job satisfaction and turnover intention in banking sector. *Indian Journal of Psychological Medicine*. <https://doi.org/10.4103/0253-7176.217022>

Kuyea, L., & Sulaimonb, A. (2011). Employee involvement in decision making and firms performance in the manufacturing sector in Nigeria. *Serbian Journal of Management*, 6(1), 1–15. <https://doi.org/10.5937/sjm1101001k>

Labrague, L. J., McEnroe-Petitte, D. M., & Tsaras, K. (2019). Predictors and outcomes of nurse professional autonomy: A cross-sectional study. *International Journal of Nursing Practice*, 25(1), e12711. <https://doi.org/10.1111/ijn.12711>

Lamont, S., Brunero, S., Lyons, S., Foster, K., & Perry, L. (2015). Collaboration amongst clinical nursing leadership teams: A mixed-methods sequential explanatory study. *Journal of Nursing Management*, 23(8), 1126–1136. <https://doi.org/10.1111/jonm.12267>

Leonard, H. B., & Howitt, A. M. (2010). Organising response to extreme emergencies: The victorian bushfires of 2009. *Australian Journal of Public Administration*. <https://doi.org/10.1111/j.1467-8500.2010.00695.x>

Lindberg, P., & Vingård, E. (2012). Indicators of healthy work environments - A systematic

- review. *Work*, 41(SUPPL.1), 3032–3038. <https://doi.org/10.3233/WOR-2012-0560-3032>
- Locke, E. A. (1991). Goal theory vs. control theory: Contrasting approaches to understanding work motivation. *Motivation and Emotion*. <https://doi.org/10.1007/BF00991473>
- Lusa, S., Häkkänen, M., Luukkonen, R., & Viikari-Juntura, E. (2002). Perceived physical work capacity, stress, sleep disturbance and occupational accidents among firefighters working during a strike. *Work and Stress*. <https://doi.org/10.1080/02678370210163301>
- MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly: Management Information Systems*, 35(2), 293–334. <https://doi.org/10.2307/23044045>
- Mallak, L. A. (1998). Measuring resilience in health care provider organizations. *Health Manpower Management*, 24(4–5), 148–152. <https://doi.org/10.1108/09552069810215755>
- Marques-Quinteiro, P., Vargas, R., Eifler, N., & Curral, L. (2019). Employee adaptive performance and job satisfaction during organizational crisis: the role of self-leadership. *European Journal of Work and Organizational Psychology*, 28(1), 85–100. <https://doi.org/10.1080/1359432X.2018.1551882>
- Marshall, C., & Rossman, G. B. (2014). Designing qualitative research. 6th edition. In *Thousand Oaks*.
- Mayer, D. M., Kuenzi, M., Greenbaum, R., Bardes, M., & Salvador, R. (Bombie). (2009). How low does ethical leadership flow? Test of a trickle-down model. *Organizational Behavior*

*and Human Decision Processes*, 108(1), 1–13. <https://doi.org/10.1016/j.obhdp.2008.04.002>

Mcclean, E., & Collins, C. J. (2011). High-commitment HR practices, employee effort, and firm performance: Investigating the effects of HR practices across employee groups within professional services firms. *Human Resource Management*.  
<https://doi.org/10.1002/hrm.20429>

McGregor, D. (1960). Theory X and theory Y. *Organization Theory*, 358–374.

Meglino, B. M., Ravlin, E. C., & Adkins, C. L. (1989). A work values approach to corporate culture: A field test of the value congruence process and its relationship to individual outcomes. *Journal of Applied Psychology*, 74(3), 424–432. <https://doi.org/10.1037//0021-9010.74.3.424>

Merton, R. K. (1940). Bureaucratic structure and personality. *Social Forces*.  
<https://doi.org/10.2307/2570634>

Meyer, J. P., & Smith, C. A. (2000). HRM practices and organizational commitment: Test of a mediation model. *Canadian Journal of Administrative Sciences*, 17(4), 319–331.  
<https://doi.org/10.1111/j.1936-4490.2000.tb00231.x>

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, 61(1), 20–52.  
<https://doi.org/10.1006/jvbe.2001.1842>

Moore, J. E. (2000). Why is this happening? A causal attribution approach to work exhaustion

- consequences. *Academy of Management Review*, 25(2), 335–349.  
<https://doi.org/10.5465/AMR.2000.3312920>
- Motowidlo, S. J. (2003). Job Performance. In *Handbook of Psychology*.  
<https://doi.org/10.1002/0471264385.wei1203>
- Moynihan, D. P. (2007). From Forest Fires to Hurricane Katrina: Case Studies of Incident Command Systems. *Networks and Partnership Series*, 52.
- Moynihan, D. P., & Pandey, S. K. (2007). The role of organizations in fostering public service motivation. *Public Administration Review*. <https://doi.org/10.1111/j.1540-6210.2006.00695.x>
- Neal, D. M., & Phillips, B. D. (1995). Effective Emergency Management: Reconsidering the Bureaucratic Approach. *Disasters*, 19(4), 327–337. <https://doi.org/10.1111/j.1467-7717.1995.tb00353.x>
- Neal, D. M., & Webb, G. (2006). Structural barriers to using the national incident management system. In *Learning Catastrophe: Quick Response Res. Wake Hurricane Katrina*.
- Nunnally, J. C. (1979). Psychometric Theory: Second Edition. *Applied Psychological Measurement*.
- Orth, M., & Volmer, J. (2017). Daily within-person effects of job autonomy and work engagement on innovative behaviour: The cross-level moderating role of creative self-efficacy. *European Journal of Work and Organizational Psychology*, 26(4), 601–612.  
<https://doi.org/10.1080/1359432X.2017.1332042>



- Örtqvist, D., & Wincent, J. (2006). Prominent consequences of role stress: A meta-analytic review. In *International Journal of Stress Management*. <https://doi.org/10.1037/1072-5245.13.4.399>
- Ouchi, W. G., & Price, R. L. (1978). Hierarchies, clans, and theory Z: A new perspective on organization development. *Organizational Dynamics*. [https://doi.org/10.1016/0090-2616\(78\)90036-0](https://doi.org/10.1016/0090-2616(78)90036-0)
- Özarallı, N. (2015). Linking Empowering Leader to Creativity: The Moderating Role of Psychological (Felt) Empowerment. *Procedia - Social and Behavioral Sciences*, 181, 366–376. <https://doi.org/10.1016/j.sbspro.2015.04.899>
- Pearce, C. L., & Sims, H. P. (2002). Vertical versus shared leadership as predictors of the effectiveness of change management teams: An examination of aversive, directive, transactional, transformational, and empowering leader behaviors. *Group Dynamics*, 6(2), 172–197. <https://doi.org/10.1037/1089-2699.6.2.172>
- Pearce, C. L., Sims, H. P., Cox, J. F., Ball, G., Schnell, E., Smith, K. A., & Trevino, L. (2003). Transactors, transformers and beyond: A multi-method development of a theoretical typology of leadership. *Journal of Management Development*. <https://doi.org/10.1108/02621710310467587>
- Perry, R. W. (2004). The Relationship of Affective Organizational Commitment with Supervisory Trust. *Review of Public Personnel Administration*, 24(2), 133–149. <https://doi.org/10.1177/0734371X03262452>

- Pettersen, K. A., & Schulman, P. R. (2019). Drift, adaptation, resilience and reliability: Toward an empirical clarification. *Safety Science, 117*, 460–468.  
<https://doi.org/10.1016/j.ssci.2016.03.004>
- Petty, M. M., & Bruning, N. S. (1980). A Comparison of the Relationships Between Subordinates' Perceptions of Supervisory Behavior and Measures of Subordinates' Job Satisfaction for Male and Female Leaders. *Academy of Management Journal*.  
<https://doi.org/10.2307/255558>
- Phaneuf, J. É., Boudrias, J. S., Rousseau, V., & Brunelle, É. (2016). Personality and transformational leadership: The moderating effect of organizational context. *Personality and Individual Differences*. <https://doi.org/10.1016/j.paid.2016.06.052>
- Pindek, S., & Spector, P. E. (2016). Organizational constraints: a meta-analysis of a major stressor. *Work and Stress*. <https://doi.org/10.1080/02678373.2015.1137376>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*(4), 717–731. <https://doi.org/10.3758/BF03206553>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1),

185–227. <https://doi.org/10.1080/00273170701341316>

Preuss, G. A., & Lautsch, B. A. (2002). The effect of formal versus informal job security on employee involvement programs. *Relations Industrielles*, 57(3), 517–541.

<https://doi.org/10.7202/006888ar>

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85(4), 612–624. <https://doi.org/10.1037/0021-9010.85.4.612>

Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Hedge, J. W., & Borman, W. C. (2002).

Predicting adaptive performance: Further tests of a model of adaptability. *Human Performance*, 15(4), 299–323. [https://doi.org/10.1207/S15327043HUP1504\\_01](https://doi.org/10.1207/S15327043HUP1504_01)

Qiu, Y., Wang, D., & Chen, J. H. (2018a). The impact of organizational empowering leadership behavior on individual adaptive performance: Cross-level mediation effect of organizational psychological empowerment. *International Conference on Management Science and Engineering - Annual Conference Proceedings, 2017-Augus*, 59–64.

<https://doi.org/10.1109/ICMSE.2017.8574470>

Qiu, Y., Wang, D., & Chen, J. H. (2018b). The impact of organizational empowering leadership behavior on individual adaptive performance: Cross-level mediation effect of organizational psychological empowerment. *International Conference on Management Science and Engineering - Annual Conference Proceedings, 2017-August*, 59–64.

<https://doi.org/10.1109/ICMSE.2017.8574470>

- Quarantelli, E. L. (1988). DISASTER CRISIS MANAGEMENT: A SUMMARY OF RESEARCH FINDINGS. *Journal of Management Studies*. <https://doi.org/10.1111/j.1467-6486.1988.tb00043.x>
- Qureshi, M. I., Iftikhar, M., Abbas, S. G., Hassan, U., Khan, K., & Zaman, K. (2013). Relationship between job stress, workload, environment and employees turnover intentions: What we know, what should we know. *World Applied Sciences Journal*. <https://doi.org/10.5829/idosi.wasj.2013.23.06.313>
- Rhodes, D. (2006). Katrina: "Brotherhood VS. Bureaucracy." *Fire Engineering*, 159(5), 71–78.
- Ro, H., & Chen, P. J. (2011). Empowerment in hospitality organizations: Customer orientation and organizational support. *International Journal of Hospitality Management*, 30(2), 422–428. <https://doi.org/10.1016/j.ijhm.2010.09.003>
- Rousseau, V., & Aubé, C. (2020). *Disentangling the relationship between empowering leader behaviors and adaptive performance in work teams*. *Group Processes and Intergroup Relations*. <https://doi.org/10.1177/1368430219854801>
- Russell, E., Broomé, R., & Prince, R. (2016). Discovering the Servant in Fire and Emergency Services Leaders. *Servant Leadership: Theory & Practice*, 2(2), 4.
- Saifullah, N., Alam, M., Zafar, M. W., & Humayon, A. A. (2015). Job Satisfaction: A Contest Between Human And Organizational Behavior. *International Journal of Economics and Research - IJER*, 6, 45–51.
- Santos, J. R. A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of*

*Extension*, 37(2), 88–92.

Schaufeli, W. B., & Peeters, M. C. W. (2000). Job Stress and Burnout among Correctional Officers: A Literature Review. *International Journal of Stress Management*.

<https://doi.org/10.1023/A:1009514731657>

Seibert, S. E., Wang, G., & Courtright, S. H. (2011). Antecedents and Consequences of Psychological and Team Empowerment in Organizations: A Meta-Analytic Review. *Journal of Applied Psychology*, 96(5), 981–1003. <https://doi.org/10.1037/a0022676>

Sempane, M. E., Rieger, H. S., & Roodt, G. (2002). Job Satisfaction In Relation To Organisational Culture. *SA Journal of Industrial Psychology*, 28(2), 23–30.

<https://doi.org/10.4102/sajip.v28i2.49>

Senjo, S. R. (2011). Dangerous fatigue conditions: A study of police work and law enforcement administration. *Police Practice and Research*.

<https://doi.org/10.1080/15614263.2010.497659>

Shafritz, J. (2015). Introducing Public Administration. In *Introducing Public Administration*.

<https://doi.org/10.4324/9781315663876>

Shoss, M. K., Witt, L. A., & Vera, D. (2012). When does adaptive performance lead to higher task performance? *Journal of Organizational Behavior*, 33(7), 910–924.

<https://doi.org/10.1002/job.780>

Simonoff, J., Efron, B., Tibshirani, R., & Hjorth, J. S. U. (1994). An Introduction to the

Bootstrap. In *Journal of the American Statistical Association* (Vol. 89, Issue 428). CRC

Press. <https://doi.org/10.2307/2291020>

Skinner, N., & Pocock, B. (2008). Work-life conflict: Is work time or work overload more important? *Asia Pacific Journal of Human Resources*.

<https://doi.org/10.1177/1038411108095761>.

Smeby, L. C. (2014). *Fire and emergency services administration: Management and leadership practices* (2nd ed.). Jones & Bartlett Publishers.

Sneddon, A., Mearns, K., & Flin, R. (2013). Stress, fatigue, situation awareness and safety in offshore drilling crews. *Safety Science*, 56, 80–88. <https://doi.org/10.1016/j.ssci.2012.05.027>

Spence Laschinger, H. K., Gilbert, S., Smith, L. M., & Leslie, K. (2010). Towards a comprehensive theory of nurse/patient empowerment: Applying Kanter's empowerment theory to patient care. *Journal of Nursing Management*, 18(1), 4–13.

<https://doi.org/10.1111/j.1365-2834.2009.01046.x>

Spreitzer, G. M. (1996). Social structural characteristics of psychological empowerment.

*Academy of Management Journal*, 39(2), 483–504. <https://doi.org/10.2307/256789>

Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management

teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49(6), 1239–1251. <https://doi.org/10.5465/AMJ.2006.23478718>

Stetzer, A., & Hofmann, D. A. (1996). Risk compensation: Implications for safety interventions.

*Organizational Behavior and Human Decision Processes*.

<https://doi.org/10.1006/obhd.1996.0039>

- Steyrer, J., Schiffinger, M., & Lang, R. (2008). Organizational commitment-A missing link between leadership behavior and organizational performance? *Scandinavian Journal of Management*, 24(4), 364–374. <https://doi.org/10.1016/j.scaman.2008.04.002>
- Sweeney, P. J. (2010). Do soldiers reevaluate trust in their leaders prior to combat operations? *Military Psychology*, 22(SUPPL. 1), S70–S88. <https://doi.org/10.1080/08995601003644312>
- Tabiu, A., Pangil, F., & Othman, S. Z. (2020). Does Training, Job Autonomy and Career Planning Predict Employees' Adaptive Performance? *Global Business Review*, 21(3), 713–724. <https://doi.org/10.1177/0972150918779159>
- Tansky, J. W., & Cohen, D. J. (2001). The relationship between organizational support, employee development, and organizational commitment: An empirical study. *Human Resource Development Quarterly*, 12(3), 285–300. <https://doi.org/10.1002/hrdq.15>
- Tay, L., & Jebb, A. T. (2018). Establishing Construct Continua in Construct Validation: The Process of Continuum Specification. *Advances in Methods and Practices in Psychological Science*. <https://doi.org/10.1177/2515245918775707>
- Tharenou, P., Saks, A. M., & Moore, C. (2007). A review and critique of research on training and organizational-level outcomes. *Human Resource Management Review*, 17(3), 251–273. <https://doi.org/10.1016/j.hrmmr.2007.07.004>
- Thomas, A. B. (1988). Does Leadership Make a Difference to Organizational Performance? *Administrative Science Quarterly*. <https://doi.org/10.2307/2392715>
- Truss, C., Gratton, L., Hope-Hailey, V., MCGovern, P., & Stiles, P. (1997). Soft and hard models

of human resource management: A reappraisal. *Journal of Management Studies*.

<https://doi.org/10.1111/1467-6486.00042>

Tuuli, M. M., & Rowlinson, S. (2007). Empowering project teams : toward an integrative conceptualization of empowerment. *Proceedings of the 4th International Conference on Construction in the 21st Century (CITC-IV)*, 240–247.

[https://repository.lboro.ac.uk/articles/Empowering\\_project\\_teams\\_toward\\_an\\_integrative\\_conceptualization\\_of\\_empowerment/9425870](https://repository.lboro.ac.uk/articles/Empowering_project_teams_toward_an_integrative_conceptualization_of_empowerment/9425870)

Van Der Post, W. Z., De Coning, T. J., & Smit, E. V. D. M. (1997). An instrument to measure organizational culture. *South African Journal of Business Management*, 28(4), 147–168.

<https://doi.org/10.4102/sajbm.v28i4.800>

van Dijke, M., De Cremer, D., Mayer, D. M., & Van Quaquebeke, N. (2012). When does procedural fairness promote organizational citizenship behavior? Integrating empowering leadership types in relational justice models. *Organizational Behavior and Human Decision Processes*, 117(2), 235–248. <https://doi.org/10.1016/j.obhdp.2011.10.006>

Van Wart, M. (2014). Dynamics of leadership in public service: Theory and practice. In *Dynamics of Leadership in Public Service: Theory and Practice*. M. E. Sharp.

<https://doi.org/10.4324/9781315705071>

Vecchio, R. P., Justin, J. E., & Pearce, C. L. (2010). Empowering leadership: An examination of mediating mechanisms within a hierarchical structure. *Leadership Quarterly*, 21(3), 530–542. <https://doi.org/10.1016/j.leaqua.2010.03.014>



- Vila, B. (2006). Impact of long work hours on police officers and the communities they serve. *American Journal of Industrial Medicine*. <https://doi.org/10.1002/ajim.20333>
- Waldman, D. A., & Yammarino, F. J. (1999). CEO charismatic leadership: Levels-of-management and levels-of-analysis effects. *Academy of Management Review*, *24*(2), 266–285. <https://doi.org/10.5465/AMR.1999.1893936>
- Wall, T. D., Cordery, J. L., & Clegg, C. W. (2002). Empowerment, Performance, and Operational Uncertainty: A Theoretical Integration. *Applied Psychology*, *51*(1), 146–169. <https://doi.org/10.1111/1464-0597.00083>
- Wankhade, P., Patnaik, S., Wankhade, P., & Patnaik, S. (2020). Conclusion: Collaboration and Governance: It’s Very Much About ‘Process’ and ‘People’! In *Collaboration and Governance in the Emergency Services* (pp. 127–141). Springer International Publishing. [https://doi.org/10.1007/978-3-030-21329-9\\_7](https://doi.org/10.1007/978-3-030-21329-9_7)
- Wayne, S. J., Shore, L. M., & Liden, R. C. (1997). Perceived Organizational Support And Leader-Member Exchange: A Social Exchange Perspective. *Academy of Management Journal*, *40*(1), 82–111. <https://doi.org/10.5465/257021>
- Weber, M. (1947). *The Theory of Social and Economic Organization*, translated by A. M. Henderson and Talcott Parsons. *AM Henderson and Talcott Parsons (New York, 1947)*.
- Weber, M. (1968). *Economy and Society (1922)*. Ed. Guenther Roth and Klaus Wittich. *New York: Bedminster P.*
- Weijters, B., Baumgartner, H., & Schillewaert, N. (2013). Reversed item bias: An integrative

- model. *Psychological Methods*, 18(3), 320–334. <https://doi.org/10.1037/a0032121>
- Wenger, D., Quarantelli, E. L., & Dynes, R. (1990). Is the ICS a plan for all seasons and emergency situations. *Hazard Monthly*, 10(10), 8–9, 12.
- Williamson, M. G. (2008). The effects of expanding employee decision making on contributions to firm value in an informal reward environment. *Contemporary Accounting Research*, 25(4), 1183–1209. <https://doi.org/10.1506/car.25.4.9>
- Wise, C. R., & Freitag, C. M. (2002). Balancing Accountability and Risk in Program Implementation: The Case of National Fire Policy. *Journal of Public Administration Research and Theory*, 12(4), 493–523. <https://doi.org/10.1093/oxfordjournals.jpart.a003545>
- Wong, C. A., & Laschinger, H. K. S. (2013). Authentic leadership, performance, and job satisfaction: The mediating role of empowerment. *Journal of Advanced Nursing*, 69(4), 947–959. <https://doi.org/10.1111/j.1365-2648.2012.06089.x>
- Wong, K. C. K., & Chan, A. K. K. (2020). Work antecedents, psychological strain and safety behaviours among Chinese hotel employees. *Safety Science*, 129. <https://doi.org/10.1016/j.ssci.2020.104825>
- Wright, B. E., & Kim, S. (2004). Participation's Influence on Job Satisfaction: The Importance of Job Characteristics. *Review of Public Personnel Administration*, 24(1), 18–40. <https://doi.org/10.1177/0734371X03259860>
- Yukl, G., & Mahsud, R. (2010). Why flexible and adaptive leadership is essential. *Consulting Psychology Journal*, 62(2), 81–93. <https://doi.org/10.1037/a0019835>

- Zeytinoglu, I. U., Denton, M., Davies, S., Baumann, A., Blythe, J., & Boos, L. (2007). Associations between work intensification, stress and job satisfaction: The case of nurses in Ontario. *Relations Industrielles*, 62(2), 201–225. <https://doi.org/10.7202/016086ar>
- Zhang, P., & Gheibi, S. (2015). THE IMPACT OF EMPOWERING LEADERSHIP ON WORK PERFORMANCE AND WORK FAMILY CONFLICT: THE ROLE OF GENDER. *European Scientific Journal*.
- Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1), 107–128. <https://doi.org/10.5465/amj.2010.48037118>
- Zhang, Y., & Chen, C. C. (2013). Developmental leadership and organizational citizenship behavior: Mediating effects of self-determination, supervisor identification, and organizational identification. *Leadership Quarterly*, 24(4), 534–543. <https://doi.org/10.1016/j.leaqua.2013.03.007>
- Zhong, L., Wayne, S. J., & Liden, R. C. (2016). Job engagement, perceived organizational support, high-performance human resource practices, and cultural value orientations: A cross-level investigation. *Journal of Organizational Behavior*, 37(6), 823–844. <https://doi.org/10.1002/job.2076>

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