

Exploring the complexities of crafting new normality through collaborative situated resilience practices between high-containment laboratories and communities

by

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A.A., Texarkana College, 2010

B.B.A., Texas A&M University-Texarkana, 2012

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AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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Leadership Communication

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Abstract

This dissertation develops Resilience-as-Practice (RAP) as a theoretical and analytical framework for understanding how resilience is co-constructed between high-containment laboratories and community stakeholders. Situated within a processual ontology and grounded in Leadership-as-Practice, the Communicative Theory of Resilience, and the Communicative Constitution of Organizations, RAP conceptualizes resilience as a socio-material, communicative accomplishment emergent through everyday organizing. Central to this framework is the concept of the resilience episode, defined as a situated, empirical unit of analysis that marks a trajectory shift toward a collaboratively produced “new normal.”

Using a single instrumental case study of the National Bio-Agro Defense Facility in Manhattan, Kansas, this research examines how resilience practices are enacted in situ through communicative and material resources. Guided by phronetic iterative qualitative data analysis, the study draws on interviews and field observations to answer two research questions: (1) How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust? and (2) What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

Findings identify five enabling practices, organizing around experiential engagement, strategic facilitation, calibrated transparency, priority convergence, and diverse communication, and five constraining factors, including limited resources, operational constraints, language intimidation, conflicting matters of concern, and lingering fears and rumors. The study contributes to resilience and leadership scholarship by offering a practice-based ontology of resilience, emphasizing hybrid agency and emergent organizing.

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Using a single instrumental case study of the National Bio-Agro Defense Facility in Manhattan, Kansas, this research examines how resilience practices are enacted in situ through communicative and material resources. Guided by phronetic iterative qualitative data analysis, the study draws on interviews, participant observation, and field documents to answer two research questions: (1) How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust? and (2) What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

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Dedication

To the change agents within every community, those who rise each day, weary yet unwavering, often unseen yet deeply impactful. Your commitment to making your communities better was a constant reminder of why this work truly matters. Remember, “But as for you, be strong and do not give up, for your work will be rewarded.” -2 Chronicles 15:7

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Chapter 1 - Introduction

Setting the Scene

Our world is changing at a rapid pace. We are overwhelmed with more information than ever before. News spreads instantly, opinions are shared immediately, and platforms provide voices with extensive reach. While the digital age grants us access to enormous amounts of knowledge, it also introduces key leadership challenges, including misinformation, distrust, and rumors. Organizations must be willing to face these challenges and setbacks by continually working to build and maintain trust, goodwill, and resilience within their communities. Success depends on keeping a responsive and collaborative relationship with the external environment. Many organizations rely on getting the community's approval and support to operate effectively (Zhang & Muturi, 2021). This means that building and maintaining trust and goodwill within a community is no longer optional. Producing collective resilience becomes an ongoing, intentional effort, sustained through dynamic collaboration between organizations and the communities they serve. In other words, without ongoing support from community members, the organization's goals are at risk, and a lack of backing could lead to public or community backlash (Tost, 2011). For high-containment laboratories, collaboration must be prioritized because it is vital for ensuring long-term operational success and gaining strong community support.

Community support is a key factor in evaluating both the success and public opinion of high-containment facilities. Past events, such as the Fukushima nuclear disaster in Japan and the Three Mile Island accident in the United States, have shown the potential risks these facilities can pose. They also raise important questions about how such sites coexist with nearby populations and earn the trust and cooperation of local communities (Heath & Lee, 2015; Kingston, 2012). Communities frequently acknowledge the necessity for high-risk facilities, yet

they resist the operation of such facilities within their own community, leading to a phenomenon referred to as NIMBY (Not in My Backyard; Aoki, 2017; Jenkins-Smith et al., 2010). Still, high-risk facilities are often located near communities, which requires building and maintaining trust and goodwill with residents who would be most affected in the event of a disaster (Zhang & Muturi, 2021).

The National Bio-Agro Defense Facility (NBAF) represents a high-risk federal installation actively engaged in building and sustaining community trust and goodwill. NBAF is operated by the U.S. Department of Agriculture (USDA), located in Manhattan, Kansas, and is responsible for helping "protect the nation's agriculture, farmers, and citizens against the threat and potential impact of serious animal diseases" (USDA-NBAF, 2023, para. 1). As the United States' only large-animal biosafety level 4 (BSL-4) facility, NBAF is uniquely equipped to study foreign and zoonotic diseases that pose risks to both animal and human populations. Once fully operational, NBAF will replace the aging Plum Island Animal Disease Center (PIADC) in New York. Unlike PIADC, NBAF is authorized to research these high-consequence transboundary zoonotic diseases, marking a significant expansion in the nation's bio-defense capabilities (Bouri, 2009).

Currently, the USDA's Agricultural Research Service (ARS) and Animal and Plant Health Inspection Service (APHIS) conduct research, training, and diagnostics for foreign animal diseases at Plum Island. Once NBAF is fully up and running, ARS and APHIS will work together to manage its operations. They will transition their current programs to the new facility (USDA-NBAF, 2023). NBAF will also bring in key components from PIADC, including the Foreign Animal Disease Diagnostic Laboratory (FADDL) and the Foreign Animal Disease Research Unit (FADRU). For context, FADDL provides expertise in disease prevention,

surveillance, diagnostics, and response, and plays a vital role in managing two national vaccine banks. FADRU, along with two newly established USDA units, the Foreign Arthropod-Borne Animal Disease Research Unit (FABADRU) and the Zoonotic and Emerging Disease Research Unit (ZEDRU), will advance research and develop countermeasures targeting high-risk animal diseases with the potential to disrupt both public health and the economy. When fully staffed, the NBAF is expected to employ more than 400 personnel dedicated to protecting the country's livestock and agricultural sectors. These sectors generate approximately \$1.1 trillion in yearly economic activity and are responsible for about 10 percent of all U.S. jobs (USDA-NBAF, 2023). The significant public health and economic risks posed by zoonotic outbreaks call attention to the critical need for state-of-the-art research facilities like NBAF.

Why it Matters

Institutions like the NBAF play a vital role in equipping the United States and the global community to prevent and respond effectively to outbreaks of high-consequence animal diseases. In an interconnected agricultural and biosafety landscape, their role in mitigating risks and safeguarding public health is vital, but such facilities often spark controversy. Pendell et al. (2015) note that risks associated with high-security labs can raise public concerns, especially in nearby communities. Binder et al. (2010) stress that these concerns often revolve around the perceived tradeoffs between economic gains and potential risks. These tensions underscore the importance of transparent and inclusive engagement in winning community support and navigating the complex balance of risk and benefit that high-risk facilities present. Completed in 2023, NBAF now functions as a strategic national security facility in Manhattan, Kansas. This distinction comes after 17 years of site selection, design, construction, and commissioning (S&T Public Affairs, 2024). While the debate of the facility's location has long been resolved, NBAF

leadership remains committed to addressing ongoing challenges in building resilience through meaningful community engagement.

NBAF's communication team, consisting of just three individuals, leads all external outreach efforts, including news dissemination and stakeholder engagement. Their work focuses on two main goals: building trust among community members and stakeholders, and fighting misinformation, including potential foreign disinformation. Because NBAF is high-risk and has a complex mission, this is a significant challenge. Team members are continually working to build trust and goodwill in a climate marked by public skepticism and information gaps. This task is made more difficult by the technical nature of NBAF's work, potential biosafety concerns, and the constraints of working with a small staff.

It is essential to note that the political landscape surrounding federal agencies has undergone significant changes during the course of this research. When initial data collection began, NBAF operated under a different set of policy priorities and institutional conditions. Since then, transitions in presidential leadership have brought new administrative approaches, including funding uncertainties and federal hiring freezes that impact high-security research facilities. These changes have impacted both the internal dynamics and external pressures facing agencies like NBAF. Making things more difficult to keep continuity, transparency, and resilience in the face of ongoing adaptive challenges, the changing environment has created natural tension between previous operational norms and new government practices.

However, these evolving dynamics provide a strong basis for understanding how high-containment labs and nearby communities can collaborate effectively to address shared adaptive challenges. Expanding our understanding of how resilience is built at NBAF, especially their efforts to combat misinformation and distrust, goes beyond these specific adaptive challenges or

the facility itself. This research helps build a wider societal capacity to address complex and adaptive challenges, providing insights to guide resilience efforts in different settings. Adaptive challenges, such as climate change, global pandemics, and disruptions to food systems, demand innovative, flexible, and collaborative responses. These challenges are resistant to resolution through traditional problem-solving methods and cannot be solved by technical expertise alone. As Heifetz et al. (2009) explain, adaptive challenges are defined by their complexity and unwillingness to be solved through expertise and knowledge. Today's communities face adaptive challenges that are among the most complex and difficult, often requiring new learning and innovative ways of thinking to construct solutions that come from both individuals and the collective (Heifetz & Laurie, 2001; Uhl-Bien et al., 2007). The ability to understand and create spaces for co-action to facilitate change is needed as our communities and global society seek ways to overcome these wicked problems.

This research project seeks to expand our understanding of how organizations and communities can enhance their collective capacity to produce and foster resilience. Persistent challenges such as misinformation, organizational and political distrust, fear, and knowledge gaps among community members continue to confront organizations in their daily efforts to build trust and foster goodwill with stakeholders and the broader public. More than just technical expertise is required to address these challenges. It demands collaborative communication efforts that foster and produce resilience practice(s).

Establishing a foundation for understanding resilience as a collectively created phenomenon that develops through our daily interactions is crucial for navigating this complex landscape. This study deliberately situates itself within the broader research on leadership and resilience, engaging with both traditions to examine their intersection and the contributions of

this research. In the following literature review, I outline a pathway that combines leadership theories with a relational view of resilience, thereby creating a theoretical framework for exploring resilience as a lived and enacted practice. This framework, which I call “Resilience Episodes,” provides an analytical perspective for examining the study’s data and recognizing patterns of Resilience-as-Practice (RAP). By adopting a practice perspective, we expand our societal capacity to understand and respond to adaptive challenges in more generative, inclusive, and meaningful ways.

Summary

In summary, NBAF demonstrates the complex relationship between high-risk facilities and the co-creation of resilience with the communities they serve. Ongoing challenges, such as misinformation, political instability, and public skepticism, show that resilience in these contexts is a dynamic, co-constructed process rather than a fixed trait. Framing resilience as an emerging outcome of ongoing collaboration and open engagement, this research presents NBAF as a case study that offers valuable insights into how organizations and communities can work together to address complex, adaptive challenges.

Chapter 2 - Literature Review

Moving Beyond ‘The Leader’ to View Leadership

The Leader-Centric Approach

My goal with this section is not to provide a complete account of all existing theories of leadership and their relation to LAP. Instead, I begin the task of distinction by exploring leadership from a leader-centered ontology, focusing “on the traits, styles, actions, and competencies of the individuals” (Denyer & James, 2016, p. 262). From this vantage point, we can observe the divergence of LAP. To effectively compare leader-centric models and LAP, I will examine them from the perspective of their primary focus and their underlying assumptions regarding the leadership phenomenon, or what we refer to as their unit of analysis (Takoeva, 2021). Crevani and Endrissat (2016) define the unit of analysis from a leadership perspective as “what is studied and focused on to produce knowledge about leadership” (p. 21). This paper also agrees with Crevani and Endrissat’s (2016) apprehension of using a unit of analysis due to its non-relational assumptions “that such a unit can be singled out and studied separately,” which the authors do not advocate (p. 24). Nevertheless, it offers a foundational and consistent method for comparing the two viewpoints, particularly for those unfamiliar with relational perspectives.

I use the term leader-centric to refer to a spectrum of leadership theories and models that focus on leaders' qualities, behaviors, and actions as the primary unit of analysis for maximizing the potential of followers (Denyer & James, 2016; Takoeva, 2021). This spectrum encompasses theories and models such as the leadership trait approach, stemming from the 'great man' theories of the 19th century (Raelin, 2023), leadership behaviors and styles, which focus on what leaders do and how they behave in different settings (Rost, 1991), and charismatic and transformational leadership, which emphasize the significance of leader-follower relationships (Conger, 1999).

The above list of theories and models does not represent an exhaustive list of leader-centered perspectives. However, it does provide a mixture of models and theories that ultimately situate the unit of analysis on the individual. From this perspective, leadership is seen as an individual's activity, usually someone in a managerial role. Moreover, many of these leader-centered approaches to leadership are rooted in the concept of individual competencies that continue to influence the field of leadership and leadership development (Bolden & Gosling, 2006; Denyer & James, 2016).

Carroll et al. (2008) refer to this prevalent way of thinking about leadership as the competency paradigm. Boyatzis (1982) defines competency as “an underlying characteristic of an individual that is causally related to effective or superior performance in a job” (p. 21). Competencies are rooted in objectivism; they can be quantified and measured, remain unattached to relationships and context, and remain grounded in the individual (Carroll et al., 2008). For example, charismatic leadership theory seeks to understand how leaders can motivate their followers by transforming the nature of their work “by making it appear more heroic, morally correct, and meaningful” by foregrounding the intrinsic side of their work over the extrinsic rewards (Conger, 1999, p. 155). While charismatic leadership theory acknowledges a relationship between leaders and followers, it still centers on a leader-focused ontology that emphasizes the attributes and behaviors (competencies) a leader must possess to effectively inspire followers toward achieving a specific objective. Indeed, typical studies on leader-centric approaches focus on understanding the competencies most effectively influencing followers to achieve higher performance or which leadership style is best suited for a specific scenario.

However, the competency paradigm has significant limitations. Bolden and Gosling (2006) critique the pervasive idea of relying on competencies in leadership by stating that “the

image of leadership conveyed in many competency frameworks could almost lead us to believe that leaders might exist in splendid isolation, with no need for meaningful relationships with others” (p. 158). By centering our analysis on an individual, such as a manager, these leader-focused approaches overlook the connection between relational and contextual factors and their mediating role in the effectiveness of leadership outcomes (Takoeva, 2021). The discrepancy between leader-centric approaches and agentic roles of relational and contextual factors highlights the fundamental difference from LAP, as the basic premises of leader-centric ontology are inherently entitative, allowing individual actors to function independently and separate from the world in which they operate (Crevani & Endrissat, 2016). Research from an entitative perspective, which centers on the individual, limits the type of questions we ask about leadership due to its failure to account for the role of relational and contextual elements in leadership production. Conversely, LAP emphasizes the relational and contextual aspects, concentrating on the processes through which leadership work occurs. In other words, how is leadership produced within the context of group dynamics and patterns of actions that are influenced by both human and non-human actors (Kempster et al., 2016; Raelin, 2011, 2016)?

Leadership-As-Practice: A Perspective of Organizing Direction

Leadership-as-practice derives from the practice turn in organization and social theory (Crevani & Endrissat, 2016; Schatzki et al., 2001). Interestingly, the origins of this perspective can be traced back to American pragmatism, with John Dewey standing out as one of its most prominent advocates (Simpson & den Hond, 2021). From a philosophical standpoint, Theodore Schatzki states that “practice approaches promulgate a distinct social ontology: the social is a field of embodied, materially interwoven practices centrally organized around shared practical understanding” (Schatzki, 2001, p. 3). Accordingly, “the underlying idea of practice theory is

that social life is an ongoing creation born out of people's day-to-day actions" (Smith, 2024, p. 5). Carroll et al. (2008) describe LAP as a practice approach to leadership opposite the competency paradigm. Practice, instead, dismisses objectivism in favor of constructionist epistemology in which "meaning is not discovered, but constructed" (Crotty, 1998, p. 9), thus denying the notion that leadership can be detached from relationships and context (Carroll et al., 2008). Furthermore, LAP situates itself in a processual ontology that "posits that the world is in constant movement, defined by continuous change rather than stability" (Sergi, 2016, p. 114), with more implications to be discussed later. Regardless, these meta-theoretical commitments mean that LAP does not focus on people's traits, competencies, and behaviors to find leadership; instead, it looks for leadership in everyday practices, in the spaces between people, and in emergent dynamic social intra-actions (Raelin, 2011, 2019). Raelin (2023) states that:

LAP is an approach to leadership that occurs when unfolding social processes change the trajectory of the flow of practices among parties to an activity or change the turning points in the spaces between these participants. Its social nature points to a social construction occurring within the company of others. (p. 19)

LAP requires no designated roles, such as leader-follower. The intersubjective construction of meaning arises through social interaction and knowledge emanating from our social reality. Accordingly, from this perspective, practice becomes the fundamental unit of social analysis, not just a description of people's actions but a collection of activities that have "meaning-making, identity-forming, and order-producing characteristics" (Raelin & Robinson, 2022, p. 3). Crevani and Endrissat (2016) elaborate on this by pointing out that the co-constructed nature of practice occurring in specific contexts can no longer have a single unit of analysis like we can with a leader-centric ontology, "but bundles of related actions or 'the work

of leadership’ as it takes form in patterns of action and interactions” (p. 31). More importantly, LAP distinguishes itself from other leadership perspectives because it “is concerned far more about where, how and why leadership work is being organized and accomplished than about who is offering visions for others to do the work” (Raelin, 2011, pp. 195–196).

Leadership production situated within a processual ontology of unfolding social processes is not solely affected by individuals and their interactions. These leadership practices are not abstract or isolated but embedded in the specific situations and intra-actions of the participants and their material artifacts, which all influence the intended outcomes (Raelin, 2023). With a practice approach to leadership, “leadership is thus not necessarily what leaders do. Rather, it is the practical collective accomplishment of direction in organizing that is in focus” (Crevani & Lammi, 2023, p. 16, *italics added*). Thus, I operationalize leadership as a socio-spatial process of organizing in accomplishing direction (Alvehus & Crevani, 2022; Crevani & Lammi, 2023; Uhl-Bien, 2006).

This dissertation adheres to the domain-specific theories of practice as it is situated within the LAP perspective. From the leadership perspective, practice sits within a process ontology. However, there are varying degrees to the process perspective and how it is utilized to explore specific questions relating to leadership phenomena (Cunliffe & Hibbert, 2016). This dissertation takes the perspective of a strong process ontology (Crevani, 2018; Crevani & Endrissat, 2016; Uhl-Bien, 2006). A strong process ontology emphasizes relational processes through trans-actions in which people and the world are in a state of continuous becoming (Crevani & Endrissat, 2016; Simpson, 2016) “such that practice is interwoven between people in which meanings, actions, and interpretations shift in and through time and across relationships” (Raelin, 2016, p. 3). The concepts of interwovenness and trans-action are essential because

leadership from the LAP perspective cannot be separated from the context in which it emerges. Raelin (2019) asserts that context is “shaped by time and space,” where past experiences are often brought into the present moment as historical resources to anticipate potential future deviations (p. 495). This ongoing process of context shaping creates a dynamic environment that is continuously (re)organizing, thereby constantly reconfiguring the relationships between actors and forms of organizing over time (Crevani, 2018).

This dissertation emphasizes the importance of adopting a ‘strong’ processual perspective that considers the phenomena under study as a continually evolving form of organizing (Sergi, 2016). Operating within a strong process ontology has significant implications for how we perceive LAP's relational and contextual elements (and later resilience) and its subsequent impact on organizing practices. Thus, a process ontology directs our focus on action and how leadership evolves over time and within a specific context. (Chia, 1997; Hernes, 2007; Sergi, 2016).

To study leadership in such a dynamic environment, practice from a leadership perspective has specific attributes that help us make sense of practice occurring in a world of constant evolution and change. Raelin (2019) states that “a practice is a coordinated effort among participants who choose their own rules to achieve a distinctive outcome” (p. 480-481). So, to study leadership from a practice perspective, one must locate the change in trajectory within the flow of practice as it produces meaningful direction toward a distinctive outcome (Raelin, 2019). Raelin’s (2019) statement demonstrates how a practice from the leadership perspective is made up of choice points, where actors’ agency influences ongoing organizing practices, creating turning moments that change the trajectory of current processes. These trajectory changes can thus be used as signal points to explore the emergence of leadership *in situ*. From this specific

domain perspective of practice, researchers can separate leadership from the entity and locate it at the intersection of departure from ongoing daily practices to accomplishing a new direction situated within socio-spatial organizing efforts (Carroll et al., 2008; Raelin, 2011; Raelin & Robinson, 2022). In this same sense, my theoretical framework will operationalize resilience episodes by establishing the same theoretical moves and progress made within the LAP perspective. To accomplish this feat, a deeper look into how some LAP researchers operationalize leadership episodes will be helpful.

To identify leadership in practice, researchers examine moments of trajectory change within the practice flow, pinpointing where leadership has occurred (Raelin & Robinson, 2022). Researchers can thus find leadership in day-to-day activities where the “material-discursive processes emergent from multiple actors at times produce a change in the trajectory of the flow of practices” (Raelin, 2019, p. 481) in what can be called a leadership episode (Takoeva, 2021). Takoeva (2021) stated that leadership episodes arose when she observed: “when agents involved address the tensions around them and naturally start in the flow of pluralized organizing practices by challenging the status quo or resolving conflict” (p. 111). Takoeva’s (2021) definition of a leadership episode demonstrates operationalizing leadership from the LAP perspective. Similarly, I will operationalize resilience episodes to accomplish how resilience can be studied from a practice theory perspective. Before making such a leap, it is necessary to briefly examine the resilience literature to comprehend how the Communicative Theory of Resilience (CTR) can serve as an initial step toward reaching our intended goal.

Summary

In summary, contrasting leader-centric approaches with Leadership-as-Practice reveals a fundamental shift in where, how, and why leadership is understood to occur. Leader-centric

perspectives locate leadership within the traits, competencies, and actions of individuals, often independent of relational or contextual influences. In contrast, LAP situates leadership within the unfolding flow of social processes, where meaning and direction emerge through dynamic, contextually embedded interactions among human and non-human actors. This shift from an entitative to a processual ontology not only reorients our analytical lens but also expands the kinds of questions we can ask about leadership. From this process-based, relational, and transactional standpoint, I now turn to examine how resilience can likewise be conceptualized and enacted as a practice.

Moving Towards a Practice Perspective of Resilience

Communicative Theory of Resilience: A Starting Point to Resilience as a Practice

Resilience as a theory has benefited from a rich history in fields like developmental psychology, behavioral science, and environmental sciences, to name a few (Aburn et al., 2016; Buzzanell, 2017). Ironically, resilience as an interest in these different fields has led to one unified theme, no universal definition of resilience. In an empirical literature review conducted by Aburn et al. (2016), one of the most significant findings the authors concluded was the lack of a unifying definition of resilience in the empirical research published this century. The lack of definitional unity allows researchers to operationalize the concept of resilience in different ways. I propose operationalizing resilience from a practice perspective, relying on a communicative definition of resilience that scholars use when exploring the Communication Theory of Resilience, which I will discuss in more detail later.

The adaptability of resilience to be used across disciplines allows researchers to examine it from different lenses. The reason for this may come from the fact that “resiliency inquiry did not emerge from an academic grounding in theory, but rather through the phenomenological

identification of characteristics of survivors, mostly young people, living in high-risk environments” (Richardson, 2002, p. 308). This developmental psychology perspective of resilience has undergone three waves of resiliency inquiry (Richardson, 2002).

The first wave is resilience qualities. Research on resilience qualities focuses on the individual characteristics of someone who demonstrates resilience in times of hardship versus those who succumb to setbacks (Richardson, 2002). This first wave of resilience inquiry is comparable to the leadership perspectives of the ‘Great Man’ theories and trait approaches associated with 19th-century leadership studies (Day & Zaccaro, 2007; Raelin, 2023). Analogous to these approaches in leadership study, resilience in the first wave of inquiry is viewed as an individual activity. The second wave pertains to the resiliency process in which individuals acquire desired resilience qualities by “coping with stressors, adversity, change, or opportunity in a way that leads to the identification, fortification, and enrichment of protective factors” (Richardson, 2002, p. 21). This second wave of resilience bears similarity to the competency paradigm in leadership studies discussed earlier in this paper. This second wave of resilience inquiry can be understood by considering how an individual may develop the essential skills and processes to effectively 'pull themselves up by their bootstraps.'

The third wave of resiliency inquiry described by Richardson (2002) is a multidisciplinary approach to resilience theory which embraces a variety of academic paradigms that highlight motivational forces and experiences of both individuals and groups that are working towards a new reality after experiencing a set-back or distribution in life, which Buzzanell (2010) uses as a starting point to talking about the communication theory of resilience (CTR). The third wave of resilience inquiry's openness to examining resilience through a relational and co-constructed lens, used in CTR scholarship, paves the way for the application of

practice theory, particularly the domain-specific leadership approach, as a foundational framework to investigate resilience in a new light. First, we need to understand how CTR works and how it provides insight into the production of resilience.

Resilience from a communicative perspective can offer us insight into how families can effectively cope with job loss (Turner, 2012) and how some organizations can thrive after external (e.g., Covid-19, hurricanes, terrorism), and internal events while others seem to crash (Vakilzadeh & Haase, 2020), and even how whole communities can cope with being in a war zone (Eshel & Kimhi, 2015). From a CTR perspective, resilience is defined as a constitutive act that is legislated through the communicative processes towards building new normalcies by leveraging relationships to create collective action through inter-connective stories and creative practice to not only help people “bounce back,” but potentially build a better world around their community (Buzzanell, 2017). CTR's definition of resilience delves more profound than the commonly used concept of a human's capacity to "bounce back" from challenging life events and adversities (Buzzanell, 2010, 2017; Vakilzadeh & Haase, 2020). The prevailing definition of resilience as the capacity to "bounce back" barely touches upon the profound impact that resilience has on our world. Digging into the CTR literature on the subject reveals that resilience is far more intricate and inspiring than merely the ability to recover from setbacks.

Unlike resiliency in fields like psychology, communication scholars conceptualize resiliency from a process perspective that unfolds over time through interactions to adapt and transform in response to a disruptive event(s) (Wilson et al., 2021). CTR persists that the “communicative theorizing on resilience does not reside in the individual. It is fundamentally grounded in messages, d/Discourse, and narrative” (Buzzanell, 2010). Once activated by

disruption, several processes can promote adaptive transformational possibilities (Buzzanell, 2017).

Human resilience occurs interactively within specific contexts, and the communicative processes outlined by CTR are not mutually exclusive; they often intertwine in complex ways (Betts et al., 2021; Buzzanell, 2010; Wilson et al., 2021). These five communication processes are: (a) craft normalcy, (b) affirm identity anchors, (c) maintain and use communication networks, (d) use alternative logic practices, and (e) bring forth positive emotions while repressing negative feelings (Buzzanell, 2010, 2017). Building on this foundation, Hintz et al. (2021) expanded the framework to include a sixth process: (f) critiquing and resisting the status quo.

- **Crafting Normalcy:** Crafting a sense of normalcy involves engaging in conversations, behaviors, and interactions that foster a feeling of normality, or a return to the state of normality that was present before a significant life event occurred (Wilson et al., 2021). Examples of this include discussing how situations are typical or emphasizing everyday achievements that contribute to a sense of normalcy (Wilson et al., 2021).
- **Identity Anchors:** Buzzanell (2010) defines identity anchors “as relatively enduring clusters of identity discourses upon which individuals and their familial, collegial, and/or community members rely on when explaining who they are for themselves and in relation to each other” (p. 4). By affirming identity anchors with others, individuals express what is most meaningful to them during challenging times (Buzzanell, 2017).
- **Maintaining and Using Communication Networks:** Communication networks serve to bolster and rely on network ties for necessary resources and support (Wilson et al., 2021). These networks are essential because they are used to build social capital (Lin, 2017).

Social capital can be “cashed in” during times of adversity to help overcome challenges (Buzzanell, 2010).

- **Constructing Alternative Logics:** Alternative logic provides a means to transcend traditional thought and action patterns, offering new methods to address life's disruptive challenges (Wilson et al., 2021). It frequently happens in paradoxical manners, like describing a life-threatening medical condition as a "blessing in disguise," or employing humor to downplay a tragedy.
- **Foregrounding Productive Action while Backgrounding Negative Feelings:** This communicative process truly embodies resilience. (Buzzanell, 2010). This approach entails a conscious emphasis on constructive action while recognizing that adverse situations may justifiably elicit anger and other potentially adverse emotions (Buzzanell, 2010) For instance, one might explore new employment opportunities and strive to present a positive image during interviews, even if they are upset about the termination of their previous job.
- **Critiquing and Resisting the Status Quo:** Hintz et al. (2021) describe this process as the act of establishing normalcy, considered the ultimate goal of CTR, by envisioning and shaping a new status quo. Moreover, consistent with CTR research, this sixth resilience process is closely linked to other resilience processes and highlights the role of resilience in fostering long-term transformation, especially within high-risk environments.

These six communicative processes become salient in providing a springboard towards exploring turning points in the processual flow of practices that make up daily life, specifically in producing resilience.

Importantly, from the communicative perspective, resilience is not produced individually; instead, resilience is a co-produced phenomenon that can be experienced by all and not only a chosen few (Buzzanell, 2017). CTR situates resilience in human interaction and tries to “understand and explain how people utilize discursive and material resources to constitute the new normal of their lives after disruption, loss, trauma, and disaster” (Buzzanell, 2017, p. 100) in the same way that LAP examines how the interplay of material-discursive processes, stemming from various actors, can occasionally alter the course of practice flows (Raelin, 2019). Like LAP, CTR requires a form of relational epistemology and ontology that contradicts the entitative and looks toward the collective in constructing meaning and reality. Buzzanell (2017) states that “Resilience is neither something we do alone nor an inherent characteristic that only some people have” (p. 98). The interdependence among individuals engaged in relational processes (Sklaveniti, 2020) meta-theoretically fits into the processual approach I aim to use for examining resilience *in situ* with the dialogical perspective of the communication theory of resilience.

This specific understanding of resilience is reminiscent of why leadership researchers turn to the practice perspective to explore where and how leadership is being accomplished (Endrissat & von Arx, 2013; Raelin, 2011). In line with leadership researchers who utilize practice theory to understand the dynamics of leadership, this paper aims to develop a theoretical framework that employs the practice perspective to examine resilience *in situ* and reveal its elusive and emergent characteristics. While the framework of CTR has certain limitations that challenge its application from a practice perspective, I argue that reevaluating and adjusting the extent of its ontology can address these challenges. I contend that CTR’s current relational perspective for producing resilience centers more on inter-actions in which entities remain the central focus (Simpson, 2016), leading to ‘relational’ being viewed more from an

epistemological position (Cunliffe & Hibbert, 2016). The six communicative processes involved in resilience production point to an entitative-soft perspective. Here, language and dialogue are foregrounded to understand how these relationships co-construct each other and the resilience process (Crevani & Endrissat, 2016). Although the unit of analysis is the interactional dynamics that unfold from the collective, the empirical remains focused on the entities (Crevani & Endrissat, 2016). However, we do not need to throw the baby out with the bathwater. Indeed, we can use the current framework of CTR by moving our ontological underpinning to a process ontology grounded in trans-actions that allow us to situate resilience in a flow of practice.

Summary

In summary, the Communicative Theory of Resilience offers a rich foundation for understanding resilience as a co-constructed phenomenon rather than a fixed trait or individual accomplishment. By identifying the six communicative processes that contribute to the construction of resilience, CTR demonstrates how resilience emerges relationally through the use of material and discursive resources. However, to fully align with a practice perspective, resilience must be examined not only through the lens of interaction but as an ongoing process of becoming within the flow of social processes and patterns of action. This ontological shift enables us to move beyond an entitative-soft focused view toward one that situates resilience firmly within the lived, material-discursive practices that shape collective responses to disruption. In doing so, we open the door for Resilience-as-Practice to be explored with the same analytical depth and nuance that practice theory has brought to the study of leadership and other organizing phenomena.

Theoretical Framework

My theoretical framework will argue that the six communicative processes critical to the CTR rework can be initially used to support this effort. I introduce the communicative constitution of organizations (CCO) as a theoretical paradigm that can be further utilized to connect CTR with the domain-specific practice perspective of LAP, thereby beginning to conceptualize the collective accomplishment of resilience as situated in a continuous process of organizing. This dissertation applies the Communicative Constitution of Organizations (CCO) to connect the work previously done in LAP, which captures leadership as a practice, to ultimately operationalize resilience episodes. These episodes will derive from the Communication Theory of Resilience (CTR) and define resilience as a practice (RAP).

Processes of Organizing: A Processual View of Reality

The theoretical paradigm of CCO emerged from the interpretive turn of the 1980s. During this period, some communication scholars began to shift their perspective from viewing communication as a mere occurrence within organizations to focusing on the “organizing features of communication” (Cheney, 2000, p. 25). CCO examines the mutually constitutive relationship between communication and organization (Koschmann, 2012). In other words, communication constitutes the very essence of organizations (Ashcraft et al., 2009). By placing communication in the foreground of organizations, Taylor et al. (2001) proclaim that “communication is the core process in organizations, or, in Weick’s terms, the core process of organizing” (p. 100). The CCO perspective suggests that a deeper understanding of organizations and organizing can be achieved by examining communication processes (Bisel, 2009).

It is essential to recognize that the theoretical paradigm of CCO is not a heterogeneous field of inquiry. Instead, three distinct schools of thought have emerged throughout the

maturation process, which Brummans et al. (2014) identify as the Montreal School of Organizational Communication, the Four-Flows Model, and Luhmann's Theory of Social Systems. While the three schools have some common foundational beliefs (e.g., the developmental nature of language use), they differ significantly in other areas (e.g., the influence of human and non-human participants in CCOs) (Brummans et al., 2014). An overview of each school of thought within CCO exceeds the scope of this dissertation (see Brummans et al., 2014; Schoeneborn et al., 2014; Schoeneborn et al., 2019); however, the Montreal School's approach is the one most completely adopted to guide this project.

The Montreal School of CCO is based on the idea that communication does not merely occur within an organization or in relation to organizational phenomena. Instead, communication can be viewed from a constitutive perspective. However, there are different lines of thinking and departures within CCO.

More specifically, we distinguish here between three main dimensions of CCO scholarship; namely, works that are focused on the communicative constitution of organizations (i.e., the “noun” or “entity” dimension), of organizing (the “verb” or “process” dimension), or of organizationality (the “adjective” or “attribute” dimension). (Schoeneborn et al., 2019, p. 477)

Schoeneborn's (2019) above statement points to the main contribution of CCO to this article; it can provide us with a processual ontology to communicative practices, which shifts our attention away from the entitative (and even the soft-entitative) perspective of relational communication consistent with CTR towards viewing communication as a fluid and emerging organizing action in the flow of practice (Schoeneborn et al., 2019; Tourish, 2014). Thus, my theoretical framework leans on the CCO dimension of the Communicative Constitution of Organizing,

which is exemplified in the Montreal School. The Montreal School's commitments are based on a relational epistemological perspective, grounded in a processual ontology, influenced by pragmatism, and relying on a transactional concept of communication, which emphasizes communication's organizing properties and agency's effect on the process (Brummans et al., 2024; Schoeneborn et al., 2014).

Through the commitments of the Montreal School, I aim to uncover how organizing surfaces within and through the practices of communicative co-orientation by utilizing the verb/process perspective of CCO (Schoeneborn et al., 2019; Sergi, 2016). This provides a foundation upon which to build, allowing us to move resilience from an entitative-soft relational perspective where inter-action is foregrounded to a trans-actional process ontology and in a constant state of becoming. To further emphasize the implications of conceptualizing CCO as a 'verb/process,' I will explore its application in organizational communication and LAP to broaden our comprehension of how humans and non-human actors are intertwined in organizing processes. This entanglement reveals the complexity of achieving direction in leadership and resilience, which traditional theories and models cannot wholly explain. Thus, there is a need for practice and understanding of how socio-spatial elements co-orient through organizing processes.

This need becomes a salient point when considering the work of resilience production. Resilience is not a phenomenon that only occurs within defined organizational structures. This non-conformity demonstrates why the conventional perspective of organizations, characterized by distinct membership, specific roles, and centralized decision-making, is inadequate for navigating the fluid, emergent, and dynamic environment (Schoeneborn et al., 2019; Schreyögg & Sydow, 2010) in which resilience occurs. Even from the CTR perspective, the discursive and

material resources used to form resilience crosses the traditional organizational boundaries into a relational perspective of co-construction and meaning-making. Even without defined membership roles, mandatory participation, or explicit boundaries, the CCO perspective from an organizing standpoint allows the examination of fluid and informal organizing processes that facilitate the production of collective outcomes (Smith, 2024). The concept of fluid organizing offers a critical lens to resilience production, surpassing the limitations of political and geographical boundaries that once constrained our collective comprehension of resilience. Furthermore, CCO charts a course toward grasping the influence of socio-materiality on the emergence of leadership production and the generation of resilience (Sergi, 2016; Smith, 2021; Smith, 2024). Ongoing scholarship in the LAP literature illustrates how CCO provides us with a new understanding of socio-materiality and what has agency in the processes of organizing.

For example, Sergi (2016) uses the principles of CCO to explain how our material world entangles with, constitutes, and participates in organizing leadership. Sergi (2016) further states that “everything that participates in this co-construction and co-orientation has to be considered, including anything that can be treated as material” (p. 116). To clarify, the term “material” refers to the impact that various “things,” such as artifacts, people, or ideas, have on the outcomes or processes that matter to us (Cooren et al., 2013). These ‘things’ are not inherently material but become so “when they influence a particular course of action or events that we value” (Cooren et al., 2013, p. 294). This influence on a particular course of action demonstrates how materiality has agency that can impact the flow of practice by creating a new direction (or turning point).

CCO helps explain how materiality can have such an influence. CCO views both humans and non-humans as being able to possess agency through what is known as hybrid agency (Cooren et al., 2013; Sergi, 2016). According to the hybrid agency, agency does not belong to

any actors, whether they are human or non-human. Instead, agency arises from the interactions between human and non-human actors as they happen in context (Sergi, 2016). By taking this perspective on who and what can have agency, the CCO lens broadens how we understand how socio-materiality can produce direction by creating a turning point in the flow of practice.

From an already established LAP perspective, CCO is important because it allows for a better understanding of the organizing processes and what has organizing agency (space, place, time, material, sociocultural, historical context, etc.) plays an integral role in producing leadership (and resilience) *in situ*. This is a result of the CCO perspective this paper takes, which views organization not as an entity but as a verb, organizing, “a continuous activity, a social, cognitive and political process whereby agents constantly (re)organize themselves and others” (Takoeva, 2021, p. 27). CCO helps operationalize leadership episodes by positioning action in the foreground of the flow of social practice. Both human and non-human actors can participate in emergent dynamic social intra-actions that can lead to turning points in the flow of practice. Thus, providing a means for empirically observing how actors create and maintain spaces for co-action will help in distinguishing practice from practices. From this perspective, leadership (and resilience) emerges when there are turning points that create direction toward a distinctive outcome. These turning points in direction are how LAP researchers study leadership through operationalizing leadership episodes.

Leadership theory that is situated within the practice perspective is “concerned with all such changes in trajectories or turning points within the group, organization, or network” (Raelin & Robinson, 2022, p. 6) and that the “material-discursive processes emergent from multiple actors at times produces a change in the trajectory of the flow of practices” (Raelin, 2019, p. 481). Likewise, this dissertation is concerned with these same factors to operationalize resilience

as a practice and empirically observable episodes to better understand emergent resilience organizing efforts *in situ* and provide a valuable framework to begin empirical studies.

Operationalizing Resilience-As-Practice

From this practice perspective, resilience can be seen as co-constructed by actors in practice, which is an “unfolding emergent dynamic” (Crevani & Endrissat, 2016, p. 23). Building on previous work in LAP, bracketing a resilience practice will uphold this precedent by linking practice to process while distinguishing it from routine, where practice “is a cooperative effort among participants who choose through their own rules to achieve a distinctive outcome” (Raelin, 2011, p. 196). From this perspective, resilience is less about what one person does and more about how people collectively accomplish resilience. This definition of practice highlights specific attributes that enable researchers to distinguish it from the continuously evolving and dynamic world described by process ontology. This collective effort towards a distinctive outcome illustrates how practice views turning points situated within processes as a unit of analysis to explore a social phenomenon.

There also needs to be a distinction made between 'practice' and 'practices'. Often, practices are referred to as routines. Practices like “routinized sequences of activities or building blocks of organizing” are assembled by actors and thus pertain to the soft-entitative ontology (Crevani & Endrissat, 2016, p. 26). By distinguishing the difference between practice and practices as they are situated within a process ontology, researchers can bracket practice to see and study it. From this practice perspective, resilience can be seen as co-constructed by actors in practice, which is an “unfolding emergent dynamic” (Crevani & Endrissat, 2016, p. 23).

Regarding resilience, a practice perspective allows the unit of analysis to shift from a single unit (i.e., person) to “bundles of related actions.....as it takes form in patterns of action

and interaction (which are routinized when looking for practices, respectively emergent when looking for practice)” (Crevani & Endrissat, 2016, p. 31). This framework is interested in practice, which allows resilience to be studied as it emerges and *in situ*. This framework defines resilience-as-practice as a socio-spatial process of organizing in accomplishing direction by leaning on the theoretical work already achieved in LAP and how communication is utilized in organizing (CCO). Specifically, a direction aimed at overcoming life disruptions and/or organizational setbacks.

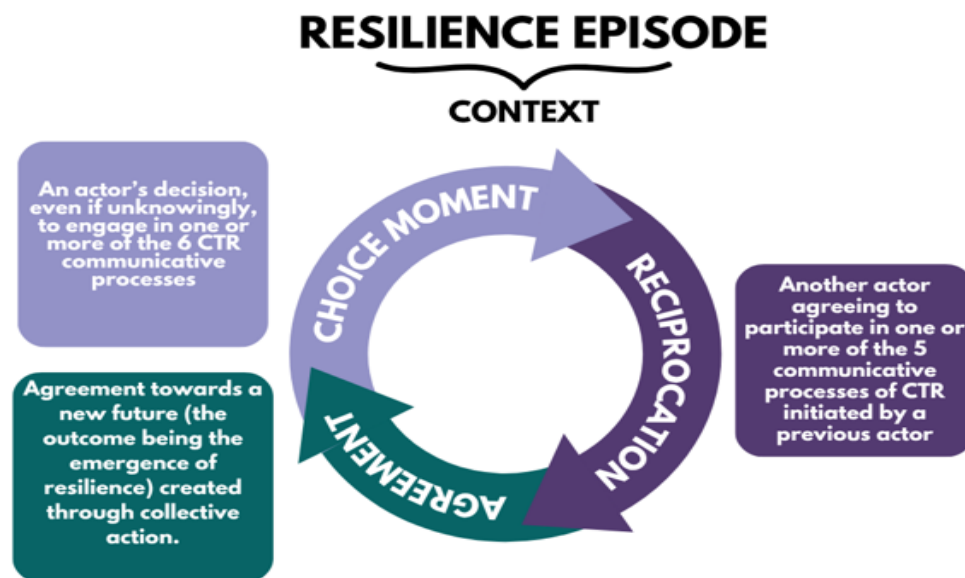
Operationalizing Resilience Episodes

Now that the term 'practice' has been differentiated from 'practices', the next step of this theoretical framework is to construct an empirical mechanism that isolates episodes of resilience by clearly defining what is being observed. I use the term ‘episodes’ in the same manner as Takoeva (2021), as the moments or events where resilience practice may emerge. Takoeva (2021) states that “these episodes are examples of how agents make sense, negotiate and frame their actions and the meaning-making of these actions” (p. 126). Takoeva's (2021) use of the term agent is significant when considering how different agents may participate by using discursive and material resources to build resilience toward a new normal. The communicative constitution of organizations (CCO) can provide a framework, as demonstrated in the LAP literature, for understanding how both humans and non-humans can have agency through its concept of hybrid agency (Sergi, 2016). Whereas LAP uses hybrid agency to understand how both humans and non-humans can become material when used in co-constructing and co-orienting (organizing) leadership (Cooren et al., 2013; Sergi, 2016), resilience as a practice can use CCO, in the same manner, to understand how both humans and non-humans become material in co-constructing and co-orienting (organizing) resilience through the six communicative

processes. From this perspective, CCO facilitates a deeper comprehension of the organizing processes and what has organizing agency, which is crucial in fostering resilience in situ.

By following the communicative definition of resilience proposed by Buzzanell (2017), resilience as a practice seeks to locate turning points in practices that signal a trajectory change toward the distinctive outcome of building new normalcies (i.e., resilience), as affected by both humans and non-humans, by creating and sustaining a space for co-action. Investigating a social phenomenon such as resilience via a relational trans-action perspective, grounded in a processual approach, necessitates a focus on continuity rather than obvious instances of starting and finishing (Hosking & Shamir, 2012; Mumford, 2011; Sklaveniti, 2020). This framework builds upon the work of Sklaveniti (2020) in providing a guide to the flows of relational processes necessary to achieve a change in trajectory that is sustained beyond what this framework refers to as individual choice moments. Figure 2.1 illustrates the process flow utilized to define and explore a resilience episode from a practice perspective.

Figure 2.1. Resilience Episode



Note. Adapted from Sklaveniti's (2020) work on turning points in leadership practice A choice moment begins the resilience episode under investigation.

As mentioned earlier, CTR describes six communicative processes used to build a new normal. These six communicative processes can act as triggers or what this framework calls 'choice moments' that signal the potential beginning of a practice in which a turning point occurs aimed at building a new normal after a life disruption by inviting others into a space of co-action, essentially an invitation (Sklaveniti, 2020). However, it is important to note that choice moments are not enough to sustain a resilience episode.

To sustain a resilience episode, it is necessary to establish reciprocity among actors, which provides for the emergence of resilience in a processual manner and signals a shift toward collaborative action (Sklaveniti, 2020). Reciprocation exemplifies the convergence of actors as they begin to delineate a space for collaborative action (Sklaveniti, 2020), situated in the context of constant (re)negotiation that encompasses both historical experiences and future anticipations (Raelin, 2019). The final stage of a resilience episode is the stage of agreement. Agreement towards a direction can happen in one of two ways. First, agreement can occur when actors participating in the resilience episode concur to continue pursuing/exploring a direction (Schatzki et al., 2001). Second, agreement can occur when actors participating in the resilience episode agree on the chosen direction (Schatzki et al., 2001). This illustrates the potential for participants in a resilience episode to employ various critical communicative processes of CTR. Utilizing these processes will help co-orient and sustain the organizing actions within the episode toward achieving one of these outcomes, thereby maintaining the new trajectory.

All three stages need to occur for a resilience episode to be considered complete. The uncertainty of completion indicates that no universal timeline exists outside the process of these

three stages that define a resilience episode. Additionally, all factors that influence actors' organizing efforts toward the emergence of resilience *in situ* must be observed through an empirical lens. However, this framework also provides space to explore why resilience production may fail. We can often learn just as much about a social phenomenon by its absence in a situation as when it is present. When researchers pinpoint specific moments that initiate a resilience episode but fail to result in a definitive outcome, it becomes crucial to understand why these failures happen. Such insights can enhance our comprehension of the resilience production process and identify the factors that may impede it.

By incorporating the principles of hybrid agency used in CCO, resilience episodes have been operationalized in a manner that allows agents (humans and non-humans) to participate through action in co-constructing and co-orienting towards resilience from a CTR perspective. This demonstrates why the effects of not only human agency but also non-human actors and their agency need to be considered in the creation and outcomes of a resilience episode. This approach emphasizes the use of both discursive and material resources to foster resilience.

The processual ontology within practice theory situates these turning points, or choice moments, towards a new trajectory within an ongoing stream of practices, which can be challenging to differentiate from the multitude of daily routines in which actors engage. To study the practice of resilience, I propose using the six communicative processes previously outlined to signal moments of agency where actors begin to make a coordinated effort to move towards accomplishing resilience *in situ*. For instance, following a disruptive event in life, the point at which an individual or group opts to seek assistance (i.e., to maintain and utilize communication networks) signals a choice moment or event in practices towards the enactment of resilience.

Given the dynamic and constantly shifting nature of the world as depicted by process ontology, the episodes of resilience may lack distinct boundaries. However, through reflective processing and guidance of my newly established definition of a resilience episode, it is possible to delineate and examine each distinct episode in a manner conducive to appropriate exploration. The ability to explore resilience as a practice is a departure from the current operationalizing of resilience from the CTR perspective. CTR scholars examine how humans utilize discursive and material resources through the six communicative processes to routinize new normalcies (Buzzanell, 2010, 2017). This theoretical framework is not concerned with applying these six communicative processes in such a manner. Instead, it constructs a theoretical map toward understanding how these communication processes can instigate a turning point in practices and thus be studied.

Summary

In summary, the theoretical framework developed in this study provides a foundation for understanding resilience as an ongoing, co-constructed practice shaped by the dynamic interaction of human and material agency. By incorporating a processual ontology, socio-materiality perspectives, and the concept of spaces for co-action, especially in relation to resilience episodes, this framework advances beyond prior definitions to emphasize the emergent, situated nature of organizing efforts aimed at achieving resilience. This approach not only sharpens the interpretive lens for the upcoming findings but also enables the study to make a meaningful contribution to both academic discussions and the development of practical strategies for fostering collective resilience in complex environments.

Chapter 3 - Methodology

Research Purpose and Questions

The purpose of this case study is to describe how the National Bio-Agro Defense Facility, in conjunction with their established Community-Liaison Group, and community members collectively build resilience as they continue to confront challenges in fostering and maintaining community trust in light of potential pitfalls associated with mis/disinformation. In Chapter 2, I constructed a novel theoretical framework by applying the Communicative Theory of Resilience with Leadership-As-Practice to study resilience from a practice perspective by defining resilience as a socio-spatial process of organizing in accomplishing direction aimed at a new normality. Specifically, a direction focused on overcoming life disruptions and/or organizational setbacks, informed by the research questions:

RQ1: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?

RQ2: What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

Methodological Considerations

Purpose of Qualitative Inquiry

“Qualitative research aims to work within the context of human experiences and the ways in which meaning is made out of those experiences” (Bhattacharya, 2017, p. 6). On the other hand, quantitative research seeks to identify patterns that can be accurately predicted and captured, providing confidence that the findings are not merely coincidental but can be generalized to a larger population (Bhattacharya, 2017). Although quantitative and qualitative research methods are complementary, they serve distinct purposes and focuses. Applying the

norms of quantitative research to qualitative studies is ineffective, as qualitative researchers typically interpret people's stories, experiences, or particular discourses (Bhattacharya, 2017). For this study, I used qualitative research methods to help me explore and describe how a community built around a shared challenge can collectively produce resilience as they experience setbacks along the way. As Creswell (2013) stated, “Qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem” (p. 37). To explore and describe resilience as a socially constructed phenomenon and to understand how its construction occurs, I am turning to qualitative research methods as the appropriate mode of inquiry.

Methodological Framework

The application of a case study is warranted to help explore the research question and bind the qualitative inquiry. Bhattacharya (2017) and Hays (2004) elaborate on using a case study by describing that case studies are a good way to obtain a concentrated and rich understanding of a phenomenon where the critical point is not the sample size. Instead, it is the ability to gain a deep theory-driven analysis. Case study research entails a detailed examination of an activity or process (Yin, 2013) and individuals within a defined or often referred to as a bounded system (Creswell, 1998). Case studies use the term “bounded system” because the case is bounded by time and place (Creswell, 1998; Patton, 2014), although the boundary lines can become blurry between the case and its contextual conditions (Patton, 2014; Yin, 2013). This characteristic of a case study is advantageous for exploring practice from a domain-specific perspective, like LAP, which views context as being shaped by time and space (Raelin, 2019). The result is a leadership, or resilience, practice that has been influenced by past situations and

memories of their subsequent outcomes. How the researcher bounds a case becomes salient when considering the blurriness associated with the spatial and temporal dimensions between the case and its context (Patton, 2014; Yin, 2011).

Patton (2014) states that a “case study stands on its own as a detailed and rich story about a person, organization, event, campaign, or program – whatever the focus of study” (pg. 259). To examine the phenomenon of resilience as a practice (unit of analysis), I employed a single instrumental case study (Bhattacharya, 2017) bound by members of the NBAF, their community liaison group (CLG), and their community members who have a vested interest in NBAF's operational effectiveness due to the direct influence of NBAF's mission and/or ability to maintain safety (unit of observation). Smith et al. (2009) further expand on the use of a single case study by stating that “single case studies simply show us that (or how) something is, and can unfold this in an insightful manner” (p. 32). This insightfulness, as mentioned by Smith et al. (2009), gets to the heart of what this research is trying to accomplish with resiliency as a collective accomplishment. The comprehensive, theory-based analysis typical of case studies offers the advantage of enabling a greater emphasis on theoretical interpretation. As discussed earlier, utilizing Leadership-As-Practice, Communication Constitutive of Organizations, and the Communicative Theory of Resilience to establish a theoretical framework to identify episodes of resilience provides a method for conducting empirical research focused on examining resilience as a practice. Applying a case study is sensible due to the reliance on such a theoretical perspective.

Furthermore, in an interview-style journal article in response to a question regarding the phenomenological roots of LAP, one of the authors comments that “pragmatic understanding of social reality is to be derived later through abduction with the help of knowing community”

which I address through the use of binding the case to a specific community that will help allow for in-depth “knowing” of involved actors (Raelin & Robinson, 2022, p. 10). The goal of applying a container (case) to the inquiry of collective resilience practices helped me as the researcher, collect rich data that dovetailed with theory to explore the empirical outcomes of an otherwise empirically deficient LAP perspective and non-existent resilience as a practice perspective.

Research Design

Participant Recruitment and Selection

For this case study, I aimed to gather high-quality data surrounding individuals actively building resilience to overcome setbacks related to misinformation and distrust regarding NBAF. This study was concerned with collecting rich and deep data associated with producing resilience (Bayeck, 2023; Stahlke Wall, 2014). Nevertheless, gaining access to participants and research sites remained a constant challenge and concern, especially during my field observations (Charmaz, 2014; Kara et al., 2022; Watson, 2010). This research study actively took the the view of Wanat (2008) in making the distinction between the researcher being able to (a) gain access, and (b) maintain access. Maintaining access, or “earning collaboration,” was a crucial aspect of this research which allowed me to continue the process of obtaining rich data throughout the study (Wanat, 2008).

A particular challenge of this research study from a collective resilience perspective was the overwhelming possibilities of inquiry and potential research sites. My theoretical construct of a resilience episode supersedes the actions of an individual and cannot be contained to a specific time or location. Indeed, it is a continuous process that involves the entanglements of discursive and material resources towards an agreed-upon new trajectory of overcoming. Accordingly,

practice becomes a fundamental unit of social analysis, not just a description of people's actions but a collection of activities with “meaning-making, identity-forming, and order-producing characteristics” (Raelin & Robinson, 2022, p. 3). Nonetheless, to analyze this approach to resilience, population(s) need to be identified to gather empirical data.

To access the necessary research data, I was able to be in a position to form a partnership with the NBAF communication team to collect data through interviews with various practitioners and observational fieldwork by participating in NBAF-endorsed community engagement initiatives. One advantage of partnering with NBAF is the variety of initiatives in operation simultaneously aimed at overcoming misinformation and distrust. This research study on resilience utilizes a representative sample of individuals involved in resilience efforts related to these challenges. Tracy (2019) explains that “a representative sample is when members are chosen specifically to replicate characteristics of the larger group” (p. 83). Given the far-reaching impacts of NBAF’s mission on diverse populations and the various stakeholders addressing this adaptive challenge, I believe working with NBAF offers the best opportunity to recruit a representative sample. Confronting misinformation and distrust requires resilience production involving affected community members (e.g., non-profits, agricultural advocacy groups, business groups, formal and informal community organizations), political institutions (e.g., local and state politicians), and NBAF itself. Working within NBAF’s framework and ongoing initiatives provided me with access to a representative population already working towards solving these challenges and who are constantly engaged in resilience efforts related to overcoming misinformation and distrust.

Initiating access to the necessary data sources began with establishing a partnership with the relevant team at NBAF. Fortunately, due to a concurrent and ongoing research project in

which I am a team member, a partnership was established between myself and the NBAF communication team. With help from NBAF, and due to an ongoing research project, community liaison group members had previously been identified and engaged. Furthermore, NBAF's communication team members had already agreed to be interviewed and agreed to allow me access to community-engaged events hosted by NBAF. However, gaining access is only the beginning. Maintaining access is just as important. I remained dedicated throughout the entire process to maintaining access through the continuous ethical performance of earning collaboration with all participants (Kara et al., 2022; Wanat, 2008).

Research Site

The research sites occurred either in person or on a video conferencing platform like Zoom. For example, the interviews conducted with CLG members consisted of in-person meetings at mutually agreed locations and Zoom interviews. Zoom interviews also allow the researcher to gain insight into the participants' comfortable spaces in conducting observations. Observations are an essential part of data collection in qualitative research (Bhattacharya, 2017). Both participating groups decided on the research sites for collecting data from community-engaged information events. Emails and text messaging were used to answer additional follow-up questions or provide clarifying information.

Researcher Positionality and Membership Role

Qualitative research as a paradigm recognizes that researchers bring their subjectivity into the research process (Braun & Clarke, 2013). The researcher's subjectivity includes their personal views, perspectives, and how they make sense of the world around them (Braun & Clarke, 2013). Our subjectivity influences our passions and what we choose to research.

"Therefore, any knowledge produced is going to reflect that, even if only in some very minor

way” (Braun & Clarke, 2013, p. 36). For both the researcher and the participants, subjectivity is regarded not as a weakness but a strength in qualitative research. Nevertheless, it is essential to acknowledge our subjectivity's potential impact on the research to ensure transparency and offer context for the readers.

I was first introduced to the Communication Theory of Resilience (CTR) in the 2023 spring semester of my doctoral program. Upon reading about CTR, I was immediately captivated. Unlike resiliency in fields like psychology, “communicative theorizing on resilience does not reside in the individual. It is fundamentally grounded in messages, d/Discourse, and narrative” (Buzzanell, 2010, p. 2). CTR establishes that resilience is grown through communicative processes that develop new normalcy, affirm identity anchors, employ communication networks, use alternative logic practices, and bring forth positive emotions while repressing negative feelings (Buzzanell, 2010; 2017). The aspect of resilience that stood out to me the most in the CTR approach is the concept of resilience as a relational achievement. This perspective caused a paradigm shift in my thinking and created a space for me to critically reflect on how I approach the phenomenon of resilience.

Various setbacks are encountered throughout life, as is typical for us all. A common phrase was introduced to me at an early age, “pull yourself up by your bootstraps.” Isn’t that the American way? Consequently, this common phrase places the ability to bounce back from the many setbacks of life squarely on the individual. CTR counters this perspective by exploring how people use communication, which is inherently relational, to craft new normalcy after experiencing setbacks. This “pull yourself up by your bootstraps” individualistic characteristic of producing resilience no longer applies if we accept the theoretical premises of CTR. I began to reflect on my own experiences of facing and overcoming setbacks after reading more about how

CTR works and its potential implications for studying resilience. I wanted to test CTR's premises against my own experiences.

On June 1, 2008, my mom and dad bought the current dairy farm that my family still owns and operates in northeast Texas. This was the same month that I graduated from high school. I had already committed to staying close to home for college to help my family in their new business. Unsurprisingly for most, there is plenty of work to be done on a dairy farm, especially when it's a new business. I was excited to join a new business and help my family succeed. The future looked bright and full of possibilities. By the end of 2008, I had completed my first semester at college, and the world seemed to be in economic turmoil. I would later study this period in my MBA program, which was already being called the Great Recession. The Great Recession hit the dairy industry, resulting in a 49% decrease in milk prices from June 2008 to January 2009 (Trading Economics, n.d.)—a brutal hit for any business, especially a new one. The time of excitement and new beginnings quickly turned into sleepless nights and mountains of stress. There was no certainty about the future, though we all know there never is one. Nevertheless, the business's survival emerged as a genuine concern. As I reflect on that time over 15 years ago, I can still remember the many setbacks.

My family's business remains now stronger and more prosperous than ever. Moments of resilience have been created and maintained to surmount the numerous challenges encountered and those that will continue to arise. The question remains: how was resilience produced during those times of hardship? Was it by each of us individually picking ourselves up with our bootstraps? Or was it through the relational aspects described in CTR? Reflecting on this question has led me to relate more to the CTR framework. I can still describe in detail how, at one point or another, all six of the communication processes that make up CTR were employed

to overcome those setbacks. This has led me to understand that “resilience is neither something we do alone nor an inherent characteristic that only some people have” (Buzzanell, 2017, italics in original). By reorienting the epistemological and ontological assumptions underpinning the production of resilience, I am left inspired by its consequences and possibilities.

My example and rationale illustrate that everyone can be considered an insider in the need for and contribution to resilience. Additionally, this study involves three distinct groups, although they are intertwined. For example, members of NBAF’s communication team are also community members. The first group is made up of NBAF's communication team members. The second group includes CLG members. The third group primarily comprises community members who engage in NBAF events. As a community member, all participants see me as an insider.

Additionally, my ongoing relationship with NBAF's communication team through a concurrent research project further cements my status as an insider within that group. This insider position fosters a trust inherent to being part of the community, allowing me to offer an insider's perspective on the experiences. According to Bhattacharya (2017), “many communities prefer insiders to research the communities instead of outsiders producing accounts that lead to further oppression” (p. 116). I acknowledge that my background, values, beliefs, and assumptions about the research purpose will influence the research process, mainly from my perspective as an insider. It is neither possible nor appropriate to detach my positionality from the research process. The participants were informed of my personal story and cognizant of the active role I was undertaking during data collection.

As a facilitator and qualitative researcher, I undertook this research from a social constructionist perspective and with a keen interest in resilience production. I carefully crafted interactions to actively involve participants and foster a partnership conducive to critical

reflection, both from the participants and my analysis. This ambitious endeavor was achieved by integrating various data collection methods to reveal ongoing processes and underlying causal factors, exploring participants' experiences and insights on how their involvement in the complex adaptive space of misinformation and distrust regarding NBAF influences their understanding of overcoming these shared challenges.

Data Collection Methods

The high-level security protocols at NBAF posed extra challenges regarding where and how I collected data for this research. For instance, audio and video recordings are prohibited on their campus, and a federal background check is necessary for entry. These restrictions meant that not every method of data collection, which could be relevant or even the most beneficial for studying resilience from a practice perspective, would be applicable in all the settings I had considered. For example, the restriction on recording audio and video during the CLG on-site tour at NBAF, which I participated in, meant I had to rely on handwritten notes throughout and after the tour. Fortunately, I had the continued support of NBAF's communication team to help alleviate some of these barriers. However, it still required a multi-modal approach to data collection, varying in degree and location, to gather sufficient and appropriate data to crystallize rigorous findings. Figure 3.1 presents a visual overview of the data collection methods and sources used in this study. Figure 3.2, which immediately follows, illustrates the strategies employed for data collection and highlights the corresponding research question each strategy was designed to explore.

Figure 3.1. Data Collection: Methods and Sources

Data Collection

Interviews:

- Community Liaison Group
 - Currently, 12 Interviews Conducted
- NBAF's Communications Team

Field Observations:

- Attending Information Events between NBAF's Communication Team and Community Members
- In-depth site tour of NBAF w/ community group



Figure 3.2. Research Questions and Corresponding Data Collection Strategies

Research Question	Data Collection Strategies
RQ1: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?	Community-Liaison Group Interviews NBAF Information Events Field Observations In-Depth Site Tour of NBAF w/ Community Group
RQ2: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?	Community-Liaison Group Interviews NBAF Communication Team Interviews NBAF Information Events Field Observations

Interviews: I used interviews to help provide this research with a more complete picture of the phenomenon of resilience-as-practice under study (Bayeck, 2023). The interview approach is especially effective for exploring participants' lived experiences and the ways in which they

express their social realities through language (Berg & Lune, 2011). I utilized interviews to gain socio-historical context for the resilience episode under review. Precisely for this study, theorizing interviews from a constructionist approach were utilized. Talmy (2010) describes the interview as a social practice when considering an interview study from a constructionist perspective. Traditionally, interviews are regarded as a tool commonly utilized in qualitative inquiry, where researchers rely on interview data to substantiate claims about individuals' experiences, beliefs, attitudes, and related aspects (Talmy, 2010). Furthermore, from a constructionist standpoint, interview studies approach interviews as a social practice and analyze the social actions that occur within them (Roulston, 2021). A constructionist approach to interviewing acknowledges that the interviewers and interviewees co-create the accounts provided (Roulston, 2021).

I conducted semi-structured interviews with 12 of the 18 members of the CLG as a research assistant for an ongoing collaborative research project between NBAF and the A.Q. Miller School of Media and Communication at Kansas State University. The CLG interviews lasted between 39 and 88 minutes, with an average duration of 64 minutes. Each conversation was recorded and transcribed verbatim, producing 282 single-page transcripts. These previously conducted interviews intersect with my dissertation goals; thus, they are applicable as a data source and were conducted with prior Institutional Review Board (IRB) approval. The protocol for the CLG member interviews can be found in Appendix A. The interviews showcase a wide range of expertise from the participants. The CLG members consist of emergency response experts, elected representatives, entrepreneurs, agriculturalists, and leaders of non-profit organizations and advocacy groups. Moreover, interviews with the CLG helped this study explore the collective accomplishment of resilience production. I was also concerned with the

factors that hinder a resilience practice from occurring, thus demonstrating how a matter of concern becomes or does not become a matter of collective engagement. Similarly, I conducted interviews with the entire NBAF communication department, resulting in five discussions ranging from 58 to 91 minutes, with an average duration of 73 minutes. You can view the protocols for the NBAF communication interviews in Appendix B. Like the CLG interviews, each conversation was recorded and transcribed verbatim, generating 128 single-spaced pages of transcripts. To ensure accuracy, the transcripts were carefully reviewed and cross-checked against the original audio recordings. To protect the participants' identities, pseudonyms were assigned to them, along with their organizational affiliations. See Appendix C for the table of assigned pseudonyms. Interviews with CLG members, as well as the communication team, were instrumental in exploring what facilitates and hinders the creation of a space for co-action, particularly in relation to resilience episodes. See Appendix D for the CLG member interview consent form and Appendix E for the NBAF communication team consent form.

Field Observations: Field observations encompass NBAF community engagement events, formal CLG meetings, and an in-depth site tour of NBAF with various other stakeholders. See Appendix F for the observational consent form. NBAF makes a point of engaging community members regarding its mission and safety culture by participating in and facilitating informational events throughout the community. With the explicit blessing of NBAF, I participated in eight events in partnership with NBAF's communication team to gather further data. These community outreach events allowed me to be present in day-to-day activities, which have the potential to manifest into a resilience practice. Community-engagement events are suitable for data collection because each can be considered the starting point of a resilience episode. The event would not have occurred if a choice moment had not occurred, initiating the

beginning of my theoretical conception of a resilience episode, which is discussed in my theoretical framework. Community-engaged meetings and on-site tours could mark the start of a resilience practice (direction change) aimed at overcoming setbacks stemming from misinformation and distrust that are part of the daily realities of the participants. Here, within these specific times and places, naturally occurring data were collected while remaining “sensitive that people’s actions and interactions are contextually situated” (Rapley, 2018, p. 22). I attended eight community outreach events in collaboration with NBAF, conducting 945 minutes of on-site field observations. I employed Hymes’ (1974) S.P.E.A.K.I.N.G. model as an observational framework to structure my field notes and capture rich contextual details. The specific rubric used is available in Appendix G. Altogether, these observations yielded 57 single-spaced pages of notes, which, together with the interview transcripts, contributed to the analysis phase of this dissertation.

Data Management

Bhattacharya (2017) states that data management is the process by which the researcher manages a large volume of data (p. 149). During this research study, I utilized various data collection methods, including recording audio and taking field notes. All recorded data was transcribed using Otter.ai or Zoom transcription. Each transcription was then manually reviewed and cross-checked against the original audio for accuracy. I employed MAXQDA as computer-assisted qualitative data management software (CAQDAS). I uploaded my transcribed interviews to MAXQDA to effectively manage all the collected data and facilitate the coding process. Additionally, I used Excel to organize and present the themes developed during the data analysis phase. The whole table, including themes, theme descriptions, and code examples for both research questions, can be found in Appendix H.

Data Analysis: A Phronetic Iterative Approach

Bhattacharya (2017) states, “Data analysis involves creating processes that would allow for deep insights that reflect how the researcher integrated theoretical and analytical frameworks, previous understanding of literature, and the focus of the research purpose and questions” (p. 149-150). This dissertation employs the Phronetic Iterative Qualitative Data Analysis (PIQDA) (Tracy, 2013; Tracy et al., 2024) approach to guide the construction of ‘meaningful themes.’ In the context of this dissertation, ‘meaningful themes’ are defined as the generation of practical and theoretical knowledge.

Phronēsis, which phronetic derives from, generally translates to “practical knowledge” (Tracy & Hinrichs, 2017b, p. 1). As a qualitative analysis framework, the phronetic iterative data analysis approach seeks to address real-world concerns by producing practical and contextual knowledge for these challenges (Tracy & Hinrichs, 2017b). This aligns with the goals of my dissertation, which is to produce community-engaged scholarship (Van de Ven, 2007) regarding resilience as a practice within the context of NBAF and its efforts to foster collective resilience. From this perspective, the application of phronetic iterative analysis within the established theoretical framework facilitates the generation of both practical and theoretical insights. Furthermore, this phronetic iterative approach prioritizes contextual knowledge (Tracy, 2018). This prioritization aligns with the literature on domain-specific practice theory, which emphasizes the importance of situated meaning and the ongoing evolution of social action (Raelin, 2016; Simpson, 2016).

Phronetic iterative approach to data analysis is a qualitative method that alternates emergent interpretations of qualitative data (inductive) and the etic use of existing models, explanations, and theories (deductive) through a systematic and recursive process (Tracy, 2013;

Tracy & Hinrichs, 2017b) in what Tracy (2020) refers to as the logic of abduction. Encouraging phronetic iterative data analysis to oscillate between emic data and etic knowledge (Tracy & Hinrichs, 2017b) is advantageous for this research study. This method involves navigating between participants' lived experiences and theoretical interpretations. As the researcher, this allowed me to explore the data collected from participants while also leveraging my theoretical framework, informed by CTR and LAP literature, to guide and enhance the ongoing analysis. As in all forms of data analysis, this iterative process does not follow a linear path (Bhattacharya, 2017). Instead, "the researcher moves back and forth between various stages and processes" (Bhattacharya, 2017, p. 150) during the analysis phase. This iterative character trait of qualitative research created a reflexive process vital to generating insight and developing meaning. The back-and-forth process of an iterative approach was essential in exploring the story between what the data was relaying to me and what I am trying to understand about the emergent process of resilience production from a practice perspective through my research questions (Bhattacharya, 2017; Braun & Clarke, 2013; Tracy, 2019).

One of the primary ways researchers begin deconstructing qualitative data is by using a process known as coding. Saldana (2021) explains that a code in qualitative analysis is "often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute to a portion of language-based or visual data" (p.5). The coding process links the collected data and their meaningful explanation (Charmaz, 2001). Codes can consist of one single word to an entire page of text or everything in between (Saldana, 2021). Codes are then grouped into categories through a process known as synthesizing (Saldana, 2021). Researchers must work diligently with the data, utilizing multiple coding rounds and techniques to develop a comprehensive understanding of the research gathered. Qualitative researchers use various

cycles of coding and even multiple coding techniques to compose all the underlying themes in the data. While there is no one way to code, the researcher must be very organized during the data analysis. Qualitative data will grow exponentially in size during the analysis process. Saldana (2021) even shares that “organization is analysis” (p.20). With these challenges in mind, mapping out a coding protocol is essential to maintaining organization and direction. I created a one-page executive summary that comprises my research purpose, research questions, theories informing my study, and a summary statement that precisely outlines the overarching goals of the research inquiry, helping to maintain focus (Tracy, 2018). See Appendix I where I provide the executive summary I used to remain focused throughout the project.

Similar to constructivist grounded theory analysis (Charmaz, 2014), PIQDA recommends that researchers begin with open coding (Tracy, 2018), which is discussed in the primary coding cycle section below, on roughly twenty percent of the data. Next, the researcher should “engage in some focusing activities and make choices about incorporating those selected codes that will most usefully attend to the research questions, be of interest to desired audiences, and/or extend theory” (Tracy, 2018, p. 67). Etic knowledge, applied in the second coding cycle, assists researchers in making informed choices about which codes to concentrate on. These codes were subsequently organized into a formal codebook, which helped guide the remainder of the data analysis process (Tracy, 2018).

Primary Coding Cycle: Tracy (2018) recommends that after data material is meaningfully organized, the researcher(s) engage in “descriptive primary cycle coding” (pg. 65), employing what grounded theorists refer to as open coding or initial coding (Charmaz, 2014; Glaser & Strauss, 1967). Charmaz (2014) states that during the initial coding cycle, “we remain open to exploring whatever theoretical possibilities we can discern in the data” (pg. 116). This cycle

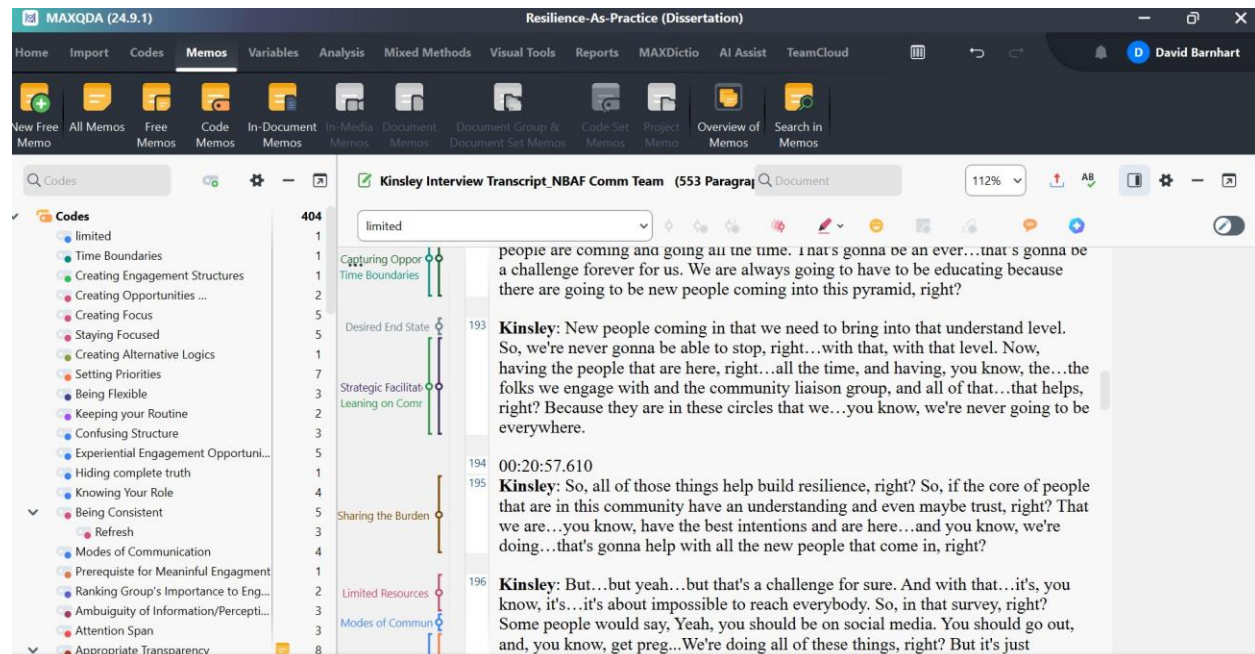
signifies the emic/inductive analysis in which the researcher employs first-level descriptive codes to encapsulate the who, what, when, and where (Tracy, 2013; 2018). Charmaz (2014) and Tracy (2018) both recommend using gerunds (words ending in “-ing”) to signify actions, events, and processes in the data. Using gerunds where appropriate is consistent with the overall goal of this dissertation because I am interested in the ongoing actions of organizing toward resilience production occurring within the defined resilience episode positioned in a becoming ontological underpinning.

A commitment to a becoming ontology signals a meta-theoretical assumption that reality is processual (Carlsen, 2006). “In essence, process ontology posits that the world is in constant movement, defined by continual change rather than stability” (Sergi, 2016, p. 114). By adopting a process ontology, we can pay more attention to how phenomena occur over time and in specific situations by focusing on action rather than static entities (Chia, 1997; Hernes, 2007). Process ontology will affect how we operationalize resilience episodes by focusing on action. Action-oriented “gerund” descriptive codes allowed me to remain sensitive to the view of resilience from a continually on-the-move organizing perspective. However, gerunds are not the only type of descriptive code that can be utilized in the initial coding cycle. In vivo code (Strauss, 1987) can also be helpful when progressing through the initial coding cycle. In vivo codes can be valuable because they “provide insight into the vocabulary, jargon, and slang used in context and by the participants in the study” (Tracy, 2018, p. 66). Ultimately, these first-level codes should capture the who, what, when, and where in simple terms (Tracy, 2018).

I employed descriptive coding that incorporated both gerunds and in vivo coding styles. MAXQDA proved to be very helpful during the first-cycle coding process, enabling me to stay organized and easily track my codes as I used them to describe specific segments. Throughout

the first cycle of coding, 111 unique codes were created, resulting in an overall total of 1,298 code assignments to various data segments. Figure 3 illustrates the use of MAXDA during the primary coding phase.

Figure 3.3. Primary Coding with MAXQDA



Note. This photo shows what my computer screen typically looked like while coding in MAXQDA. Here, I am first-cycle coding an interview transcript.

The process of first-cycle coding was quite tedious. It required me to read through the interview transcripts and field observation notes multiple times to deeply immerse myself in the data. I also re-listened to the audio recordings of the interviews to ensure I fully understood the intended meanings behind what I was reading. As I worked through the data, I adjusted the codes, allowing them to develop into more stable analytical phrases.

Tracy (2018) recommends developing a codebook after initially open-coding approximately 20 percent of the data. A formal codebook is defined as “essentially data displays that list key codes, definitions, and examples” to support researchers throughout the remainder of their analysis (Tracy, 2018, p. 68). Creating a codebook is a central iterative practice within

PIQDA that fosters analytical focus early in the process. To construct mine, I wrote summaries of the coded segments corresponding to each code. I then printed these codes alongside their summaries, allowing me to physically manipulate and compare them, both in relation to one another and in relation to my research questions. This process helped surface the most salient codes for inclusion in the finalized codebook. Figure 3.4 provides an example of what my codebook looked like. You can view my complete codebook under Appendix J.

Figure 3.4. Codebook Example

Code Name	Code Description	Examples	Close but not it
Showing Value	Justifying why others should pay attention to your organization and/or priorities. It can also be used as a means of justifying your presence, holding people in a space of co-action, and/or arguing for a specific path forward because of the value you bring to your community. This can take place internally, externally, and across systems.	"Those kinds of things are how we get them to be like, oh, this is important." "If you don't recognize, or if you don't have the knowledge of how important NBAF is, then you simply won't be as interested in that information."	Implying importance through visibility rather than meaningful justification.
Priority Convergence	The intersection of individuals, groups, or organizations' priorities. This intersection of priorities can facilitate reciproaction in co-action spaces and increase the likelihood that each party will desire a new direction to move forward with together.	"But in the end, you know those people at that top level that are gonna support and engage with us. You know, we're willing to spend more time to reach them, because they're...they'll help us make sure that we're here in the future." "I would say, in the last several months, really good communication with, like, the city planners. And they're coming to us much more proactively with...Here's what's going to be happening. So, you guys can prepare for it."	Occasionally aligning priorities without intentional collaboration.
Being Flexible	Recognizing that overcoming challenges and barriers requires a processual and evolving view of time and circumstances. Current effort techniques may not be sufficient to operate in spaces of co-action productively.	"Even if that means we have to use a different system. You know we...we have to shift responsibilities or shift gears." "But we've been doing our best to figure out what the answer is, now...and then, if we need to develop that answer further in the future, we can."	Shifting approaches without active problem-solving or foresight.

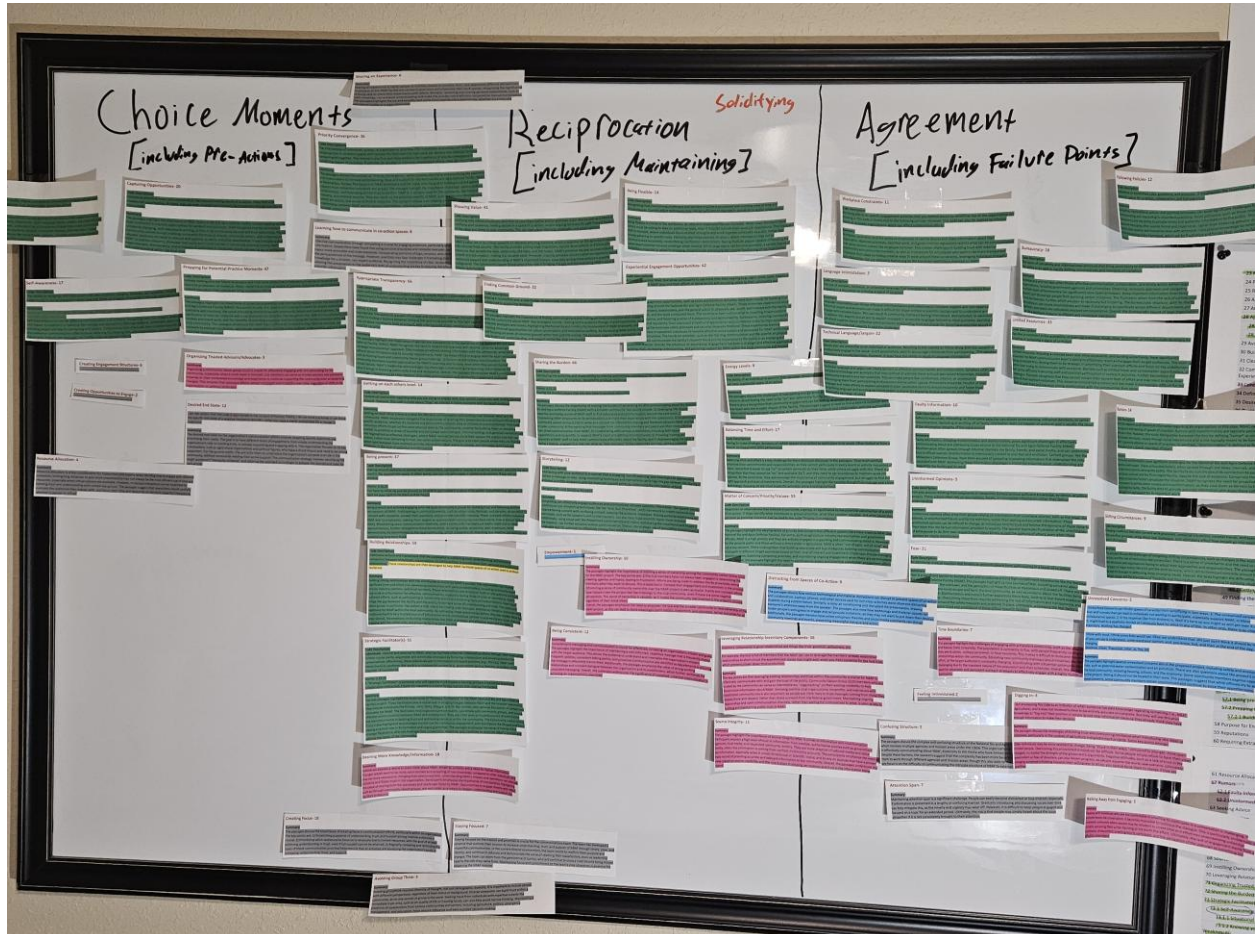
Note. The codebook included code name, code description, exemplar examples, and a “close but not it” section to help further clarify the code.

After finalizing my codebook, I linked each code's description to its corresponding code in MAXQDA using analytical memos (Charmaz, 2014). This step enabled me to assign codes more accurately to relevant data segments, as it provided an efficient way to revisit and reinforce the intended meaning of each code during the analysis process.

Transitioning from Primary Coding to Second-Cycle Coding: After completing first-cycle open coding of all collected data, I printed my codes along with updated segment

summaries and code descriptions. It is worth noting that only the codes included in my official codebook had accompanying descriptions. Likewise, less frequently used codes also lacked segment summaries. I used these printed materials to conduct code mapping, a transitional technique that facilitated the shift from first- to second-cycle coding (Saldaña, 2021).

Figure 3.5. Code Mapping



Note. This photo illustrates the physical activity of code mapping that I conducted to help me transition from first-cycle to second-cycle coding. The operationalized concept of Resilience Episodes was used to help map the codes in potential relation to a Resilience Practice.

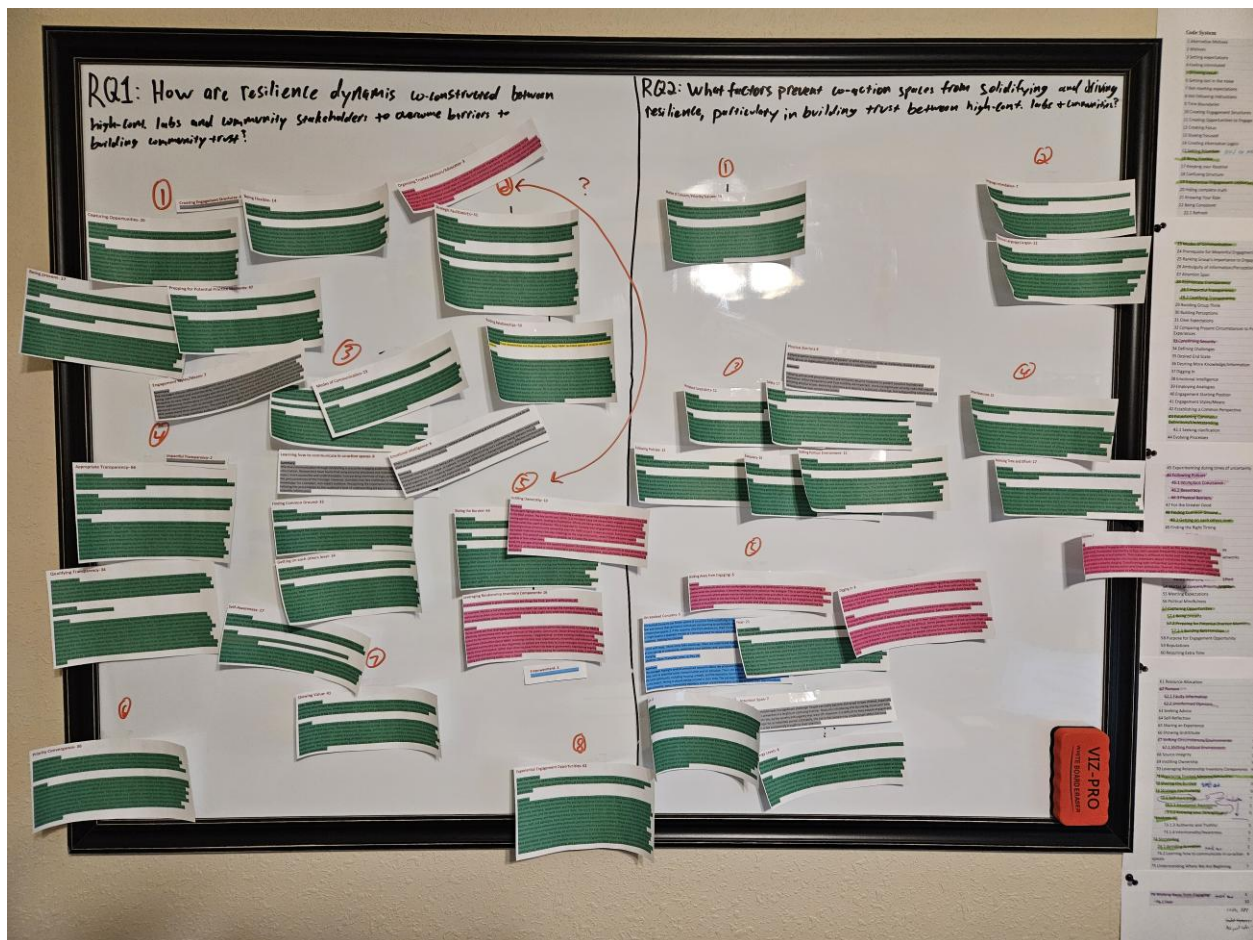
Second-Cycle Coding: During second-cycle coding, the goal is to move beyond first-level descriptive codes toward more analytic and focused interpretations (Saldaña, 2021; Tracy, 2018). At this stage, researchers “begin to interpret, organize, and synthesize codes” in ways that

require theoretical engagement (Tracy, 2018, p. 66). Following this protocol, I employed focused coding to identify the most frequent and meaningful codes, which served as the foundation for constructing categories and, ultimately, themes (Saldaña, 2021).

Furthermore, Tracy (2018) emphasizes that this stage of analysis benefits from the researcher's firm grounding in theory and literature, which informs the execution of second-level, focused coding. This phase represents the etic, or deductive, dimension of analysis within PIQDA, during which I engaged in analytic and interpretive coding (Tracy, 2013; 2018).

Drawing on prior knowledge, I assessed which initial codes held the most significant analytical value (Charmaz, 2014). To extend this process, I physically (re)organized and (re)categorized similar codes using printed versions of the individual codes, employing axial coding to construct hierarchical relationships (Charmaz, 2014; Tracy & Hinrichs, 2017b). For instance, I developed categories such as learning how to effectively communicate and modes of communication, which ultimately converged to form the theme of *organizing through diverse and meaningful communication efforts*. Figure 3.6 illustrates how I utilized physical copies of my constructed codes, along with their descriptions, to bridge the gap between computer-assisted analysis software and a tactile approach to data analysis that I find personally helpful during the second-cycle coding phase.

Figure 3.6. Physical Manipulation of Codes



Note. This photo shows the printed version of the codes I constructed in MAXQDA along with any applicable description and segment summary. Please note that I had written my research questions on the whiteboard to ensure that I maintain analytical and theoretical alignment.

Analytic Memos, Researcher's Reflections and/or Journaling: Analytic memo writing played an influential role in my research study. Its use enabled reflective engagement with the coding process and contributed to theory development (Saldaña, 2021). This practice was critical in qualitative research, as it strengthened the connection between the coding system and the understanding of the phenomenon. Codes functioned as “a trigger for written reflection on the deeper and complex meaning it evokes” (Saldaña, 2021, p. 58). Writing memos allowed me to critically consider my analytical choices and move closer to meaningful insights through

reflections on “unanswered questions, future directions, frustrations with the analytics, [and] insightful connections” (Saldaña, 2021, p. 59). Throughout the analysis, I also documented notes and highlighted connections to the research questions during the chunking and clustering process, ensuring that the findings remained organized and aligned with the study’s objectives.

In addition to analytic memos, I maintained a methodological journal (Charmaz, 2014). This journal offered space to engage with the data, articulate emergent ideas, and facilitate theme construction. As Charmaz (2014) explained, “memo writing is the pivotal intermediate step between data collection and writing drafts of papers” because it “keeps you involved in the analysis and helps you to increase the level of abstraction of your ideas” (p. 162). The journal served as a repository for documenting “methodological dilemmas, directions, and decisions” that shaped the trajectory of the research (Charmaz, 2014, p. 165).

Data (Re)presentation

I begin this section by pointing to the conscious decision to use the term (re)presentation. I use the term (re)presentation instead of presentation, in agreement with Bhattacharya’s (2017) description of the “re-presentation” of the data. Bhattacharya (2017) states that interpretation of qualitative research involves developing narratives about how the researcher is co-constructing meaning with [their] participants” (p.158). The findings of this study will be (re)presented in various ways. Code mapping will showcase my thought process as a researcher. A visual of my primary coding cycle (descriptive open coding) and second-cycle coding (focused coding) was provided above to demonstrate the coding process used. As previously noted, I have provided my codebook in Appendix J to illustrate the salient codes, along with their descriptions and examples. Examples of my analytic memos were also placed in the appendix. See Appendix K.

Research Quality

Choosing the qualitative paradigm for this research required a meticulous approach to guarantee that the results are valid and reliable. Like all social knowledge, quality values constantly evolve and contextualize within specific disciplinary frameworks and ongoing academic discourse (Tracy & Hinrichs, 2017). This research project drew on contemporary literature discussions regarding Leadership-as-Practice and the Communication Theory of Resilience. This research project strived to maintain rigor by drawing on Tracy's (2010) discourse on qualitative excellence. Tracy (2010) offers eight criteria for qualitative quality to assist in understanding and evaluating qualitative research. Tracy's (2010) criteria for high-quality and rigorous qualitative research are: worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution, ethics, and meaningful coherence. Following these standards, I will discuss each criterion and how I used it in my research.

Tracy (2010) states that a worthy topic is "relevant, timely, significant, interesting, or evocative" (p. 840). The study of resilience as a collective process hits each of these characteristics of a worthy study. To begin with, everyone faces setbacks that demand resilience to surmount these challenges. Gaining more knowledge about resilience, particularly as a socially produced phenomenon, will enhance our understanding of its development and how it can help us overcome adaptive challenges in our societies and our personal life disruptions. The continual need to overcome adaptive challenges underscores the relevance and timeliness of resilience as a worthy topic, highlighting its significance for study. Working on resilience evokes strong feelings and emotions as I reflect on the disruptive moments in life that seem insurmountable. I remember the profound heartache I felt while assisting victims of Hurricane Harvey off their rooftops in Houston. I thought to myself, how will this city, its communities,

and the individuals who have lost everything manage to recover? Collectively producing resilience in the face of life disruptions provides a path to recovery. The more we understand how resilience is accomplished daily, the better we are equipped to tackle these challenges.

This study consistently strived to apply rich rigor to the qualitative process to guarantee a high-quality research outcome. Tracy (2010) explains that “richness is generated through a requisite variety of theoretical constructs, data sources, context, and samples” (p. 841). I incorporated field observations and open-ended interviews with various sources to collect data, helping to explore the research questions. I used a case study because it explicitly attempts to gather rich and fine-grained details of interactions in specific settings to explore focused questions (Bhattacharya, 2017). The design of this study has been carefully crafted to meet the necessary elements of creating rich rigor.

Tracy (2010) explained that “sincerity as an end goal can be achieved through self-reflexivity, vulnerability, honesty, transparency, and data auditing” (p. 841). I approached sincerity systematically throughout the research process, placing particular emphasis on self-reflexivity. Prior to entering the field, I engaged in introspection and continued to examine my motivations and potential biases by maintaining a methodological journal (Charmaz, 2014). This practice helped me remain self-reflective about my thoughts, actions, and dilemmas during the stages of research design, data collection, data analysis, and the reporting of findings (Tracy, 2010). Maintaining a methodological journal also supported my commitment to transparency, which Tracy (2010) described as openness and honesty about the research process. I documented the twists and turns encountered along the way, as well as the decisions I made, by providing a detailed, journaled account of the project’s progression.

Credibility is a crucial criterion for producing high-quality, qualitative research. Tracy (2010) stated that credibility refers to the research findings' trustworthiness, verisimilitude, and plausibility. Tracy (2010) indicates that establishing qualitative credibility involves several approaches, including offering rich, detailed descriptions, utilizing triangulation or crystallization, and adopting a multivocality approach. The interview approach employed in this research design aimed to enhance multivocality and extend its scope by offering a platform for research participants to engage as co-inquirers, contributing their reflections and interpretations related to the cultivation of resilience.

Tracy (2010) uses the term resonance to describe the “research’s ability to reverberate and affect an audience meaningfully” (p. 844). The topic of resilience is a shared one. How it is defined and the varying theoretical constructs used to research it do not make it any less visceral to all of us as we experience it in our lives. My goal was not to let the topic of resilience get lost in the academic language required to produce appropriate research. On the contrary, I sought to elevate the raw emotional context associated with the experienced phenomenon.

I aimed to create a research project that can significantly contribute to knowledge, practice, and politics (Tracy, 2010). The primary focus of my research is to enhance the understanding of resilience from a practice perspective, thereby making a substantial contribution to the field. I believe that adopting a practice-oriented perspective on resilience has theoretical, heuristic, and practical significance (Tracy, 2010). Moving towards a practice perspective on resilience provides a new avenue of research and inquiry. A practice perspective moves the research further down the meta-theoretical spectrum, allowing exploration into “all the associated elements constituting a practice artifacts, its setting, its time, its people, its voices, its dialogue, its gestures” (Raelin & Robinson, 2022, p. 3) that produce resilience. This study

does not address all these entanglements, but it does initiate a conversation about exploring resilience from a new perspective.

Tracy (2010) outlined a variety of practices to address ethics in qualitative research, “including procedural, situational, relational, and exiting ethics” (p. 847). “DO NO HARM!” guided my ethical approach to conducting quality qualitative research. To ensure the ethical conduct of my research study, several measures were implemented. Most of the procedural ethics can be seen through the practices that are mandated by the Institutional Review Board (IRB), which include but are not limited to participants knowing that their participation is voluntary, an agreed-upon informed consent, a debriefing statement at the end of each interview, and assurance of confidentiality of data. Before collecting any data from research participants, a signed informed consent form was required, detailing the study's aims, the type of data being collected, and how the data would be collected and used. Pseudonyms are used to protect the identities of participants. Data was kept in a locked office on a password-protected computer and will be destroyed no longer than two years after completion. In considering situational ethics, I understood that each scenario is unique, and I continually reflected on and evaluated my ethical choices (Tracy, 2010). I am keenly aware that my research project would not be possible without the individuals who voluntarily participated. Instead, I approached situational ethics as an ongoing process of earning collaboration by understanding it as a “continuous ethical performance” (Kara et al., 2022, p. 664). I remain committed to respecting these relationships and not using the participants to advance my agenda. Tracy (2010) reminds us that “ethical considerations continue beyond the data collection phase to how researchers leave the scene and share the results” (p. 847). Throughout the research project, I can honestly say that I maintained

a high standard of ethics that reflects positively on myself, my dissertation committee, and my institution.

The final criterion of a quality qualitative study, as outlined by Tracy (2010), is meaningful coherence. Tracy (2010) described meaningful coherence as a study that coherently “interconnects their research design, data collection, and analysis with their theoretical framework and situational goals” (p. 848). This research project achieved meaningful coherence by ensuring alignment throughout the study, including my meta-theoretical assumptions, theoretical framework, methodology, data collection, data analysis, and findings.

Chapter 4 - Findings

The purpose of this case study was to help increase our understanding of how the National Bio-Agro Defense Facility, in collaboration with its Community-Liaison Group and local stakeholders, works together to build resilience and foster community trust. I employed a theoretical framework to construct what I termed a resilience episode to position this study to better understand resilience as a practice. Furthermore, the study was guided by two research questions designed to shed light on how successful resilience practices are constructed, as well as to gain insight into factors that can prevent these practices from becoming. These two research questions were:

1. How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?
2. What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

The following findings are organized in two sections, aligned with the study's research questions. While each theme is discussed individually, they remain closely interwoven with the central aim of examining resilience as a practice in fostering and sustaining trust between NBAF and the broader community.

Research Question One: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?

Research question one (RQ1) seeks to explore and ultimately describe the collective dynamics of producing resilience from an everyday practice perspective. My data analysis process resulted in the construction of five interconnected communicative practices that revolve

around deliberate organizing efforts: (1) Organizing Around Experiential Engagement (2) Organizing Strategic Facilitation (3) Organizing Through Calibrated Transparency (4) Organizing Due to Priority Convergence; and (5) Organizing Through Diverse and Meaningful Communication Efforts. These themes are described in Table 4.1 below.

I intentionally adopt the language of organizing throughout the findings related to RQ1 for two reasons. First, the question itself seeks to explore how and why resilience practices emerge, implying that a resilience episode is already underway. By definition, a resilience practice cannot be co-constructed unless a resilience episode is becoming. However, the most critical element of the question lies in its processual ontology, which builds on the theoretical framework established in Chapter Two. The perspective of our social world being in a constant state of becoming opens this study to explore resilience practices as both anticipatory and reactive. This framework also emphasizes that while resilience episodes are collaborative spaces for co-action, they do not inevitably result in a resilience practice unless a new direction or an agreement to continue investigating a different direction is established (Sklaveniti, 2020). In this context, using the language of organizing highlights the unfolding, contingent, and relational nature of practice formation (Smith, 2024). It signals that the phenomenon under investigation is not fixed or finalized but is actively being negotiated and constructed in real-time. Ultimately, the research question distinguishes between and explores how a resilience episode transitions from a temporary space of co-action, acknowledging that such spaces may emerge and dissolve without necessarily resulting in a practice, to an actual resilience practice that enables participants to navigate and overcome challenges effectively.

Secondly, adopting the language of organizing allows the findings to foreground the co-constructive role of communication in shaping spaces for co-action and any subsequent

resilience practices that may emerge from these collaborative efforts. This terminology affirms the agency of all actors, human and non-human, in shaping and sustaining spaces, while linking Leadership-as-Practice (LAP) and Resilience-as-Practice (RAP) as dynamic, co-constructed processes driven by discursive and material interplay.

Table 4.1. (RQ1) Creating and Sustaining Spaces for Co-Action Aimed at Producing Resilience

Theme	Description
Organizing Around Experiential Engagement	Intentional activities produced by NBAF that allow participants to use more than their hearing (e.g., sight, smell, taste, touch) to experience what NBAF does and their efforts at being secure and providing safety to their community and stakeholders. These activities prove to increase trust and safety satisfaction.
Organizing Strategic Facilitation	Communicative practices that make uncertainty comprehensible and actionable. Emerging through the work of NBAF staff, CLG members, or trusted intermediaries, strategic facilitation often involves framing technical or contentious issues in ways that invite engagement and alignment. It is best understood not as a role, but as a situated organizing effort aimed at fostering clarity, reciprocity, and direction within resilience episodes.
Organizing Through Calibrated Transparency	A communicative practice used by organizations to strategically adjust the degree of openness they extend to stakeholders. It enables resilience by providing enough disclosure to build trust, counter misinformation, and sustain co-action, while simultaneously withholding or shaping information to meet their organizational needs.
Organizing Due to Priority Convergence	The convergence of priorities among individuals, groups, or organizations forms the foundation for meaningful collaboration. When these priorities intersect, they create fertile ground for reciprocity and co-action, increasing the likelihood that all parties will embrace a shared direction.
Organizing Through Diverse and Meaningful Communication Efforts	NBAF and its stakeholders utilize diverse communication methods, such as social media, written communication, and in-person interaction, to foster collaboration and co-action. Engaging messages, storytelling, and a relational tone help bridge complex topics with the public's understanding, building trust and inviting mutual investment in resilience-building efforts.

Theme 1: Organizing Around Experiential Engagement

Theme one: Organizing Around Experiential Engagement, is an effort NBAF strategically employs to foster collaboration and create shared understanding among diverse stakeholders, intended to promote trust and goodwill. NBAF actively engages in a range of organized experiential activities by both extending and responding to invitations from CLG members and the broader community. Experiential engagement activities provide a dynamic space of co-action, where NBAF and community members come together in real-time to share perspectives, build mutual understanding, and develop trust. These settings offer stakeholders the opportunity to ask questions, express concerns, and receive direct responses from NBAF personnel. Importantly, they also serve as platforms for NBAF to communicate safety protocols and articulate the importance of its broader mission. By fostering an atmosphere that is both collaborative and welcoming, these interactions help break down barriers, demystify complex operations, and reinforce NBAF's commitment to community inclusion and responsiveness. These experiential engagement opportunities include on-site tours, open community events, tailored group engagements, and other collaborative experiences.

One of the key approaches to organizing experiential engagement opportunities to foster trust and goodwill with the community is their efforts involving hosting on-site facility tours for groups such as CLG members, elected officials, and emergency response personnel. By prioritizing direct, sensory-rich experiences, NBAF enables visitors to interact with the facility's environment and safety culture personally. This direct, immersive experience anchors abstract ideas (i.e., biosecurity and high-containment environments) in concrete reality, bridging the gap between concept and practice and enriching stakeholders' understanding of NBAF's purpose, functions, and security measures.

When discussing why NBAF has chosen to make tours a priority, NBAF employee Skylar stated that they want people to leave the tours and tell others,

Then, I walked through here, and they gave me this badge, and I walked through the security, and man, those people were...It was pretty cool, right? They were nice, and it was cool, and then I walked up to the facility.....And then I went into the building, and they gave me a brief, and everybody was just happy that I was there. And they asked, 'Hey, do I have any questions?' And they wanted to hear what I had to say.

Skylar's intended outcome for participants following the on-site tour reflected NBAF's deliberate effort to create a collaborative space. This deliberate collaborative space is produced in a manner where visitors could, in their words, "touch it and see it and smell it and hear it." These sensory-rich engagement opportunities are explicitly designed to foster transparency and cultivate trust within the broader community. Ultimately, these tours exemplify how NBAF utilizes experiential engagement opportunities to increase trust, despite individuals' potential negative preconceived notions regarding having a high-containment lab in their backyard.

While on-site tours play a key role in fostering trust, they are just one facet of NBAF's broader strategy to cultivate goodwill within the community. Equally important are open community events and customized group engagements that create collaborative spaces where NBAF and community members actively participate in spaces for co-action that support mutual understanding, transparency, and relationship-building. NBAF's ongoing participation in these events reflects a sustained commitment to reciprocity and community collaboration. Through sharing institutional knowledge and creating open channels for dialogue, NBAF actively responds to public questions and concerns, particularly around the facility's mission and the integrity of its safety protocols. These engagements not only build transparency but

also demonstrate a willingness to be accountable and accessible within the broader community landscape. These collaborative efforts come to life through two illustrative engagement events that brought NBAF and community members together. The first is the Manhattan Kansas Science Festival, an open, public-facing gathering designed to welcome broad participation and foster informal interaction between scientists and the public. The second is a more targeted engagement, a tailored session between NBAF's communication team and members of the K-State Society of Women Engineers. Each event demonstrates the dialogic practices associated with experiential engagement in spaces for co-action aimed at overcoming challenges that hinder the production of trust and goodwill. Before I continue, a brief overview of each these two events will be given to help provide context to the findings.

The Manhattan Kansas Science Festival (MKSF) is a yearly event hosted at the Manhattan Public Library. The Kansas Science Festival is designed as an inclusive, community-centered event that celebrates science as a shared way of knowing. With a focus on science, technology, engineering, art, and math, the festival seeks to spark curiosity and wonder across generations. Rather than positioning science solely within the domain of research institutions, the event uplifts diverse, community-driven approaches to discovery and learning. By fostering hands-on experiences and encouraging dialogue between scientists and the public, the festival serves as a vibrant platform for cultivating relationships and co-creating knowledge in a welcoming, participatory environment. NBAF team members led a variety of interactive activities, including pipette art and a germ spread demonstration, offering participants hands-on experiences that blended science with creativity and public health awareness. These interactive activities offered participants a playful yet meaningful glimpse into the world of laboratory science and public health. At the pipette art station, children and

adults explored one of the everyday tools used by NBAF scientists, the pipette, by using it to draw up food-colored water and create vibrant designs on absorbent lab cloths. This tactile experience not only sparked creativity but also introduced the precision and care involved in scientific work. Each participant left with a colorful keepsake, making the learning both personal and memorable. Meanwhile, the germ spread activity brought an invisible concept to light, literally. Participants donned latex gloves and plunged their hands into a bin of bouncy balls coated with a special invisible solution. In a darkened room under black light, the glowing residue revealed how easily germs can transfer through touch. This simple yet striking demonstration made the science of contagion accessible and impactful, especially for young learners. The fun and interactive environment of the MKSF makes this event a great opportunity for NBAF and community members to engage with each other in a space designed for co-action, aimed at increasing knowledge and scientific understanding. These engagement opportunities exemplify anticipatory resilience episodes. They are initiated in advance of disruption to cultivate familiarity and reduce uncertainty, equipping the community with trust before crises emerge. By contrast, the persistent rumors tied to Plum Island (discussed in RQ2) illustrate reactive episodes, where resilience practices are activated only after skepticism or misinformation has already begun circulating.

Another NBAF outreach event with an experiential component was a group presentation to the K-State Women's Society of Engineers. The K-State chapter of the Society of Women Engineers (SWE) is a dynamic, student-led organization dedicated to supporting women in engineering and promoting equity within STEM fields. Rooted in the national SWE mission, the K-State chapter offers members opportunities to grow both professionally and personally. The group hosts weekly meetings, typically on Tuesday evenings in Fiedler Hall,

that feature company sponsors, professional development workshops, and social events. These gatherings enable members to build networks, gain valuable career insights, and connect with peers. While NBAF engages in numerous experiential events and opportunities, these three examples offer compelling insight into how intentional efforts in organizing experiential engagements can lead to the collaborative co-construction of resilience practice(s).

Experiential engagements offer critical opportunities for NBAF to communicate the complex safety protocols designed to protect both the facility and the surrounding community. For many stakeholders, safety remains a paramount concern that often serves as a barrier to establishing trust. Abby echoed this sentiment, noting, “There were a lot of concern about safety, and I think there still are.” Across conversations, safety consistently emerged as a central topic, revealing its pivotal role in shaping perceptions and influencing the broader process of community trust-building. To address fears and counter misinformation surrounding NBAF’s safety, organizing facility tours emerged as a pivotal tool in the agency’s outreach efforts. By engaging with the facility in person, participating members gained direct experience with NBAF’s everyday operational system, including its safety protocols. These hands-on visits moved beyond secondhand accounts, immersing attendees in the procedural security routines that define the center’s daily functions. Mark emphasized the importance of this early experiential communication effort by NABF when he stated that, “It took a while to make sure that people understood the safety measures, and that’s why those tours in the beginning were very important so people could see it, touch it, look at the filtration systems, to include what we’re going to do with the wastewater and things like that.” It became evident that the tours were achieving their intended impact, fostering increased trust and broader community acceptance of NBAF. As stated by Andrew, a representative of the Midwestern

Livestock Trade Association, when discussing the power of these tours, “And that [on-site tour] seems to help alleviate some of those concerns from members, like talking about protocols. And you know, you personally have seen firsthand what the facility looks like and what they have in place.....I think all of our members who never seen it and walked in cold and saw all the capabilities, safety protocols, were like, wow, this thing is incredible.” His comments emphasize the vital role of first-hand interaction in building trust between NBAF and community members.

Through experiential engagement, such as facility tours, NBAF creates opportunities for individuals to observe and inquire about operations directly. This approach helps address underlying concerns often rooted in broader skepticism toward federal institutions. Andrew succinctly put it this way, “So NBAF saying, ‘Hey, we’re totally secure...we’ve got all these safety protocols.’ Everybody’s like, great, you’re the government. That’s what you’re supposed to say. But when you bring in like our staff and our volunteer leaders, and they get to see it and understand it, and they can tell their peers about it, that’s your most effective message.” Andrew’s comment demonstrates how, by inviting the community into its space and offering transparent, embodied experiences, NBAF has worked to dispel uncertainty and foster a sense of openness that allows these misgivings to be constructively acknowledged and, in many cases, overcome. Ultimately, using tours as a form of experiential engagement serves as a deliberate strategy to address community concerns and hesitations, especially around security. Material artifacts, such as security badges and layered fencing, are not neutral background features of the tour. They highlight the entanglement of materiality in resilience practice by shaping how participants experience safety, risk, and trust. In RAP terms, these material artifacts participate in the episode as organizing agents, bridging abstract notions of

‘security’ into lived experience. Visitors do not simply hear about safety protocols. They get to feel the badge around their neck and encounter the barriers that both restrict and protect. These socio-material actors co-construct the resilience episode with human actors, making security not just told but lived. By inviting the public into NBAF’s operational space, these tours enable personal interaction and cultivate understanding. This direct access not only helps alleviate anxieties tied to federal institutions but also directly fosters community trust. As Abby emphasizes, “The tours have definitely been extremely helpful, just how massive it is. So, I think all of those pieces were part of creating the trust and building that trust.” As previously noted, NBAF participates in more than just on-site tours as part of its organizing efforts to produce experiential engagement, aimed at fostering resilience and trust.

For example, NBAF embraced the invitation to participate in the collaborative and hands-on environment of the MKSF, extending its experiential engagement efforts to the broader public. Events like MKSF serve as vital avenues for cultivating trust through direct, one-on-one interactions, providing a practical alternative to the logistical challenges of offering facility tours to the entire community. When asked about the role of such outreach in fostering trust and resilience amid widespread misinformation, a staff member volunteering at the NBAF booth emphasized its significance, noting that these engagements are essential because they enable NBAF to “meet people where they are.” This same sentiment can also be said for outreach events like the K-State Women’s Society of Engineers (KSWE). By meeting people where they are, NBAF leveraged events like the MKSF and KSWE to promote trust and goodwill to the community at large.

For example, NBAF actively works to promote trust by humanizing the scientific work conducted within its walls. Through hands-on, experiential engagement activities (i.e., tick

drags, pipette art, and the germ spread demonstration) and by bringing community members face-to-face with the scientists leading this research, NBAF takes intentional steps to demystify its operations and highlight the real people behind the science. The science conducted at the facility was no longer abstract or anonymous; it was embodied by visible, relatable individuals, fellow community members. As Alex noted, “We are here; we are like everyone else [in the community]. Putting a face to the name [NBAF].” Their words reflect how experiential communication fosters recognition, connection, relatability, and ultimately trust. Likewise, during a tour, Richard recalled a striking moment that captured the passion and dedication of NBAF’s staff. He recounted an interaction with a young researcher whose name escaped him, but whose enthusiasm left a lasting impression: “I mean, this young man had a tattoo of viruses on his arm. That's how crazy he is about his job.” This profound memory offered more than a glimpse of personality; it helped humanize the scientific work happening at NBAF, revealing the deep commitment and personal investment of the individuals behind the research.

In its presentation to the KSWE, NBAF humanized its work by connecting the facility’s operations to the practical learning experiences of engineering students, emphasizing how engineers contribute to the design, construction, and ongoing functionality of the facility. This framing resonated deeply with KSWE members, who could relate to the technical content on a detailed, personal level. To help students appreciate the thoughtful engineering behind the facility, NBAF presenters brought tangible examples into the session, including a section of the three-inch diameter rebar used in the building’s structural framework and a component of the facility’s water filtration system. The rebar and filtration system act as material agents that shape how participants conceptualize safety. This is another example of how artifacts can

become material and influence the trajectory of engagement in spaces for co-action. Moreover, by allowing participants to handle these materials directly, the presenters highlighted not only the robust quality of construction but also the precision and care engineers contributed to every aspect of NBAF's design. By highlighting these shared points of connection, NBAF helped humanize its scientific mission, demonstrating that those working within the facility are not distant experts but professionals with similar backgrounds and aspirations. In doing so, NBAF subtly extended an invitation by implying that this could be your future, too.

In conclusion, organizing experiential engagement efforts is not only a trust-building strategy but also a resilience process intertwined with lived and material interactions. By meeting stakeholders in familiar and accessible settings, the NBAF humanizes its mission, showcases the people behind its scientific work, and fosters meaningful connections with diverse audiences. Furthermore, by organizing encounters where stakeholders interact with rebar, observe the filtration system, or undergo security screening, NBAF uses these lived experiences to build credibility and trust. These practices illustrate that resilience is a lived process rather than just a discursive claim, demonstrating how RAP reframes resilience as an emerging activity co-constructed through the interaction of human and non-human agency.

Theme 2: Organizing Strategic Facilitation

NBAF places strong emphasis on strategic facilitation as a communicative practice of organizing rather than a static role held by individuals. In this study, strategic facilitation is defined as the ongoing practice of making uncertainty comprehensible and actionable. Organizing agents, including NBAF staff, members of the Community Liaison Group (CLG), or other trusted representatives, translate technical, complex, or sensitive issues into formats that facilitate discussion, inquiry, and consensus through this approach. In this sense,

facilitation is not about who is involved in these efforts, but about what is accomplished communicatively through the creation of clarity, reciprocity, and direction within resilience episodes.

This conceptual framing is important because it aligns with the RAP framework. Remember, RAP considers resilience a process that is accomplished and enacted in real time through communicative and material resources. Strategic facilitation is one of the key practices that sustains resilience episodes by transforming intimidating discourse and abstract terms, such as biosafety, into discussable, relationally meaningful dialogue. The benefit of this organizing effort lies in its ability to hold open spaces for co-action where mutual understanding, sense-making, and trust can emerge.

Internally, NBAF has institutionalized strategic facilitation through its communication team, the only dedicated group of its kind within USDA's high-containment laboratories. This team not only functions as full-time organizing agents with the broader community but also acts as facilitators of facilitators by equipping other NBAF staff or key stakeholders to communicate effectively. Their efforts expand the organization's influence into community-facing initiatives that foster collaborative action, promoting the collective development of resilience. Alex, NBAF's Chief Organizing Officer, highlighted the challenge of limited reach when they stated, "So yeah, there...it's impossible to reach everybody, especially with a small team. Right? And that's why, you know, having the folks in our community liaison group that can regularly engage with us." Their reflection demonstrates how mindful strategic facilitation can amplify its impact, enabling credibility to grow through trusted agents embedded within the community. Parker, NBAF's Chief Creative Officer, described their approach to training scientists to 'give language' to their work and potential uncertainty surrounding NBAF in

order for them to become more effective participants in strategic facilitation moments. Parker stated, “I work with our scientists to help them become better communicators about their science... This is what I want our scientists to be able to do in their everyday life because it engages their audience.” Parker’s quote demonstrates how facilitation is not only about delivering information, but about relationally engaging others in ways that invite reciprocity. This illustrates the central mechanism of strategic facilitation, situated discourse, which provides meaningful language in spaces for co-action to help overcome uncertainty and apprehension. By equipping scientists with narrative and relational tools like storytelling, NBAF’s communication staff enables technical complexity to become discussable, relatable, and therefore open to co-action. The practice of situated discourse turns potential barriers into invitations, creating space for resilience episodes. Parker’s vision also clearly opposes limiting facilitation efforts to just the communication team, “It shouldn’t just be the comms team talking about NBAF.” Their remarks emphasize that strategic facilitation is a distributable organizing effort, one that can be fostered across the organization so that all staff members can enact it when opportunities arise. Indeed, strategic facilitation, aimed at cultivating productive spaces for co-action in the context of high-containment laboratories, is not solely a practice achievable by NBAF’s communication team or other internal staff.

The collected data clearly affirms that strategic facilitation at NBAF is not confined to official staff. NBAF actively collaborates with external individuals and partner organizations that serve as organizing agents who play a vital role in initiating and sustaining productive spaces for co-action that connect the facility with the broader community. These external actors often bring distinct community relationships and contextual insight into collaborative efforts. Jordan, an NBAF Employee, emphasized how relational trust is often borrowed

through organizing agents, “Yeah, I think the easiest way for someone to learn to trust something new is by hearing from someone that they trust [organizing agent].” Their insight supports the relational dependency of facilitation and how it often works because of the trust vested in those who translate its work. For example, NBAF utilizes CLG members to leverage their credibility and relational ties, helping to translate NBAF’s mission into situated discourse that resonates locally. Gary, a CLG participant and member of Advocacy Group A, reflected on arranging tours, “I worked with Alex and Skylar on setting up a couple of tours, and man, they have bent over backwards to get...our industry groups in, and I really appreciate that!” By leveraging established relationships and organizing experiential activities, Gary demonstrated strategic facilitation by redefining potential uncertainties among Advocacy Group A members and combating any misinformation by making sure the facility was accessible to some of them. His comments illustrate how strategic facilitation is enacted through situated practices, such as coordinating tours or having a scientist share a personal story about their work at the facility. Gary’s reflection also demonstrates how organizing agents like him help create connection points between NBAF and external community stakeholders as part of strategic facilitation efforts. Richard, CLG participant and member of the Midwest Emergency Response Team (MERT), echoes Gary’s sentiment when he stated,

The CLG served a pretty good purpose for me, though, immediately, by engaging with extra folks at NBAF and getting to know them personally so that I... it is for me and my job, one of the things I do is go out and I find people that I need to connect with, people in our organization.

This quote emphasizes strategic facilitation as a method to expand communication networks. By engaging with NBAF, actors can better connect across organizational lines and organize

spaces for meaningful co-action. Molly, another CLG member, described how her advocacy was strengthened through facilitation practice, “Being on the CLG and being more in the know and understanding definitely has strengthened my advocacy.” Her reflection illustrates how organizing agents emerge through participation in resilience episodes, evolving from passive observers to active advocates, particularly in the context of the CLG. One of the CLG’s strengths as a strategic facilitation effort is its regular meetings, where members come together to get updates from NBAF leadership, ask questions, and build relationships with other potential organizing agents. Abby, a Kansas legislator, highlighted the importance of these face-to-face interactions, “It was good for us to have a conversation with them instead of just reading about it.” Her reflection reveals how strategic facilitation often depends on moving engagement from disconnected procedures to conversational presence through relational closeness.

Moreover, Keith stressed that these relationships need to be continually nurtured. He pointed out that “We need to have those relationships, those friendships, those connections all the time, so that when something happens, good or bad or just controversial, these aren’t new people we’re dealing with.” His statement reveals that organizing strategic facilitation can play an anticipatory role in cultivating resilience where trust is enacted and sustained long before moments of disruption. Andrew offered insight into the constitutive nature of strategic facilitation while simultaneously highlighting the importance of organizing agents’ relationships and communication networks. CLG members both communicate NBAF’s message outward and bring concerns back inward,

There’s some back and forth from the group. Occasionally we, some of us, receive negative correspondence from various folks about the facility and there’s an open line

of communication to communicate that to the staff at NBAF and talk about it among community members.

He also emphasized peer-trust dynamics,

And that gets back to your peer review, right? You trust your peers. And so, if you're a member of ours, you're involved with us. You know that if you guys put something out, we're going to vet it first before we...we're not in the habit...not saying we don't do this of just regurgitating government press releases. We're going to take what the government puts out. We're going to look for [the] relevant parts and try and relate it to our members a little more.

Andrew's perspective illustrates facilitation as a form of contextual translation, where institutional discourse is resituated and delivered through trusted peer networks. Kelli, an agricultural agency representative, emphasized the importance of trust in facilitation, "If they trust me, they probably trust what I'm telling them is accurate." Her remark captures the idea that strategic facilitation often depends on turning personal credibility into collective trust. These examples demonstrate that community members acting as organizing agents are not only serving in representative roles, but are actively practicing strategic facilitation by resituating discourse in meaningful terms for both NBAF and the broader community. In doing so, they give language to uncertainty about safety, security, or mission by contextualizing it for their networks. This communicative practice builds reciprocity within resilience episodes by making the abstract tangible and the uncertain discussable.

In conclusion, organizing through strategic facilitation is best understood not as a fixed role, but as a practice of communicative translation entangled with human and non-human actors. It is a situated collective accomplishment in which organizing agents, whether within

NBAF or embedded in the community, give language to uncertainty through situated discourse with the intentions of establishing spaces for co-action. This practice is both anticipatory and responsive by extending trust before crises occur while also shaping meaning during moments of disruption. Over time, strategic facilitation promotes the development of resilience episodes, moving from initial interaction (choice) through ongoing engagement (reciprocation), and sometimes resulting in the alignment of narratives (agreement). Through personal connections and established credibility, organizing agents enable NBAF to engage more deeply in high-stakes and complex contexts, cultivating resilience through strategic facilitation efforts that make uncertainty not only manageable but shared.

Theme 3: Organizing Through Calibrated Transparency

Solidifying resilience practices between NBAF and the broader community depends on more than just logistical coordination. It requires a shared communication approach rooted in transparency and open dialogue. However, as is often the case with a strategic government facility, this transparency must be intentional and carefully managed. NBAF demonstrates what can be called calibrated transparency in its community engagement. By selectively giving insight into its operations, through tours, media interviews, or CLG meetings, NBAF enables trust and goodwill to take root. This calibration allows NBAF to share enough information to reduce uncertainty and address rumors, while withholding details that could threaten security or the mission's integrity. In this way, calibrated transparency acts as a tool to support stable collaboration with the community. However, it also makes clear that this transparency is on NBAF's terms.

Creating and sustaining spaces for co-action requires more than just an initial act of openness. It requires a long-term commitment to sharing information in a way that builds trust

without compromising the integrity of the institution. NBAF uses transparent communication in a calibrated manner to inform stakeholders about its mission, operations, and security measures in a way that balances openness with caution. Transparency serves as both a core element of ethical engagement and a strategic approach for earning community trust, promoting honest dialogue, and proactively tackling misinformation or disinformation. Transparent communication efforts are both a prerequisite for creating spaces for action between NBAF and the broader community and an essential component for maintaining their existence.

Both the NBAF's communication team and CLG members consistently emphasized the importance of transparent practices throughout their discussions. It is essential to distinguish calibrated transparency from complete transparency. Jeff, CLG member and ABC College employee, put it this way, "I also understand transparency doesn't mean full disclosure." Parker, NBAF's Chief Creative Officer, noted, "There is a happy medium...how to balance that transparency and finding that sweet spot, I think, is the challenge that creates that barrier to fully building that trust." In essence, NBAF's efforts to engage the community openly while managing the constraints of security have led to them adopting a proactive, yet structurally bounded approach to transparency. This careful balancing act defines calibrated transparency. CLG member Abby summarized the importance of transparency when she stated,

There will always be some concerns, but because you can hear them [NBAF team members] on the local radio, see the articles in the local newspaper, and go into any of their online spaces and read about them, and then having a groundbreaking ceremony, or inviting individuals, groups of us to visit and tour the building. And then, when we take photos and we put them back on our social media outlets, each of us speaks to a

different community, and so they relate to that, and they feel like, okay, if they are okay with it, it must be all right, or they are doing their job. So, I think that's been very helpful. The tours have definitely been extremely helpful, just how massive it is. So, I think all of those pieces were part of creating the trust and building that trust.

Abby's reflections illustrate how calibrated transparency is not just about relaying information. Calibrated transparency is about creating productive conditions to successfully solidify spaces for co-action, thereby achieving a resilience episode between NBAF and the broader community. Ultimately, these efforts cultivate spaces for co-action by extending and reciprocating invitations to build common ground from which resilience can emerge. Molly echoed this view, emphasizing that NBAF's personnel have been deliberate in both recognizing concerns and providing straightforward, honest information.

I think the people with NBAF, starting with Terry, who I first met...now with Alex and Skylar and the rest of the group, have done an excellent job of acknowledging some of the community or regional or state concerns, but mitigating that with as much upfront, direct, candid information as they can possibly relay.

Molly's reflection emphasizes that NBAF's transparency has been reassuring. However, it is essential to acknowledge that NBAF establishes what accounts for transparency by calibrating the organization's openness to sharing certain information. For instance, CLG members may receive an abundance of details on safety protocols but are given limited information about internal personnel changes or research timelines. By prioritizing safety and security, this imbalance helps foster resilience with community partners. However, it also exposes the one-sided nature of disclosure. Essentially, NBAF defines the limits of transparency, and the community is expected to adapt to those boundaries. This example demonstrates how

calibrated transparency enables resilience episodes by shaping trust even within uneven power dynamics.

Still, calibrated transparency is integral to building the necessary trust between NBAF and the community, which is required to collaborate in co-action spaces to foster resilience successfully. Keith also emphasized transparency as a relationship-building practice based on continuity and honesty, “And that ties into why I say that worked well with NBAF, from the very beginning, they’ve been open and honest in talking about what’s going on, to where they’ve built that trust with the community.” His comment highlights the importance of maintaining ongoing transparency in high-containment laboratories that aim to establish trust with the broader community. This is not a one-time disclosure; instead, it shows a long-term communication approach. CLG member Mark offered a cautionary note, “There’s a danger here of being complacent.....we’re [NBAF] not going to tell anybody anything, but the long-term health and the relationship depends on that transparency.” Mark’s warning emphasizes that transparency must be a constant, not just a starting point, to avoid losing trust, the spread of misinformation, and wasting collaborative opportunities. To strike this balance, NBAF needs to constantly balance open communication with the need for operational security.

Calibrated transparency functions within the boundaries of responsible information sharing. Employing such practices is not only crucial to initiating co-action spaces between NBAF and the broader community; it is also a vital and sustaining force behind the development of a meaningful resilience practice. Individuals and institutions alike must weigh the need for openness against security protocols and potential consequences when deciding what to disclose. As CLG member Gary noted, “I feel like they've always been as open as they can be... I realize there are things that we can't know, and that's fine. But I've always felt like

we could ask any question.” Gary’s comment demonstrates the balancing act of providing the necessary transparency to facilitate productive collaboration in spaces for co-action while concurrently respecting informational boundaries.

Importantly, stakeholders often accept the withholding of specific information when the reasoning is clearly communicated. Explaining the qualifying process or rationale behind such decisions can preserve the necessary trust required for meaningful collaboration, even in the absence of full disclosure. An example of this qualifying process was played out in a meeting between CLG members and NBAF personnel, which I attended. At a quarterly CLG meeting, NBAF officials presented the upcoming transfer of specific Plum Island Animal Disease Center responsibilities, including the nation’s zoonotic vaccine bank and its physical assets, to NBAF. When a CLG member inquired about the transfer timeline, the lead NBAF scientist stated that security protocols prevented disclosure of that information. The scientist explained that vaccines are most vulnerable during transfer and need secrecy to be protected. This example demonstrates how NBAF utilizes calibrated transparency to establish trust with stakeholders. By explaining why specific vaccine shipment details could not be shared, NBAF leadership fostered a sense of openness, even though the information asked for remained confidential.

This gesture resulted in the space for co-action to remain viable by showing respect for stakeholders’ questions and offering partial answers that stabilized trust. At the same time, the act was more symbolic than substantive because NBAF controlled what was revealed and framed its limits as transparency. Additionally, this example illustrates how calibrated transparency is enacted through socio-material resources. The security protocols function as organizing agents in the resilience episode, setting boundaries on disclosure while also

building trust. By openly stating these limits and the reasons behind them, NBAF transformed what could have been perceived as secrecy into a carefully curated act of transparency, which highlighted security. Rather than deflecting or dodging the question, the scientist clearly identified what could be disclosed, what must remain confidential, and the rationale for these boundaries. In other words, NBAF's efforts to communicate those boundaries openly create the framing of the limitations themselves as a form of calibrated transparency. As CLG member Keith noted,

And if I asked for further information or further clarification, I've always gotten it, and that's good. You don't want to give too much, but enough to satisfy the interests and needs of the general people. But if there's more questions, I know that they'll answer them, or that they'll tell me, they can't tell me. And honestly, that in itself, is somewhat reassuring, because I wouldn't want them just tell me something, because I asked them and tell them I need to know.

Engaging in transparent communication practices while maintaining operational security has become a key part of NBAF's interactions with the CLG and the broader community. This calibrated approach to disclosure continues to prove effective in opening and sustaining spaces for co-action, despite the constraints.

In conclusion, developing resilience between NBAF and the broader community relies on NBAF's use of calibrated transparency. Here, trust can be cultivated even when, at times, information disclosure is one-sided because participants have negotiated a mutual understanding of what can be shared and why. NBAF's approach fosters a communicative environment where openness is characterized more by clarity, honesty, and consistency than by the volume of information shared. At the same time, since NBAF ultimately controls

calibration, transparency continues to be a site of unequal power dynamics. While community members often experience reassurance through limited access, such as touring the facility, getting safety information, or participating in CLG discussions, these opportunities, although helpful and stabilizing, are not fully co-constructed. Therefore, calibrated transparency is best viewed as a power-laden practice that builds trust and maintains engagement while also revealing the limits of participation. From this perspective, resilience relies less on equal collaboration and more on the community's ability to adapt to NBAF's specific disclosure methods and their willingness to accept the 'calibration' of what information can be shared.

Theme 4: Organizing Due to Priority Convergence

In collaborative environments, whether among individuals, organizations, or systems, shared direction is rarely accidental. Instead, it emerges from a deliberate convergence of priorities that shapes the conditions for trust, engagement, and resilience. This convergence gives rise to what we refer to as a space for co-action, characterized as a relational environment where reciprocal intent becomes the catalyst for meaningful joint effort. It is important to distinguish priority convergence from more general notions of mutual interest or interdependence. In this study, mutual interest is understood as parallel values that do not necessarily result in collaboration (e.g., both NBAF and the livestock industry value animal health). Furthermore, priority convergence is not simply interdependence. Convergence is the negotiated alignment of what matters now for collective action, which creates conditions for agreement within a resilience episode. In other words, convergence occurs when individual or organizational aims overlap, increasing the likelihood that organizing efforts will be reciprocated and sufficient to sustain a space for co-action, leading to a shared agreement.

The success of resilience episodes, shaped by priority convergence, hinges on two critical dimensions of organizing. First, aligned priorities create an organizing dynamic that enables coordinated action and nurtures resilience through mutual commitment and responsiveness. Second, articulating one's priorities serves both as an invitation and a signal, clarifying intentions, reinforcing roles, and catalyzing participation across boundaries. In practice, this dance of convergence and clarity determines whether collaborative efforts thrive, stall, or fragment before reaching a new direction.

The intersection of priorities among individuals, groups, or organizations forms a foundational space for meaningful collaboration and cooperation. When these priorities align, they create conditions for reciprocal engagement, what we have been calling “co-action spaces”, where each party is more inclined to pursue shared directions and mutually beneficial outcomes. Conversely, when priorities diverge or remain unclear, collaborative efforts often falter before they yield tangible and productive outcomes. These disruptions underscore the importance of priority convergence in fostering effective resilience episodes that emerge from spaces for co-action.

Interviewees repeatedly emphasized how their individual or organizational priorities aligned with those of NBAF. One illustrative example centers on talent recruitment, a recurring theme throughout my data collection. NBAF has consistently identified staffing its facility to full operational capacity as a critical priority, particularly given the highly technical nature of some roles and the limited pool of qualified candidates. However, this priority is not unique to NBAF. Other organizations in the region share a similar focus on attracting and retaining talent. Daniel, a CLG member and employee of Advocacy Group B, an organization

dedicated to fostering business and employment opportunities in the surrounding area, highlighted this shared concern. He stated,

We would like to create an environment where NBAF has the highest likelihood of success of recruiting and retaining the absolute best people they can recruit and retain, and that once they're here, they're retained. They're here, right? They're here...they find a community.

Daniel's perspective illuminates how regional actors see NBAF's success as intertwined with broader community goals. This sentiment was echoed by several other interviewees, who emphasized the importance of creating shared conditions for talent retention and community vitality. For example, Abby reflected,

One of my goals has always been as a legislator, to remove the perspective of Kansas being just these hillbillies in Kansas, and all we do is our cowboys and all of this. So, what this does is elevate that research component of it. It puts us on a map for a different reason, but also for where international communities and other countries want to come here, because they are also interested in similar research, and its' groundbreaking research, and I think that's what intrigues people and gives them that hook to move to Manhattan, Kansas, and I'm always trying to find a reason for them to move here.

These shared concerns reflect clear instances of priority convergence. However, not all aligned priorities translate into collaborative action. For convergence to enable and maintain a resilience episode, two conditions are crucial: (1) mutual acknowledgement of collective investment and (2) willingness to act on it. For example, Daniel's emphasis on workforce retention aligned with NBAF's staffing needs but only became co-actional when their

organization chose to showcase Manhattan as a viable home for recruits. Similarly, Abby's legislative goal of elevating Kansas's research profile converged with NBAF's institutional mission, producing tangible collaborations in messaging and outreach. Without reciprocity and mobilization, convergence remains hypothetical rather than enacted.

Importantly, the individual contexts in which these alignments occur suggest that converging priorities can span organizational and systemic boundaries. Andrew, an employee of the Midwestern Livestock Trade Association, exemplifies the boundary-spanning nature of organizing through priority convergence. He explained,

Nationally, obviously, they're [NBAF] doing critical research on some pretty nasty diseases that affect the livestock industry, trying to find vaccines, trying to find cures, if possible, trying to find ways to cut it off. So, I think that's critically important for the industry I work for, and also diagnosing the ability to have those assets there, if there is an outbreak or something, to try and figure out, okay, what is it and how do we combat it? I mean, for the community, it's obviously a huge employer. You know, a big investment in Manhattan. I think the state level, certainly, given the amount of cattle we have in the state, serves the same point that it has for you know, the national scale of research and diagnostics.

Andrew's comment illustrates how priority convergence can span industries, geographic regions, and system levels, bridging diverse topics and concerns to enable collaborative participation within co-action spaces. When priorities align, they act as a catalyst for offering and reciprocating within co-action spaces, creating conditions where collaboration becomes not only possible but desirable. Parker makes this point clear when she stated, "Now, if a foreign animal disease was to come to the United States....then their [cattlemen] priority might

change, and they might be like, oh, I need NBAF. Because my cattle now...my top...their priority is to keep their cattle healthy.” Moreover, shared priorities increase the likelihood that participants will engage more productively and seek out mutually agreed-upon trajectories. This pursuit of a common direction often signals a successful resilience episode, particularly when collaborators overcome mutual barriers and disruptions together. While alignment fosters the conditions for co-action, it does not emerge passively. The ability to signal and communicate one’s priorities plays a pivotal role in initiating and sustaining productive spaces for co-action.

Articulating the relevance and values of one’s priorities is, therefore, essential, not only as a justification for presence in a shared space but as a way to invite others into a collective effort. Making a clear case for why others should pay attention to your organization or initiative can reinforce your role in co-action and help sustain engagement. This dynamic plays out internally within teams, externally with stakeholders, and across systems where alignment is often the precursor to an invitation and a vital ingredient for sustained collaboration. One way to foster priority convergence is by clearly defining the values embedded within a given priority. This foundational step helps establish a baseline understanding of whether convergence is genuinely possible. Without such clarity, efforts to collaborate risk becoming performative or disconnected from the actual goals. CLG member Kelli captured this dilemma when she asked,

But what do we [the Community Liaison Group] do that brings value to NBAF? I think that’s what the CLG needs to either work with our NBAF leadership or articulate how we continue to bring value to them, because otherwise, I mean, a meeting is just a

meeting. And you know, as much as I love them, and I adore them, and I go to them all the time, if we're not helping bring and value to NBAF...are we still needed or critical? Kelli's sincere question illustrates the importance of articulating priorities and their associated values—not only to justify one's presence in a shared space, but also to facilitate the organizing process that enables active convergence.

Keith, representing the Midwestern Law Enforcement Agency (MERT), provided a concrete example of how articulating shared values can spark priority convergence across systems. Reflecting on NBAF's presence, he explained,

Even our agency and other community... or other public entities have benefitted from the fact that it's [NBAF] here. It's made it easier for us to get grants and expand things that we've needed to expand, but the federal government wasn't interested in little Manhattan or Midwestern Law Enforcement Agency or EMS, whereas now, because we have this federal facility here, it's opened some doors that we need to have opened for federal grants. So, I think that in itself, is a huge side benefit.

Keith's insight shows how MERT's core priority, enhancing community security, aligns perfectly with NBAF's need for a secure operating environment. By clearly defining "security" as a mutual value, both organizations were able to make a compelling case for federal funding, overcoming past barriers of justification. The result was a resilience episode in which MERT accessed new grants to bolster security measures, directly reinforcing NBAF's safety and the wider community's protection. In doing so, both entities strengthened their capacity to respond to community concerns about safety and demonstrated the tangible outcomes of organizing through priority convergence.

In conclusion, priority convergence differs from mutual interest in its ability to mobilize reciprocity and collaboration. Convergence arises not simply when participants share goals, but when they actively align those goals together in a space for co-action, enabling resilience episodes to emerge. The examples from NBAF and its regional partners demonstrate how clearly articulated priorities, whether in talent recruitment, public safety, or community perception, function as organizing activities that bridge individual efforts and foster spaces for co-action. Organizing through priority convergence enables a resilience practice to emerge by actively aligning priorities toward mutual reciprocation and agreement.

Theme 5: Organizing Through Diverse and Meaningful Communication Efforts

Effective collaboration in spaces for co-action is shaped by the ways people communicate, connect, and make meaning together. NBAF and its stakeholders engage across a spectrum of communication modes, ranging from social media to face-to-face conversations and written exchanges, to cultivate collaborative momentum and build spaces for co-action. Jordan emphasized that NBAF employs multiple communication channels to reach a broad spectrum of community members and stakeholders in a strategic effort to create information accessibility and impact.

And I know that we do radio interviews, which I think are super helpful. And then, obviously, all of our tours that we're able to do with stakeholders...just really finding every possible avenue that we can to reach people...is something that I know our staff has been working on.

These varied channels serve as more than just vessels for information; they are strategic tools for delivering messages in ways that are engaging, invitational, and reciprocal. Gary, a representative of Advocacy Group A, emphasized the importance of using varied

communication channels to reach diverse audiences when stating that “I think just getting out on the radio, the print, Facebook, just getting those facts out there, I think are really good.”

Gary’s comment reflects an understanding that individuals receive and interpret information through different mediums, each shaped by personal experience and socio-historical trust.

Communication, in this sense, is not neutral; it carries relational weight depending on the source and context. This nuance was further illustrated in a conversation with Mason, a representative from Advocacy Group B,

Interviewer: Who do you trust to communicate important information?

Mason: Really good question. The list is getting shorter.

Interviewer: And you, coming from your background, I figured you would have something really good to say about this.

Mason: I trust the Merc[ury]. I trust K-Man. I don’t trust the loudmouths on social media.

Interviewer: Okay...So social media is kind of like, proceed with caution, perhaps?

Mason: As a vehicle, yes, but it depends on who is...if it’s the Merc[ury] on social media, I’ll trust it. If it’s K-Man on social media, I’ll trust it.

This exchange highlights the nuanced role communication plays in organizing collaborative efforts. Gary’s emphasis on using multiple platforms (i.e., radio, print, and social media) reflects a strategic understanding that effective outreach must meet people where they are. Mason’s reflections deepen this insight, revealing how socio-historical relationships with specific sources shape trust in communication. Together, these perspectives reinforce that organizing through diverse modes of communication is not merely about disseminating information. It is about recognizing that individuals engage with messages through varying

degrees of trust and acceptance, shaped by their lived experiences and socio-historical relationships with the different modes and sources of the communication effort. These differences directly impact how communication efforts are received, interpreted, and responded to. By attending to these nuances, organizing efforts can become more effective in cultivating inclusive, responsive, and capable spaces for co-action that foster meaningful collaboration, leading to resilience episodes. Recognizing the layered dynamics of trust, reception, and audience context, NBAF has embraced a deliberately proactive and multifaceted communication strategy.

A key component of NBAF's proactive communication strategy is its emphasis on preparing individuals and teams to engage thoughtfully in future moments of interaction, equipping them to be adaptive, responsive collaborators within emergent spaces for co-action. This forward-facing orientation reveals the layered, processual nature of practice; one shaped by lived experiences, socio-historical context, and a shared commitment to growth. One way in which NBAF prepares for invitations to spaces for co-action is by creating communication engagement structures. The creation and maintenance of the Community Liaison Group (CLG) exemplifies a purposeful engagement structure through which NBAF and community members can extend and reciprocate invitations into spaces for co-action. CLG member Andrew described how this communication framework operates in practice,

There's some back and forth from the group. Occasionally we, some of us, receive negative correspondence from various folks about the facility, and there's an open line of communication to communicate that to the staff at NBAF and talk about it among community members. So that's a collaborative group, I think, is how I describe it.

Andrew's reflection highlights how NBAF's intentional formalization of a collaborative group, rooted in personal communication networks, creates a responsive structure for dialogue, feedback, and shared problem-solving. By enabling open lines of communication, the CLG helps address misinformation and community concerns before they escalate, thereby fostering conditions in which resilience episodes can take shape. This example illustrates how meaningful communication efforts, when embedded in trusted relational structures, become powerful tools for organizing resilience practice(s). The relational nature of communication practices is essential when preparing for potential resilience episodes with the community, especially in contexts involving NBAF. Meaningful engagement depends not only on what is communicated but on how relationships have been built and sustained over time, highlighting the importance of diverse communication efforts that account for participants' socio-historical contexts and varying levels of trust. For example, Keith explained it this way,

I liken that with NBAF and the way they've built a relationship with the community, when something happens or allegedly happens up there [NBAF's campus], gets blown out of proportion by someone, or someone makes up something that says, you know, this emergency, when they saw these emergency vehicles going up there, I think the community is going to assume that it is not what maybe it's made out to be. If everyone's [NBAF and CLG members] telling them no, there was no risk to the public, there was whatever, I think they'll [the public] trust that, because they've built that relationship.

Keith's comment reinforces the necessity of using diverse and intentional communication efforts to engage a broad spectrum of stakeholders in ways that build relational trust. By positioning NBAF as a responsive and accessible entity, these efforts create the conditions for

concerned or misinformed community members to invite NBAF into spaces for co-action. When such invitations are met with transparency and dialogue, they can transform apprehension and fear, particularly around safety issues, into shared understanding and collaborative problem-solving. These moments, when effectively navigated, become resilience episodes that are not only impactful in the present but also stored in the collective memory of stakeholders. This repository of lived experience can be drawn upon in future challenges, reinforcing trust that helps accomplish future resilience practice(s). By recognizing and affirming stakeholder contributions to trans-actional meaning-making, NBAF strengthens relational reciprocity and opens the door for collective resilience to flourish.

Another meaningful communication strategy for organizing toward a successful resilience episode in co-action spaces lies in how participants intentionally create conditions for dialogue. These intentional efforts are especially critical for organizations like NBAF, whose technical work can be difficult for the average community member to grasp. By leveraging diverse communication strategies, NBAF creates pathways for understanding and engagement, ensuring that even complex scientific practices are made accessible and inviting within spaces for co-action. Storytelling plays a vital role in this effort. Through narrative and expressive mannerisms, NBAF and stakeholders bridge the gap between intricate scientific work, safety protocols, and everyday comprehension, transforming data into dialogue and knowledge into connection. One example of using storytelling to meaningfully engage the broader community, and potentially spark a resilience episode, comes from CLG member Mason. After participating in an experiential engagement tour of the NBAF facility, Mason shared his experience through a personal story,

I wrote a column after my tour, and it was about changing a light bulb and what you have to do to change a light bulb in NBAF. You don't just walk into the room and change a light bulb. You got to plan. It takes a week or two, and you've got to get, you know, just it's all of those protocols that have been thought through in a deep and meaningful way. It gave me all kinds of peace of mind. And it would give, I would think any other individual, reasonable human being similar peace of mind.

Mason's article for the local newspaper offers a compelling example of how narrative storytelling can serve as a strategic tool for organizing. By anchoring his explanation of NBAF's safety protocols in a familiar experience (e.g., changing a light bulb), he translated technical procedures into relatable terms for a broader audience. This approach demonstrates how storytelling, as a diverse and meaningful communication method, fosters connection, builds trust, and invites participation. NBAF recognizes the power of narrative not just as a tool for explanation, but as a relational practice that helps bridge the gap between scientific complexity and everyday understanding. As Parker noted, being "relatable" is key to facilitating co-action spaces where community members feel empowered to engage, ask questions, and collaborate, laying the groundwork for resilience episodes to emerge.

Crucially, many spaces for co-action do not emerge from formal plans or structured initiatives, but from spontaneous or seemingly routine interaction moments that may be unsought yet carry deep potential. These informal exchanges often serve as choice moments for meaningful engagement. However, participants need to be present, attentive, and relationally available. Being attuned to these moments enables individuals and organizations to respond authentically, transforming everyday communication into opportunities for building trust, fostering shared understanding, and cultivating resilience. In this way, spontaneous

dialogue becomes a vital part of organizing, where meaningful communication efforts can catalyze spaces for co-action and foster resilience episodes.

Being present and willing to engage in unplanned dialogue is a powerful way to reciprocate invitations into spaces for co-action, where trust can be built and resilience can be fostered. As Richard affirmed, “I can pick up my phone right now and text Parker and Alex, and I have a response in five minutes from one.” Andrew confirms Richard’s experience when he stated, “It’s more about knowing, I know that if I have a question pop up, I can contact Alex or Skylar or whoever at NBAF and get a question answered. I think that’s probably the most important thing.” These comment illustrates how quickly and organically these invitations can arise, and how readiness to respond through meaningful communication helps solidify dynamic spaces for co-action. In this way, spontaneous interactions become organizing moments, where relational availability and communicative responsiveness lay the groundwork for resilience episodes to take shape.

A resilience episode emerged from a spontaneous interaction between Skylar, NBAF’s Chief Facilitation Officer, and two retired teachers during the Kansas Science Festival. The retired teachers were first introduced to Skylar’s presentation on NBAF and its mission during a scheduled talk at their retirement community. This initial presentation exemplifies an anticipatory space for co-action, whereas this impromptu interaction illustrates a reactive space for co-action. Concerned about recent federal spending cuts and their potential impact on NBAF’s mission and its ability to accomplish the mission safely, the teachers initiated a choice moment to a potential resilience episode, an invitation into a space of co-action, to gain insight, clarity, and assurances that NBAF was going to be able to overcome these challenges. Skylar reciprocated their invitation with openness and clarity, engaging in meaningful and

face-to-face dialogue that addressed their concerns and built trust. Through this exchange, all participants arrived at a shared direction that, despite funding uncertainties, NBAF remained committed and capable of continuing its vital work safely. Skylar's impromptu exchange with the retired teachers reveals how resilience episodes often arise organically, unfolding *in situ*. These moments of connection are initially provisional until they gather momentum through reciprocation and shared agreement. This real-world example illustrates how organizing through diverse and meaningful communication efforts, especially in unplanned moments, can foster resilience.

In conclusion, organizing through diverse and meaningful communication efforts enables NBAF and its stakeholders to foster trust, responsiveness, and collective resilience across a dynamic landscape of interaction. By intentionally engaging across multiple modes (i.e., social media, in-person dialogue, written correspondence, and storytelling), NBAF creates conditions for authentic connection and shared understanding. These efforts are not merely relational; they are trans-actional practices that invite participation, acknowledge contributions, and translate complexity into accessibility. Crucially, it is often in the unscripted, everyday exchanges that the seeds of co-action are sown. In these moments, communication becomes more than a means to convey information; it becomes a foundation for meaningful collaboration and a catalyst for successful resilience episodes to occur. Organizing through diverse and meaningful communication efforts, in this sense, creates the conditions for resilience to take root through everyday moments of connection.

Research Question Two: What Factors Prevent Co-Action Spaces from Solidifying and Producing Resilience, Particularly in Building Trust Between High-Containment Labs and Communities?

Although many organizing efforts at NBAF highlight the potential of co-action in fostering resilience, not all initiatives succeed in solidifying these spaces. The five themes identified under Research Question One (RQ1) demonstrate how NBAF and community stakeholders collaborate to create and sustain spaces for co-action that foster resilience. However, this represents only part of the picture. The case also revealed substantial barriers that can derail or even prevent such spaces from emerging or ultimately solidifying. While RQ1 illustrated how anticipatory and situational organizing efforts enabled resilience episodes, the following themes shift the focus to why many episodes fail to materialize or dissolve prematurely. These breakdowns reveal the fragile and contested nature of resilience as a practice, underscoring that spaces for co-action are as easily disrupted as they are created. These constraints highlight how candidate resilience episodes (i.e., underdeveloped resilience practice) do not guarantee the emergence of a resilience practice. Episodes may stall at the choice moment, falter in reciprocation, or fail to reach agreement. Exploring these incomplete episodes sharpens RAP's theoretical contribution, showing resilience as a delicate, situated process rather than a static achievement or product. To address the research problem more fully, we now turn to the findings for Research Question Two (RQ2), which identify five key factors that disrupt or hinder resilience-building processes. RQ2, therefore, seeks to examine and better understand the conditions that obstruct or destabilize collaborative spaces for resilience.

Understanding why specific spaces for co-action fail to organize into resilience episodes is essential for identifying and addressing the underlying barriers that prevent trust-building and collective response. It is worth noting that these findings highlight factors that can prevent or disrupt the critical organizing efforts, identified in the findings for research question one, that are essential for the successful co-construction of resilience practices. My data analysis process resulted in the construction of five themes that directly point to these hindering factors: (1) Limited Resources: Preventing and Closing Spaces for Co-Action (2) Operating Constraints: Hindering Spaces for Co-Action (3) Language Intimidation: Creating Barriers to Productive Spaces for Co-Action (4) Matter of Concern: Differing Perspectives Influencing the Necessity for Spaces for Co-Action; and (5) Lingering Fears and Negative Rumors: Disintegrating Spaces for Co-Action. These themes are described in Table 4.2.

Table 4.2. (RQ2) Preventing and Disrupting Spaces for Co-Action Aimed at Producing Resilience

Theme	Description
Limited Resources: Preventing and Closing Spaces for Co-Action	Limited materials, funding, time, or personnel can constrain co-action spaces, requiring strategic choices based on ROI. Participation depends on individuals' and organizations' capacity to commit personal resources, such as time and mental energy.
Operating Constraints: Hindering Spaces for Co- Action	Formal policies, informal norms, organizational complexity, and shifting external conditions can restrict co-action. These factors can create uncertainty and limit both permission and capacity to engage flexibly in collaborative spaces.
Language Intimidation: Creating Barriers to Productive Spaces for Co-Action	The use of technical or unfamiliar language, whether intentional or not, can overwhelm, confuse, or unintentionally alienate individuals, limiting their ability to engage in co-action. Even when used with harmless intent, such language can create barriers to understanding and contribute to language intimidation, discouraging meaningful participation.

Matter of Concern: Differing Perspectives Influencing the Necessity for Spaces for Co-Action	Diverging concerns or conflicting priorities among individuals or groups can hinder the formation of co-action spaces or cause existing ones to dissolve. When shared purpose or urgency is lacking, collaboration struggles to take root, emphasizing the importance of aligning perspectives for sustained collective effort.
Lingering Fears and Negative Rumors: Disintegrating Spaces for Co-Action	Negative histories, unresolved concerns, and inaccurate information, such as rumors or misinformation, can erode trust and prevent co-action from taking hold. When these issues go unaddressed or are met with dismissiveness, they often lead to disengagement, skepticism, and a lack of momentum for collaborative efforts.

Theme 1: Limited Resources—Preventing and Closing Spaces for Co-Action

Limited resources, whether in the form of time, staffing, funding, infrastructure, or cognitive capacity, can significantly erode the foundations of co-action. These constraints don't just slow momentum; they disrupt the continuity, depth, and trust necessary for collaborative work to thrive. Limited resources emerged as a significant barrier to building trust and, by extension, cultivating collective resilience, according to the collected data. When asked directly about obstacles to trust-building, Jordan affirmed, "Definitely...limited resources have been a barrier." Their response reflects a recurring sentiment among participants, underscoring how resource constraints can hinder the development or sustainment of spaces for co-action. Limited resources take many forms, and their influence on trust-building and resilience at NBAF emerged as a recurring theme in the data. Alex gestured toward this multifaceted constraint when asked about current challenges facing the NBAF communication team when they stated, "You can almost say resource-constrained, right? Because it's a number of people. It's a time. And then even our yeah, the people on the other end are only here for so long." Their reflection highlights how both organizational capacity and community realities shape the ability to open

and maintain spaces for co-action. One clear dimension is the size of the communication team itself. Skylar offered further clarification during our conversation,

And you prioritize things a little more...I just got out of a meeting with our two interns.

We lose them tomorrow. Not because of the...R.I.F. [Reduction In Force] or anything, but they're graduating. So, you know, our team went from 8 to 3, right? Now there's just 3 of us.

This sharp reduction in personnel illustrates how limited human capacity can narrow the team's bandwidth for engagement. With fewer staff available to initiate or respond to invitations into co-action spaces, prioritization becomes essential and, at times, limiting. As Parker succinctly put it, "There are three of us and we can't physically be everywhere!" Taken together, these voices reveal how resource constraints, especially in terms of time and personnel, can prevent relational efforts from taking root or gaining momentum. In doing so, they describe how even willing participants may struggle to reciprocate, maintain, or expand invitations into resilience episodes when capacity is stretched thin.

It is essential to recognize that resource constraints are often interrelated. While the previous section may suggest that simply increasing personnel could resolve NBAF's relationship-building challenges, the reality is more complex. The strain placed on the communication team, tasked with managing extensive community engagement efforts with just three members, is directly connected to another critical limitation, funding allocation. Without sufficient financial resources to support staffing expansion or broader outreach initiatives, the organization's capacity to reciprocate invitations into co-action remains constrained.

Data collection for this study took place during a period marked by shifting political dynamics and heightened uncertainty surrounding federal funding. NBAF, like many other

federally operated entities, was not immune to these challenges. Regarding staffing limitations, Skylar noted, “We definitely have to sit back and take a step back and prioritize a little bit more. We are in that...in a hiring freeze.” Their reflection highlights how budgetary constraints imposed by broader political forces complicated efforts to expand personnel and deepen community engagement. As Skylar explained, attempts to reduce the size of the federal government, coupled with unclear funding trajectories, have directly impacted NBAF's operational capacity. One result has been increased strain on the communication team, now stretched thin in its outreach responsibilities. Skylar acknowledged that these conditions may necessitate scaling back their external engagement efforts. Put simply, there are insufficient personnel resources to maintain existing levels of community interaction, let alone expand into new spaces for co-action. In addition to internal constraints, such as staffing and funding, external contextual factors further complicate the NBAF's efforts to sustain spaces for co-action. Chief among these is community transience, a structural challenge that can fragment relationships and disrupt continuity in engagement practices.

In highly transient communities, sustaining trust and long-term engagement becomes increasingly tricky. Abby captured this dynamic succinctly,

It's a very transient population, so we have a lot of people that move in and out all of the time, whether it's with Fort Riley or Kansas State University students, or even our businesses, you know? So, because it is a transient population, some may not even know we have NBAF here.

Her observation reveals how frequent turnover, driven by military rotations, shifting academic cohorts, and changes within the local business community, can erode awareness and continuity in stakeholder relationships. Richard echoed this reality, “I mean...it's a transient community.

And so, people change the CLG, and then natural attrition through people.” Richard’s observation was echoed by Alex, who reiterated the instability of stakeholder participation in transient communities, “Even they [CLG members] will come and go, right? Our county commissioners change out and stuff like that.” These reflections point to a critical and often overlooked resource limitation of time. The temporal boundaries imposed by transient populations constrain NBAF’s ability to capture, foster, and sustain potentially productive relationships. Rapport must be rebuilt with each cycle, and orientation efforts are frequently reset, leaving little space for deeper, ongoing collaboration. This constant churn challenges the formation of resilience episodes and exemplifies how time itself becomes a scarce and impactful resource that NBAF must continually work to overcome.

As trusted collaborators move on, institutional memory weakens, and hard-earned rapport must be continually rebuilt; orientation efforts are reset on an endless loop. These transitions impose recurring time boundaries on relationship-building, limiting the duration during which individuals remain engaged and available for co-action. Jordan put it this way when considering the constant orientation stance required by NBAF,

Yeah, I think looking at NBAF specifically, their approach to gaining the trust of their community has to be unique, because we live in such a transient community that once you gain the trust right now, in two years that trust has to be regained, because we’re just...we’re changing so constantly with the college being such an important key part of our community.

As a result, NBAF faces added difficulty in sustaining long-term community partnerships and risks diminished stakeholder engagement over time. The window for initiating, nurturing, and solidifying spaces for co-action is often narrow, bounded by the transient nature of its

surrounding communities and the time constraints placed on both organizational and individual participants. Time, in this context, becomes a critical and often scarce resource. To foster resilience, NBAF must continually recognize and act within these brief openings before collaborators move on and momentum is lost.

Beyond the transient characteristic of community life, relational challenges also arise from limited access to key collaborators. When influential partners and community leaders are stretched thin or unavailable, initiatives often fragment, and progress stalls. Jordan captured a recurring challenge when they remarked, “I think again...when you're trying to get a group of influential people in a room, especially during times of turbulence...just finding a cohesive time in the schedule...is so challenging.” Their observation reflects a broader tension shared by CLG members Abby and Andrew, both of whom noted their difficulty in consistently attending CLG meetings. Despite valuing the meetings as meaningful spaces for collaborative engagement with NBAF and fellow members, their limited availability often forces them to prioritize immediate demands over long-term participation. These comments stress that misaligned schedules, shifting roles, and uneven presence can prevent key conversations from taking place, undermining relationship-building and delaying the formation of collaborative co-action spaces.

Internally, these same constraints ripple through organizational decision-making. Individuals must ration their commitment, weighing which co-action opportunities to pursue and which to forgo—not out of strategic preference alone, but out of necessity. Skylar illustrated this tension through a story that revealed the emotional, logistical, and resource-based calculus behind deciding when and how to engage in co-action spaces,

You know, I drove 4 hours, but I wanted to talk to this group. This was the Nebraska Cattlemen’s Association. It was an important group. I drove four hours to give a thirty-

minute talk and drove four hours back, and on my way back...I'm like, man...was that really worth driving eight hours in a car to talk to them for thirty minutes? I think it was, but you know, eventually you've got to kind of look at the group and think about you know, your resources if it's really worth doing that.

Skylar's reflection highlights the trade-offs inherent in outreach efforts, particularly when staff members must assess the return on investment in terms of both time and impact. Even when engagement feels meaningful, resource scarcity forces difficult decisions about where to allocate effort. Their story reveals a broader reality for the NBAF's communication team, which is that the pursuit of resilience born through spaces for co-action is shaped not just by intent, but by the very real limits on availability, energy, and sustainability. In other words, limited resources force potential participants in co-action spaces to navigate difficult trade-offs.

When faced with competing demands, individuals must decide whether to invest their energy or step back, knowing that overstretching risks burnout, while disengagement risks losing momentum. Under these conditions, participation is often assessed through a return-on-investment lens, where volatility and resource scarcity can outweigh anticipated impact. Parker highlighted this reality when they reflected,

I think there are sometimes when I don't feel like defending the facility, as far as I'm just...don't want to work...I don't want to work 24/7. I don't want to have to be on my talking points 24/7. So, there are times when I do choose to say I work for USDA, and let it be that.

Their comment underscores the toll of constant engagement and the necessity of conserving personal energy. Even committed participants may retreat from deeper involvement when the demands feel unsustainable, resulting in potentially promising co-action spaces being sidelined

before they have the chance to take shape. An observed outreach event between the NBAF and the K-State Women's Society of Engineers (KWSOE) provides a clear example of how time and individual energy constraints can impact the viability of co-action spaces. KWSOE invited NBAF to speak at one of their meetings about the facility and its mission, a promising opportunity for collaborative engagement. However, the meeting took place at the end of the academic semester, when many members were occupied with preparing for final exams. As a result, several were unable to attend, highlighting how personal resource limitations, particularly time and energy, can directly impact participation and, by extension, the potential for productive collaboration.

In conclusion, limited resources don't just reduce capacity; they shift the tone of collaboration from generative to reactive. They diminish the ability to show up fully, compromise the quality of engagement, and weaken the very trust structures that successful spaces for co-action depend on. Participants are routinely faced with difficult decisions about where to allocate their limited resources, often resulting in promising co-action spaces being underserved or closing entirely before resilience can take root. In transient communities, fleeting windows of opportunity complicate the development of durable relationships. Misaligned schedules and uneven availability can delay or prevent key conversations altogether. As collaborators cycle in and out, NBAF must continually recalibrate, rebuilding hard-earned rapport and protecting fragile momentum that's at constant risk of erosion. Resource constraints compress what could be open, relational processes into high-stakes assessments of return on investment. Instead of expansive engagement, trust-building becomes fragile and reactive. Collaborations stall before they begin, and resilience efforts fracture under the weight of attrition

and exhaustion. Within these conditions, co-action demands not only strategic effort but a recalibrated understanding of what sustainability truly requires.

Theme 2: Operating Constraints—Hindering Spaces for Co-Action

Efforts to build and sustain spaces for co-action often face invisible yet powerful limits shaped by organizational, structural, and societal constraints. Engagement activities that are considered beneficial, such as community outreach, open dialogue, and spontaneous collaboration, may be restricted or discouraged due to various reasons. For example, Parker warned that efforts to build and foster collaboration with the broader community have “to be balanced with security.” In the case of NBAF, these restrictions arise from operational constraints, including the essential security infrastructure that limits permissible interactions with the public, as well as political and societal changes, and bureaucratic factors.

Physical and procedural barriers play a tangible role in how the NBAF operates on a daily basis. Restricted access to certain facilities, limitations on information sharing, or tightly controlled communication channels can isolate initiatives and undermine relationship-building efforts, thereby preventing spaces for co-action from solidifying. As a high-containment laboratory, NBAF enforces rigorous security protocols to protect its personnel, safeguard the pathogens under study, and uphold the safety of the surrounding community. Through my data collection and collaboration with NBAF, I encountered several instances that illustrate how the organization’s physical security protocols intentionally shape and limit interactions with the public. Even as an invited guest to the NBAF facility, I was required to undergo a multi-stage security protocol, an integral part of their everyday operating procedures. Prior to arrival, I completed a federal background check, and once on site, navigated several security checkpoints, the specifics of which I’ve chosen to withhold to preserve their integrity. These stringent

measures not only shaped the experience of collaboration during my visit but also continue to influence how I engage with and represent NBAF in writing these findings. Richard highlighted the physical barriers that prevent spontaneous spaces for co-action between NBAF and community members at their facility when he stated,

I know that there's walls and fences and guards and so it's never going to be inviting...NBAF's never going to be like, Hey, we're having a party. We want you all to come out and see us. That's just not the way the federal government's going to work.

Parker echoed Richard's perspective during our conversation, noting,

So, I cannot physically let people in to see every aspect, because that is a security risk. I cannot simply just open the doors because there are threats that would use that information against the facility or the nation or whatnot.

Together, Richard and Parker's comments reveal how NBAF's physical infrastructure inherently shapes its social permeability, limiting the potential for spontaneous connection and community-driven engagement on campus. These spatial restrictions are not accidental; they reflect deeply ingrained security priorities that emphasize containment and protection over some spaces for co-action.

Yet, the barriers to co-action extend beyond physical boundaries. NBAF's institutional posture also includes tight controls over information, especially when it involves personnel details or internal operations. Public-facing narratives must be strategically curated, and many forms of transparency are restricted by security, policy, or federal oversight. The potential negative impact of informational restrictions on solidifying co-action spaces is clearly demonstrated by a CLG member's expressed desire for more transparency to support NBAF's preparation for incoming employees better. Daniel vented that,

I know that this is fighting some federal and probably some security related challenges, but we as a community could be much more responsive and do what we do better if we had a better understanding or get information from about folks, about specifics of when people are going to come on, and how many and I mean, it has just been like pulling teeth.

Despite this willingness to collaborate, NBAF's strict control over personnel information, rooted in its security protocols, limits access and hinders deeper community alignment. Alex reinforced the significance of information security at NBAF, particularly regarding personnel, by highlighting the tension between a desire for openness and the constraints of established operating protocols. Reflecting on outreach challenges, they explained, "We are mindful of a lot of things. When you look at social media, we wanted to do a meet our employees [segment]. Well...that doesn't really work here." These tensions highlight how protective information practices, although understandable, can unintentionally hinder trust-building and limit the full emergence of collaborative engagement in spaces for co-action. These layered constraints, both material and informational, create a complex landscape in which trust-building must navigate not only logistical hurdles but also a culture of cautious disclosure.

Furthermore, the complexity and rigidity of organizational structures compound the challenge of solidifying spaces for co-action. These operating constraints, embedded in layers of internal approval and bureaucracy, can generate uncertainty and slow responsiveness, especially when collaborative opportunities arise organically and demand agility. When community invitations or emergent engagement possibilities surface, the very structures designed to maintain order and security may inadvertently hinder timely participation, stalling momentum before shared intent can be converted into action. For instance, when NBAF identifies outreach events

that could serve as meaningful spaces for co-action, participation often requires prior approval from the USDA. This additional layer of oversight can lead to delays or limitations in involvement, highlighting how institutional protocols influence the feasibility and responsiveness of collaborative engagement. Skylar, NBAF's Chief Facilitator Officer, succinctly captured this operating constraint when they described the current approval process required for organizational participation.

But yeah, this time, we're having to get permissions a lot to go out and speak, and to go out and be in the community. We have to...there are forms we have to fill out...and it takes a lot...it takes longer. I just can't say, I'll come out and talk to your group. It's like, well...give me this information. I need to get all this information from you. I need to send it through two or three different channels and get approvals. I'll get back to you in a week, and let you know if I can do it.

Parker supported Skylar's assessment of the approval process by noting the constraints NBAF faces when seeking to release information. They shared, "There's been a couple of things that we have tried to send up for approval. And they haven't been responded to, or just like they...they die" underscoring the constraints of the approval process NBAF operates in when wanting to release information. Richard raised a critical concern about the unintended consequences of layered messaging approvals, arguing that they can strip communication of its authenticity and hinder efforts to build community trust. Reflecting on NBAF's public engagement, he remarked,

And I think they've allowed scientists to talk. But again, it's an approved message. It doesn't sound like this. It doesn't sound like a conversation. It sounds like a commercial. It sounds like information being spread. It sounds like the Midwestern Emergency Response Team (MERT) chief telling you why it's important that we have a ten million

[dollar] budget. It sounds very official. And that doesn't, in my opinion, doesn't do much for trust.

His observation demonstrates how engagement gatekeeping, rooted in operational constraints, can compromise the relational quality of outreach. Rather than fostering collaboration through open dialogue, these approval structures often lead to sterilized messaging that feels performative or impersonal. In the context of participating in spaces for co-action, where trust and transparency are foundational, such communication barriers risk weakening collaborative potential and diminishing opportunities for resilience episodes to occur. As Jeff made sure to remark, "You know, they [NBAF] are friends on one hand, but, dear God, they're so bureaucratic!" These comments illustrate how layers of organizational approval and bureaucracy impede, and sometimes even inhibit, necessary spaces for co-action that are vital for achieving collective resilience.

However, the operational constraints that hinder spaces for co-action stem not only from internal organizational protocols shaped by security and bureaucratic demands, but also from external forces. Shifts in leadership, changing public sentiment, and volatile global events can significantly reshape the social and political landscape in which engagement occurs. These external dynamics often prompt new policies or reinterpretations of existing ones, altering how individuals and groups participate in or withdraw from spaces for co-action. For example, Jordan shed light on how shifting political climates can influence communication practices. Reflecting on organizational limitations, they remarked,

And so, that is something that we have been struggling with is...when there's information out there that we would like to combat. But we're not able to, because of the current policies and procedures in place...that can be really challenging.

Their comment highlights how external political forces can entrench operational constraints, limiting the ability to respond, adapt messaging, or engage in public discourse in real-time. Jordan elaborated further on the impact of regulatory shifts resulting from an evolving political environment, noting how changing governmental policies restrict what the NBAF is permitted to share with the public. They stated, “Also, with the governmental changes, the different regulations that we have in place with what we’re allowed to tell people....when we’re not allowed to comment on things, that can be really difficult in garnering trust.” Their observation highlights how external political dynamics impose communication practice constraints that challenge transparency and hinder the cultivation of trust needed within spaces for co-action.

Even with strong internal intent, such external disruptions introduce uncertainty, elevate risk perceptions, and influence how information is managed and shared, often stalling or redirecting collaborative momentum. Alex provided a poignant example of how the broader climate can influence organizational communication choices. Reflecting on missed opportunities for outreach, they noted, “But there have been a couple of neat stories that we would have liked to share...even externally, that because of the climate of everything happening, it wouldn’t feel right.” Alex’s reflection highlights how volatile external conditions can impose informal yet powerful constraints on engagement, where even well-intentioned organizing efforts may seem out of sync with the moment. In such climates, potential opportunities to cultivate spaces for co-action risk being delayed or abandoned before they even begin to take shape.

In conclusion, examining the operational constraints at NBAF reveals a complex network of interconnected barriers, including physical, procedural, external, and others. These operating constraints do more than simply slow progress; they destabilize the very foundation necessary for the spontaneous and successful emergence of co-action spaces. Strict security protocols and

layered approval requirements curtail informal interactions, hindering productive collaboration efforts. Beyond these internal dynamics, shifting political climates and volatile global events introduce additional uncertainty, prompting policy reinterpretations that can render well-intentioned outreach ill-timed or inappropriate. In this landscape, potential points of connection often dissolve before they can materialize, as informal restraints compound formal procedures and external pressures. Together, these findings underscore how deeply embedded operating constraints shape the feasibility of spaces for co-action and, ultimately, resilience.

Theme 3: Language Intimidation—Creating Barriers to Productive Spaces for Co-Action

Language, while a powerful tool for connection, can also unintentionally become a barrier to productive collaboration in spaces for co-action. When complex, technical, or domain-specific terminology is used without thoughtful consideration of the audience, it can overwhelm or alienate potential participants you want to include in spaces for co-action. Jordan captured the essence of language intimidation when they remarked, “If you don’t have a scientific background, it can be so intimidating, and it can be hard to listen to a scientist explain the role of NBAF and to understand everything that it is that they’re saying.” Their observation reveals how technical language, though accurate, can become exclusionary, making it difficult for non-experts to fully grasp or engage with some information or efforts to create shared understanding.

This phenomenon, referred to here as language intimidation, occurs when individuals find themselves unable to follow a conversation or engage meaningfully in a space of co-action due to unfamiliar or inaccessible language. Such instances often arise when participants within spaces for co-action often rely on complex terminology and acronyms that, while familiar to insiders, can confuse or alienate those without specialized knowledge, including community

members, non-scientists, and others seeking to engage in collaborative efforts. This discursive barrier can quietly fracture participation, undermining inclusivity and diluting the potential of truly reciprocal engagement. In other words, language intimidation can impede effective communication and collaboration between experts and non-experts; this is a barrier that organizations like NBAF must continually recognize. Parker exemplifies this challenge in her reflection, “You know, if they’re using terms that the general public doesn’t understand or can misrepresent in the general public’s frame of mind...then that’s going to change their perspective.” Their comment highlights how unfamiliar and intimidating terminology can reshape perceptions, undercut trust, and weaken the foundation for meaningful collaboration.

The negative effects of language intimidation demand that organizations like NBAF remain acutely mindful of how they initiate engagement with community members and vice versa. This recognition must go beyond acknowledgement; it requires ongoing attention to how communication unfolds. Even with the best intentions to collaborate and foster spaces for co-action that build trust and advance collective resilience, the language used during early interactions can unintentionally shut those spaces down before they have a chance to form. When communication relies heavily on scientific discourse without accessible translation, it can leave community members feeling unwelcome or unqualified, diminishing their confidence in reciprocating the invitation to co-action. When asked directly about the impact of technical language on spaces for co-action, Alex responded emphatically,

Yeah...absolutely! I think it [technical jargon/acronyms] absolutely does because nobody wants to look or feel like they don’t know, right? Nobody wants to feel stupid. Because they’re sitting in a conversation, hearing scientists talk about a disease that they know nothing about.

Their reflection reveals how language can create a sense of intimidation that acts as a subtle yet powerful deterrent to engagement, leaving participants feeling excluded or underqualified.

Daniel echoed Alex's concerns about language intimidation and its emotional toll on participants navigating spaces for co-action,

I mean, before engaging at that with through the group and at that level with the CLG. I mean, it's not particularly adept at science. I mean...I wouldn't know. However, I've learned a lot, which is good. I mean, I can kind of, quasi speak the language when needed...*not make a fool of myself* (italics added for emphasis)

His reflection captures how unfamiliar scientific language can evoke self-doubt and hesitation, subtly discouraging participation and reinforcing barriers to productive collaboration.

Ultimately, the self-doubt and confusion stemming from language intimidation obstruct the development of productive collaborative spaces and hinder the emergence of resilience. Jordan further illuminated how language intimidation can obstruct the emergence of co-action spaces.

Reflecting on the role of scientific jargon, they noted,

I know when it comes to scientific jargon...If you're someone who doesn't have any scientific understanding...if you read that first sentence of a news release or of something that we're trying to publish externally, and the first sentence includes maybe 30 percent terms that you don't understand...you just stop reading.

Their observation demonstrates how technical language, even when well-meaning, can act as a barrier rather than a bridge, shutting down NBAF's efforts to invite collaboration. Alex again pointed to the exclusionary impact of language intimidation within spaces for co-action, sharing a moment of personal disconnect, "But we definitely...believe me...there are times that I've sat in presentations. I'm like, I have no idea what they're talking about." Their reflection indicates

how technical discourse, even within seemingly collaborative settings, can leave participants feeling disoriented or unqualified, silently undermining the inclusivity and accessibility that spaces for co-action depend on. These comments highlight how the intended transfer of knowledge or correction of misinformation becomes ineffective when the language used alienates the very participants whose trust and engagement are essential to spaces for co-action.

Importantly, this dynamic is seldom rooted in malice or deliberate exclusion. More often, participants draw naturally from the vocabularies shaped by their training and professional domains. Parker reflected on this unintentional use of intimidating language and its impact on spaces for co-action with a telling anecdote,

But that's not what the scientists are talking about [the term mutant being associated with physical abnormalities]. It's a specific aspect of their science. And I'm like, can we get away from this term [mutant cell]...can we find a different term for this...this scientific aspect? But helping our scientists recognize that using certain terms is interpreted differently. And that they need to watch those terms when they're speaking to a general audience or to a nonscientist.

Their insight highlights how certain terms, while innocent within scientific contexts, can carry unintended connotations that inhibit understanding and create distance, particularly when collaborating in spaces for co-action with participants who lack similar backgrounds or experiences. Skylar further illustrated the unintentional nature of language intimidation while reflecting on a CLG meeting, where one of NBAF's lead scientists was presenting important information to the group,

That happened a couple of times yesterday. I actually, when Dr. [Scientist H] was speaking...she used some terms...that...there were a couple that I wasn't sure what it

was, and I know people in the field....There might have been one or two that knew what it...what they were.

Their comment reveals how even well-intentioned scientific communication can alienate non-expert participants, limiting their ability to engage fully. It demonstrates how specialized language, even when familiar to a handful of insiders, can interrupt collaborative momentum in spaces for co-action by making others feel excluded or underprepared. Even when unintentional, language intimidation creates barriers to productive spaces for co-action. These spaces are essential for collectively accomplishing resilience episodes, yet the subtle exclusions embedded in communication practices can disrupt collaboration occurring within spaces for co-action or even before these spaces have a chance to fully take shape.

In conclusion, the result of language intimidation is a subtle, often invisible, erosion of collaborative engagement. Individuals may hesitate to ask questions, contribute ideas, or enter collaborative spaces altogether. This undermines the productive potential of co-action and weakens the very reciprocity and collaboration those spaces aim to cultivate. Even when unintentional, the use of technical jargon, acronyms, or domain-specific language can evoke self-doubt and discourage participation, making prospective collaborators feel unqualified or unwelcome. Importantly, language intimidation is rarely intentional, especially when individuals are actively seeking to participate in productive spaces for co-action. More often, it stems from unconscious habits, where speakers naturally rely on familiar language without realizing how those choices resonate with unfamiliar audiences. Yet its consequences are real, often creating barriers that hinder the collective production of resilience.

Theme 4: Matter of Concern—Differing Perspectives Influencing the Necessity for Spaces for Co-Action

Participation in spaces for co-action is often driven by an individual's or group's sense of matter of concern; the degree to which they recognize an issue as urgent, relevant, or personally significant. However, this orientation is highly fluid and shaped by multiple intersecting forces that influence whether someone is willing, or even able, to meaningfully engage. These differing orientations toward what constitutes a matter of concern vary across roles, context, and participant perspectives. For some, the urgency to participate in spaces for co-action arises from direct exposure to risk or personal stakes in the challenge at hand; for others, it may emerge more gradually through strategic alignment or moral resonance. This diversity is not necessarily an issue. In fact, it often enhances collaborative efforts by incorporating various viewpoints. However, when perspectives differ too widely or go unrecognized, they can hinder the common understanding needed to foster and maintain spaces for co-action. Collected data indicate that the spaces for co-action falter not simply because stakeholders disagree, but because the framing of concern itself becomes contested, misaligned, or deprioritized. Often, this theme sits as a juxtaposition to priority convergence. This tension between priority convergence and diverging concerns highlights how differing perceptions of importance begin to emerge, shaping whether a shared issue is perceived as urgent, actionable, or even worth pursuing.

One key factor is the difference in perceived importance. Individuals and groups often hold divergent views on what warrants attention, shaped by their lived experiences, institutional affiliations, or cultural contexts. These differences can create misalignment around purpose, slowing momentum before collaboration even begins. What compels one stakeholder to act may feel abstract or peripheral to another. Daniel exemplifies the contested nature of differing matters

of concern when discussing how NBAF and the broader community might collaborate on talent recruitment and retention. Reflecting on the challenges of shared prioritization, he bluntly observed, “I worry sometimes that there isn’t going to be, there’s not necessarily reciprocity on that being an important thing yet.” His comment highlights how uneven recognition of priority can hinder co-action before it even begins, particularly when mutual investment has not yet been fully established. Andrew further illustrates the hindering effects of the presence of diverging concerns and priorities on spaces for co-action through his reflections on misinformation surrounding NBAF. Responding to outreach emails from individuals outside the Midwestern Livestock Trade Association (MLTA), he remarked, “Well for me...that the out of state emails that weren’t MLTA members, I couldn’t care less. I’m just going to delete those emails after I read them.” His blunt reaction signals a lack of reciprocity toward engaging across boundaries, particularly when concerns fall outside his perceived domain of responsibility. He elaborated further,

Because that's a national, federally owned facility, and they do need to be concerned about misinformation campaigns that are out there and find ways to address those. For me, it's not [my concern]... my concern is my members when they have concerns that they voice, and getting them the best information we can about how the facilities constructed, the safety protocols, why it's good to have it there. And you know, sometimes they'll listen and process and sometimes folks just don't want to, and that's fine.

Andrew’s comments highlight how institutional affiliation and stakeholder orientation influence the way concerns are framed. While he acknowledges the importance of addressing misinformation at the federal level, he does not view it as urgent within his own scope of

responsibility. This difference in perceived importance shows how collaboration can be hindered when participants do not share a common sense of responsibility for addressing pressing issues. In this case, the challenge posed by misinformation remains unresolved collaboratively because it is not seen as significantly relevant by all parties involved.

A potential participant's willingness to enter and contribute to a space of co-action aimed at addressing a particular concern is often shaped by the degree to which they adopt an agnostic stance toward that issue. Jordan illustrates an agnostic attitude toward collaboration when they describes individuals who view NBAF as irrelevant to their lives or unworthy of their time and effort, "people who might have that perception of I would rather not learn about NBAF. It doesn't really impact me." Their observation reflects how perceived disconnection from a shared concern can diminish the motivation to engage, even when opportunities for co-action exist. Keith expands this recognition of agnostic engagement by reflecting on how NBAF is perceived, or largely unperceived, by the broader community. "Honestly, I don't think very many people do think about it [NBAF]. I think they forget NBAF is even there," he remarked, highlighting how the facility's low visibility in everyday discourse reflects a broader lack of perceived urgency or relevance, suggesting that, for many, the NBAF does not register as a pressing matter of concern or a priority worthy of engagement. Mark reiterated this perspective, highlighting that NBAF does not appear as an urgent issue for most community members unless externally provoked,

So, I mean, this is just the way some things work...that this big thing up there on the hill is very well known to a few, is understood by maybe a few more, and then most people have no darn idea and *don't care* (italics added for emphasis), unless they're energized by, you know, somebody who wants to make trouble.

These reflections highlight how a perceived lack of relevance or immediacy can lead to passive disengagement, revealing yet another barrier to forming or sustaining spaces for co-action. When a concern is viewed as peripheral, non-urgent, or outside one's sphere of responsibility, engagement may stall, even if pathways to spaces for co-action are readily available and desired. This initial disengagement, stemming from perceived irrelevance or lack of concern, can quietly foreshadow deeper challenges, where even moments of alignment struggle to maintain traction over time.

Even when alignment is possible, sustaining a shared sense of concern or dedication over time is fragile. Sustaining attention within spaces for co-action is inherently fragile, especially when the framing of concern lacks shared urgency or emotional resonance. The shared concern that initially draws participants into spaces for co-action can gradually erode, leaving some stakeholders disengaged or unwilling to remain involved. In other words, stakeholders may briefly converge around a common concern, but without continued reinforcement or relational investment, collaboration begins to dissipate. Prioritization shifts, distractions emerge, and what once felt meaningful can slip into the margins. Initial willingness to reciprocate an invitation to a space of co-action does not guarantee sustained engagement or the emergence of a resilience episode. Participation may begin with enthusiasm or good faith, but without ongoing reinforcement and shared prioritization, commitment can falter, and collaborative outcomes may remain unrealized. This ebbing commitment reveals that spaces for co-action are not a static achievement, but a dynamic process, one that demands ongoing recalibration of relevance, reciprocity, and responsibility to keep these spaces alive.

Technological and material disruptions exacerbate that fragility. Devices such as phones and laptops, when used for unrelated tasks, divert attention away from shared engagement and

space for co-action. One example of how technology can hinder productive collaboration emerged during two field observation events I attended, NBAF's presentation to the K-State Women's Society of Engineers (KWSOE) and a guest lecture by an NBAF member in a university crisis communication class. Both events offered similar examples of how technology created distractions among some participants. It is worth noting that the KSWOE meeting was voluntary, and some members chose not to attend. This was a decision shaped by factors previously detailed in the *Limited Resources: Preventing and Closing Spaces for Co-Action* finding section. In contrast, the NBAF-focused lecture in the university's crisis communication class was a required session, meaning students were present by obligation rather than voluntary interest. Both events represent spaces for co-action in which an invitation was extended and reciprocated. Nevertheless, the degree to which participants actively engaged varied, shaped by differing levels of perceived concern. During both sessions, I observed that some attendees were focused on unrelated tasks, such as completing quizzes, studying, or engaging in online shopping, rather than participating in the dialogue. These moments of distraction, amplified by the accessibility of technology, reveal an essential tension that not all participants shared the same sense of urgency or relevance regarding the topic at hand. Despite their physical presence in a space of co-action, the uneven distribution of concern disrupted the possibility for collective momentum.

In today's fast-paced and digitally saturated environment, technology has emerged as a significant contributor to the hollow presence observed within emerging spaces for co-action, facilitating physical attendance without meaningful engagement. In other words, technology enables competing matters of concern to quietly overtake the issue intended for engagement within a space of co-action, even when participation has been invited and reciprocated. As a

result, technology can just as readily disrupt the crystallization of meaningful collaboration and the emergence of a resilience episode as it can facilitate them.

Significantly, these cognitive disruptions do not just interrupt a moment; they reshape perception. When people become distracted or unsure of the priority for engaging in a specific space of co-action, the perceived value of an issue can diminish. Their matter of concern may shift not because the topic itself has changed, but because the conditions required for active engagement have eroded. If attention is the currency of co-action, disruption, whether passive or deliberate, acts as a silent tax. Parker describes the difficulty of sustaining attention and engagement in collaborative spaces, reflecting, “Getting people to pay attention and then hold onto that, that’s hard. So that’s probably...definitely a challenge.” Their comment highlights the persistent struggle to convert initial interest into lasting participation, an issue compounded by competing concerns and fleeting priorities. Skylar reinforces this challenge, reflecting, “But it was later in the meeting, and I think people were getting tired and I didn’t want to say anything.....that’s something that you know...we need to pay attention to and to do better at.” These reflections highlight an important insight that creating a shared sense of concern requires more than simply identifying the “right” issue. It also necessitates careful attention to the various perspectives within the collaborative environment. When participants perceive or interpret concerns differently, even in subtle ways, it can lead to a breakdown in shared engagement, causing collaborative momentum to diminish rapidly.

In conclusion, the emergence and sustainability of co-action spaces hinge not only on aligning priorities but also on nurturing a shared sense of concern that invites and retains meaningful engagement. As we’ve seen, the willingness to reciprocate an invitation into these spaces does not guarantee enduring participation or the formation of resilience episodes. Matters

of concern are fluid, shaped by perceived relevance, urgency, and emotional resonance. Their divergence can quietly fracture collaboration, even in well-intentioned environments.

Technological and other distractions further intensify this fragility by diverting participants' attention and enabling competing matters of concern to eclipse the shared issue intended to anchor the collaborative space. Ultimately, co-action is less about assembling bodies in a room and more about cultivating relational depth, sustained attentiveness, and mutual investment. Recognizing and responding to the agnostic, peripheral, or dismissed concerns within these spaces may be one of the most crucial steps toward fostering productive spaces for co-action, which can ultimately produce resilience.

Theme 5: Lingering Fears and Negative Rumors—Disintegrating Spaces for Co-Action

Even before co-action begins, the foundations of collaboration can be quietly weakened by unresolved concerns and unaddressed narratives that often emerge through fear and rumor. Fear, rooted in uncertainty or perceived threat, can deter individuals from entering spaces for co-action entirely. Importantly, such fear is not always self-generated; it is frequently fueled by the spread of rumors and misinformation, which amplify ambiguity and erode the trust needed for engagement. While commonly conflated, this study distinguishes rumors from misinformation. Misinformation refers to false or misleading claims, whereas rumors are informal and unverified pieces of information shared through social interaction. Though typically not spread with malicious intent, rumors carry significant weight in shaping perception. Often, rumors originate from misinformation that is repackaged and redistributed in everyday conversation. Together, they have the capacity to distort public understanding and disrupt emerging collaborative efforts by sowing uncertainty and fragmenting trust within spaces for co-action. When fears are left

unacknowledged, whether born of historical tensions, partial truths, or the absence of open dialogue, they can metastasize into corrosive narratives that gradually erode the trust necessary for spaces for co-action to thrive.

In the context of NBAF, these dynamics are far from abstract. As Jordan candidly reflects, “The fear-mongering...I think, obviously...can be an issue when it comes to high-containment labs.” Their comment speaks to the potency of fear, especially when tied to concerns around transparency, safety, or institutional legitimacy, which has led some community members to quietly, or not so quietly, withdraw, withhold support, or opt out of the conversation altogether, illustrating how disintegration can begin long before collaboration is actively pursued. Parker draws attention to the destabilizing role of fear in efforts to build and sustain spaces for co-action. They characterizes fear as having a primal response, “just an animal instinct that we still carry”, with direct implications for how individuals perceive and respond to NBAF. In their view, when fear shapes perspective, it can lead to active resistance: “They could fight it, which we saw a little bit when the facility was being built.” However, fear’s impact can also manifest in quieter forms of disengagement. “If they freeze, if they completely tune you out...they’re not going to hear you either,” she explains. In both cases, fear acts as a silencing force, eroding trust and hindering the relational foundation necessary for collaborative action. When left unaddressed, lingering fears can unravel collaborative momentum, turning shared spaces into fractured ones.

It is essential to recognize that fear surrounding federally operated high-containment laboratories arises from multiple sources, ranging from historical mistrust and limited public understanding to concerns about safety, transparency, and long-term community impact. Jeff illustrated how deep-seated fear toward federal institutions can inhibit participation in spaces for

co-action. He observed that some individuals he knows avoid any engagement with NBAF, including visiting their website for information, not necessarily because of its mission, but due to broader fears about government surveillance and loss of personal autonomy. He explained, “I’m going to say some of them are probably afraid to go to any federal government site, because they’re going to get tracked.” His account reveals how fears unrelated to the specific context of NBAF can still permeate public perception, generating reluctance that limits collaborative possibilities before they begin. For many, the fear of being tracked by the government may seem implausible or irrelevant to their personal experience. However, Jeff’s observation highlights a very real concern among some members of the broader community, individuals whose overarching distrust of federal institutions compels them to avoid any collaboration with the NBAF. Abby offers a different but equally powerful reflection, recounting fears voiced to her by community members regarding safety, security, and the absence of clear answers. Abby reflected,

There were a lot of questions about safety, and I think there still are. What about seepage? What if it goes into our water system? What about security? Do we have enough police reinforcement? Do we have to evacuate our community?

These lingering fears, left unresolved, undermine trust and weaken the foundation for spaces for co-action. Gary reinforced this point, describing how the unknown bred apprehension among producers in the region. “Why would they put something like that here in the middle of cattle country? Why would you jeopardize our livelihood? But there’s just a lot of the unknown.”

Collectively, these concerns illustrate how fear, whether rooted in distrust of the government, unanswered safety questions, or ambiguity about long-term impacts, can undermine collaborative possibilities before they have a chance to materialize.

It is crucial to recognize that how institutions or their representatives respond to these fears matters. Dismissive or reductive statements, such as “Well, it’s here, so get used to it”, may unintentionally reinforce a sense of powerlessness. Rather than resolving tension, this rhetoric can signal to individuals that their fears are irrelevant or unchangeable, fostering resignation or apathy. Andrew reflected on this dynamic,

My approach to the ones that you know wanted to lodge their complaints and concerns is, I'll listen to what they say, and say, Look, I understand what you're saying. Here's what I can tell you about safety protocols and at that point, it was kind of like, we need to stop it. Well, there's no stopping it.

Such responses actively destabilize and often preempt the emergence of spaces for co-action, eroding the very conditions necessary for reciprocal engagement and resilience.

Complicating this further is the persistence of negative socio-historical memory, prior incidents, reputational wounds, or institutional baggage that color present-day perceptions and drive fear. These histories shape how communities interpret new initiatives like NBAF, often tipping the scales toward skepticism unless trust is actively and visibly earned. Emery, Science Fellow B, offered compelling insights on how socio-historical memory can shape apprehension within communities. She shared personal experiences with me during a community outreach event where she was volunteering alongside NBAF staff, highlighting how past events and collective experiences, often recirculated through rumor, can reignite unease, particularly in contexts involving high-consequence scientific infrastructures. Emery grew up close to the Plum Island Animal Disease Center (PIADC), whose mission is being transferred to NBAF. She acknowledged that PIADC is often perceived by the public as unsettling, secretive, and inaccessible. She highlighted the persistence of a widely circulated rumor suggesting that Lyme

disease was created and inadvertently released from the facility, though she strongly refuted its credibility. Nevertheless, she recognized that such narratives, along with PIADC's historical reputation, influence how community members interpret NBAF's role. These perceptions can interfere with NBAF's ability to foster meaningful collaboration in co-action settings by introducing skepticism and mistrust. In this way, the enduring socio-historical associations with PIADC risk distorting community perspectives and undermining NBAF's efforts to build trust and shared direction with stakeholders. Parker extended Emery's insight by offering further reflection on how lived experience and socio-historical memory inform public perception. Often, this preempts participation in spaces for co-action before an invitation can even be extended. They emphasized that rumors and residual fear, even those loosely tied to current circumstances, continue to shape the way individuals engage with institutions like NBAF.

I think some rumors that are out there...if we think about the rumor of Wuhan, and Covid escaping from Wuhan, we don't know. Maybe it did. Maybe didn't. I don't know, but then people start to...so existing fear is a barrier and preconceived notions, and people still talk about rumors and misinformation that have...that started years, decades ago from Plum Island, and they apply it to NBAF.

Their comments point to how historic concerns, whether accurate or not, can be reactivated by uncertainty and projected onto new domains, subtly eroding the collaborative foundation needed for shared action.

Additionally, uninformed opinions, formed without adequate knowledge, evidence, or critical reflection, can further cloud the landscape. These judgments often stem from incomplete information rather than deliberate ill-will. Jordan reinforced this idea by observing, "I think from what we've seen, misinformation and disinformation gets spread mostly by people that don't

understand that it's false information." While the original source may have had malicious intent in generating the claim, Jordan's comment highlights that its continued spread often stems from misunderstanding rather than malice. In this way, misinformation can take root and circulate not because individuals seek to deceive, but because they are unaware of their inaccuracy, leading to rumors and unsupported claims. Skylar offered a lighthearted example to illustrate how misinformation around NBAF can arise and spread innocently within trusted circles,

I've got friends...my own friends sometimes are like that, or members of my family, you know, are sometimes like that. I go home for the holidays, and my mom is...I heard from...you know, my good friend Kathy, I heard from Kathy this...And why are...why is that happening? And I'm like, No...Kathy doesn't know!

Their story demonstrates how rumors often travel through informal networks not out of malice, but because people trust the source without realizing the information may be inaccurate. Still, when shared publicly, they have the power to redirect attention, generate conflict, or stall engagement. Mason supported Skylar's observation by recalling a familiar pattern, "You'd hear the voice from the back that would express this [unfounded concern about NBAF]. And I don't mean this as a description. It's not pejorative. That voice was always uninformed, always." His comment highlights how misinformation often originates from individuals who lack accurate information, leading to the spread of rumors. Such rumors, born of misinformation and reinforced at times through trusted yet unverified channels, disrupt emerging spaces for co-action by clouding shared intent and weakening the clarity needed for reciprocal engagement. In turn, these distortions hinder spaces for co-action from solidifying and producing a trajectory change of collective resilience. When community dialogue is shaped more by fear and confusion than by clarity and responsiveness, the space for co-action narrows, and sometimes closes altogether.

Parker put it simply, “If they leave, obviously I can’t have a conversation with them if they don’t come to the conversation.”

In conclusion, lingering fears and negative rumors act as corrosive agents in spaces for co-action. Although these dynamics can manifest through direct confrontation, they more often quietly preempt engagement. In environments where invitation and reciprocation are vital, community members may hesitate, resist, or simply refuse to step forward, eroding the potential for spaces for co-action before they ever solidify. When individuals carry inherited fears or viral rumors into a potential space of collaboration, they often remain on the margins, unable or unwilling to participate. The potency of these hindering factors lies in their capacity to activate socio-historical memory and emotional residue that stalls productive collaboration. Under such conditions, even transparency may be mistranslated, perceived not as sincerity, but as a manipulative practice. And when people leave, or never show up, the conversation disappears before it can begin. What’s left are spaces designed for co-action and resilience disintegrating under the weight of unprocessed fears and unsubstantiated rumors.

Summary

In summary, these findings depict resilience-as-practice as a dynamic negotiation between enabling practices and obstructive forces. On the one hand, organizing efforts, such as experiential engagement activities and strategic facilitation, help construct pathways toward a “new normal” of trust. On the other hand, persistent challenges, from resource constraints to lingering fear, can close those pathways just as they begin to open. Importantly, many of the enablers identified in RQ1 have counterparts in the barriers revealed in RQ2. For instance, transparency is constantly weighed against operational security, and diverse communication efforts are challenged by language intimidation and misinformation. Taken together, this

underscores the complexity of situated resilience practices as they unfold over time and change patterns of action aimed at overcoming real-world challenges. Chapter 5 will examine the theoretical implications of these tensions and their contribution to a resilience-as-practice framework.

Chapter 5 - Discussion of Findings and Implications

Introduction

This qualitative case study investigates the complexity of enacting resilience through a practice-oriented lens, grounded in a processual ontology that emphasizes continuous becoming. I draw on the domain-specific Leadership-as-Practice (LAP) framework (Raelin, 2016) to approach resilience with this nuanced perspective, which offers conceptual guidance for understanding resilience as an emergent, situated phenomenon. The alignment of LAP with the Communication Theory of Resilience (CTR) serves as the foundational theory for Resilience-as-Practice (RAP). I foreground LAP's and CTR's shared emphasis on collective organizing (Buzzanell, 2017; Sergi, 2016) and bridge the theoretical distinctions by incorporating the Communicative Constitution of Organizations (CCO), specifically the Montreal School. This highlights the role of communication in organizing efforts, allowing the relational ontology of CTR to evolve into a processual ontology consistent with LAP (Brummans et al., 2024; Sergi, 2016). Drawing on this theoretical framework, I operationalize resilience as a socio-spatial process of organizing in accomplishing direction aimed at a new normality emerging through the use of discursive and material resources. To help us 'locate' resilience as an unfolding practice in our everyday lives, I introduced the concept of a "resilience episode".

Resilience as a collective and evolving process guided my exploration within the unique organizational context of the National Bio and Agro-Defense Facility (NBAF). As the United States' sole large-animal biosafety level 4 (BSL-4) federal laboratory dedicated to researching high-consequence zoonotic viruses, NBAF presented a compelling site for examining how resilience is enacted in real-time through communicative and practice-based efforts. The resilience episodes revealed in this study were not solely reactive in response to crises but were

often anticipatory and proactively initiated to cultivate resilience capacity before disruptions occurred. Buzzanell's (2019) insight that resilience can be fostered before disruptive events supports the anticipatory dimension of resilience-as-practice. Engaging with NBAF as a case study enabled me to investigate my research questions in a setting where adaptive challenges, institutional complexity, and collaborative organizing are essentially present. Through the course of collecting and analyzing the data, five themes were constructed for each research question:

RQ1: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?

Theme 1: Organizing Around Experiential Engagement

Theme 2: Organizing Strategic Facilitation

Theme 3: Organizing Through Calibrated Transparency

Theme 4: Organizing Due to Priority Convergence

Theme 5: Organizing Through Diverse and Meaningful Communication Efforts

RQ2: What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

Theme 1: Limited Resources—Preventing and Closing Spaces for Co-Action

Theme 2: Operating Constraints—Hindering Spaces for Co-Action

Theme 3: Language Intimidation—Creating Barriers to Productive Spaces for Co-Action

Theme 4: Matter of Concern—Differing Perspectives Influencing the Necessity for Spaces for Co-Action

Theme 5: Lingering Fears and Negative Rumors—Disintegrating Spaces for Co-Action

It is important to note that these research questions are constructed on the theoretical groundwork established in Chapter Two, particularly the operationalization of resilience episodes to explore

resilience as a practice. This study adopts the practice perspective rooted in Leadership-as-Practice (LAP), which is grounded in pragmatism (Simpson & den Hond, 2021) and oriented toward understanding the why, where, and how resilience is accomplished, rather than focusing on who performs the work (Raelin, 2011). Accordingly, the research questions emphasize the dynamics of collaborative action by questioning how collective efforts successfully co-construct resilience, and why such efforts may sometimes fall short. I stress that while all successful resilience practices are inherently collaborative, not all collaborative efforts result in the emergence of resilience. These questions are designed to investigate that distinction, offering a more nuanced understanding of resilience as a situated, communicative, and practice-based phenomenon.

The themes constructed from Research Question 1 demonstrate how participants engage in productive collaboration within established spaces for co-action, which actively enact resilience through ongoing practice. These themes were developed through a synthesis of participant narratives and observational data, including insights from NBAF staff and members of the Community Liaison Group (CLG). These sources revealed the action-oriented processes participants enact every day as they navigate a range of personal and professional challenges. By responding to bureaucratic hurdles, interpersonal tensions, or community concerns, participants demonstrated how resilience is co-constructed through intentional, situated practices of collaboration.

The themes constructed from Research Question 2 highlight the complex interplay of factors that can prevent the success of collaborative efforts, even those designed to cultivate resilience. These findings suggest that, despite shared goals and strategic planning, collaborative initiatives may falter when misaligned priorities, uneven resource allocation, limited trust, or

contextual constraints disrupt mutual engagement, ultimately hindering the emergence of a shared direction that can establish a new normal. Too often, our focus gravitates toward solely understanding what made a successful collaboration effort work. At the same time, we neglect the equally vital perspective of examining why so many collaborative efforts fall short of their intended outcomes. To explore this underrepresented ‘dark’ realm of collaboration, Research Question 2 was purposefully included in this study to increase our understanding of the breakdowns and limitations of cultivating resilience within real-world practice. These findings hold both scholarly and practical significance. Furthermore, partnering with a high-containment laboratory provides methodological insights for community-engaged scholars who must navigate the complexities of conducting research in settings where access is constrained. Ultimately, these findings advance the collective and processual perspectives of resilience scholarship by approaching it through a practice lens. To articulate these contributions, the chapter is organized into the following sections: Theoretical Contribution, Practical Implication, Methodological Advancement, Limitations and Future Research, and a Conclusion.

Theoretical Contributions

At this point, it is important to clarify the relationship between leadership and resilience in this study. While a practice perspective of leadership is interwoven throughout the analysis, here it serves primarily as the ontological and methodological scaffolding for operationalizing resilience as a dynamic, co-constructed process. The discussion of findings and their contributions to scholarship maintains an analytic focus on resilience to advance understanding of how actors collectively navigate disruptions through organizing work. Recall that the purpose of this case study is to describe how the National Bio-Agro Defense Facility (NBAF), in conjunction with its established Community-Liaison Group and local community members, is

enacting resilience through ongoing collaborative practices as it continues to confront challenges in fostering and sustaining community trust.

Leadership and resilience are often assumed to occur concurrently (Bowman, 2022; Luthans, 2002), and this study is not designed to completely distinguish between the two concepts, though distinctions are emphasized. This study explicitly examines where, how, and why resilience is co-constructed in collaborative settings. In doing so, it follows Raelin's (2016) view that leadership emerges in the ongoing process of organizing, adapting this principle to examine resilience as a communicatively constructed, ongoing process of organizing as well. This approach inevitably creates an entanglement between leadership and resilience in the shift from Leadership-as-Practice (LAP) to Resilience-as-Practice (RAP), yet it does not conflate the two.

From an operational standpoint, RAP and LAP share foundational commitments, but resilience, as framed here, has a narrower focus on crafting a “new normal” in the face of disruption. In contrast, LAP's broader purview encompasses a wider range of organizing work not necessarily tied to disruption or recovery. In other words, while resilience-as-practice accomplishments may also be considered leadership accomplishments, not all leadership accomplishments qualify as resilience practices. For this reason, the discussion of theoretical contributions purposefully adopts the language of resilience, even though there may be moments where the term could be substituted for leadership without substantially altering the meaning.

Advancing Resilience as a Collective Accomplishment

The Communicative Theory of Resilience (CTR) has illuminated the communicative processes through which individuals and groups navigate adversity (Buzzanell, 2010, 2017). Building on that foundation, this dissertation makes those processes empirically observable as

organizing work and re-situates them within the conceptual terrain of practice theory, foregrounding a processual ontology. Rather than viewing resilience processes as discrete interactions, the analysis positions them as unfolding, situated practices, embedded within the discursive and socio-material arrangements of everyday life (Raelin, 2011).

For example, the theme *Organizing Through Diverse and Meaningful Communication Efforts* illustrates the potential of viewing resilience through a practice lens. The use of various communication channels emerged as strategic, relational practices that invite engagement, foster reciprocity, and enable participatory connection. These efforts extended beyond maintaining relationships to become trans-actional practices that actively invited participation, acknowledged contributions, and translated complex, technical information into accessible and actionable knowledge. This supports the CTR process of “maintaining and using communication networks” (Buzzanell, 2010, p. 6). However, here those networks are understood as fluid, collective, and evolving efforts rather than stable relational structures.

While CTR identifies six discursive processes of resilience, it does not explicitly place resilience within contextual patterns of action or foreground the role of socio-materiality in resilience-building. This study proposes Resilience-as-Practice (RAP) as an extension of CTR, introducing a processual, practice-based, and organizing-centered view of resilience. While CTR emphasizes communicative processes and dialogical interaction (Buzzanell, 2017), RAP focuses on the unfolding social processes of organizing and all that is involved in these efforts, which alter the trajectory of the flow of practices (Raelin, 2023), remaining consistent with practice theory’s commitments to emergence and situated action constantly in a state of becoming (Sergi, 2016; Simpson & den Hond, 2021).

From this perspective, resilience is not an entity or fixed trait, but a collectively accomplished practice that emerges through the dynamic interplay of human and non-human agency in the temporal flow of moment-to-moment activities, resulting in turns of direction (Sklaveniti, 2020; Raelin, 2023). By situating resilience within a processual ontology, RAP shifts the analytical focus from resilience as a product produced by stable entities to resilience as ongoing organizing efforts that unfold through spaces for co-action, resilience episodes. This meta-theoretical move adopts a more collective philosophical stance on knowledge and reality, shifting away from the “entitative-lite” relational underpinnings prevalent in resilience literature (see Buzzanell, 2017; Kuang et al., 2023; Lucas & Buzzanell, 2012). In doing so, it opens space to explore the “processes whereby humans and their agency and socio-material elements co-constitute as an unfolding set of fluid emergent practices” (Raelin, 2017, p. 216). Extending from this ontological repositioning, it is essential to map RAP alongside our other frameworks to delineate its unique contributions while acknowledging shared foundations.

To clarify RAP’s distinct contribution, Table 5.1 provides a comparative overview of the unit of analysis, ontological commitments, and treatment of materiality across the Communicative Theory of Resilience (CTR; Buzzanell, 2010, 2017, 2019), Leadership-as-Practice (LAP; Crevani & Endrissat, 2016; Raelin, 2011, 2016, 2019), and the Communicative Constitution of Organization’s Montréal School (CCO Montréal School; Brummans et al., 2014; Cooren et al., 2023; Schoeneborn et al., 2019; Sergi, 2016). The table is not intended to provide only a summary. Indeed, it is best used as a theoretical positioning tool. By placing these frameworks/perspectives side by side, it becomes clear that CTR foregrounds discursive processes but under-theorizes materiality. LAP emphasizes collective accomplishment, but not specifically in overcoming disruptions or organizational setbacks. Furthermore, CCO highlights

communicative organizing without resilience as its primary focus. RAP advances beyond these perspectives by integrating a process ontology, communicative practices, and hybrid agency of human and non-human actors, making the elusive practice of resilience observable through the theoretical framing of resilience episodes.

Table 5.1. Positioning Resilience-as-Practice (RAP) within Communicative and Practice-Based Perspectives

Framework	Unit of Analysis	Ontology/Perspective	Role of Materiality
Communication Theory of Resilience (CTR)	Communicative processes (e.g., storytelling, network support, and increase) used by individuals/groups to overcome adversity.	Resilience is seen as a communicatively co-constructed phenomenon. Focusing on discourse and interaction in adversity response. Interactional process, not explicitly a practice ontology.	CTR acknowledges material resources as part of resilience but emphasizes discursive strategies. Limited material theorizing.
Leadership-as-Practice (LAP)	“bundles of related actions.....as it takes form in patterns of action and interaction (which are routinized when looking for practices, respectively emergent when looking for practice)” (Crevani & Endrissat, 2016, p. 31). Focuses on situated activities rather than individuals.	Utilizes a processual ontology that views leadership as an emergent and co-constructed accomplishment in the flow of practice. Emphasizes context, emerging interactions, and turning points over traits.	LAP views non-human artifacts as key participants in practice as material in organizing direction. The degree to which human actors are prioritized over non-human actors varies among researchers.
Communicative Constitution of Organizations (CCO), specifically the Montréal School	Communicative practices that constitute organizations. The unit of analysis varies across different schools of thought. The Montréal School	Utilizes a processual ontology that views organizations not as stable entities but as processes. Emphasizes an emergent and relational view of organizational reality.	CCO, especially the Montréal School, takes a strong perspective on material agency through the concept of hybrid agency, where organizing

	unit of analysis focuses on communication events.		efforts are co- constructed by human and non- human artifacts.
Resilience-as- Practice (RAP)	Resilience episodes (situated spaces of co-action) where resilience is co- constructed, emerging as a resilience practice. Essentially, moments of trajectory change in patterns of action can lead to a new normality.	Explicitly uses a processual, practice- based ontology that views resilience as an ongoing, emergent practice co- constructed through organizing processes and not individual traits. RAP's emphasis on becoming, in line with LAP and CCO, allows for anticipatory and reactive resilience orientations to be explored.	RAP emphasizes socio-materiality by highlighting and exploring material resources to the same degree as discursive processes. Both human and non- human actors enact agency in the organizing process of resilience episodes. Material artifacts, such as security badges and fencing, as well as emotions, are considered integral to understanding a resilience practice.

Table 5.1 demonstrates how RAP creates new theoretical opportunities for resilience research. RAP invites scholars to ask different kinds of questions: How do resilience practices emerge, stabilize, or dissolve over time? How do communicative and material arrangements co-constitute resilience work? And how might these practices be cultivated, adapted, or disrupted in varied organizational and community contexts? Pursuing such questions pushes resilience scholarship deeper into the practice realm, offering theoretical advancement for CTR while providing practical insights for those striving to foster resilience in real-world settings.

Enacting Resilience: Episodes That Become Practice

One of the study's most significant theoretical contributions is the development of the concept of resilience episodes. The framework of resilience episodes enables a distinction between general collaborative actions and those that evolve into resilience practices, collectively

enacted in real-time through coordinated communicative and material engagement. Throughout the findings section of this study, I primarily employed the concept of spaces for co-action, occasionally referring to resilience episodes. For clarity, resilience episodes are a specific type of space for co-action, one that holds the potential to develop into a resilience practice, a point explored further in this section. I chose the broader term spaces for co-action early in the analysis to maintain a more abstract conceptualization of collaborative organizing and to engage fully with a processual way of thinking (Sklaveniti, 2020). In this section, I focus on resilience episodes as spaces for co-action to clarify their theoretical alignment with the concept of Resilience-as-Practice developed in this dissertation. This shift allows for a more precise articulation of how the findings inform and expand existing scholarship on resilience.

Crucially, resilience episodes are empirically observable spaces where participants can co-create new trajectories, thus collectively enacting a resilience practice. An example of this was the experiential engagement activities that NBAF facilitated, as outlined in the theme *Organizing Around Experiential Engagement*. These activities played a pivotal role in co-constructing resilience between the facility and its surrounding community, proving helpful in navigating the complexities of building trust and maintaining goodwill. These activities served as critical touchpoints where abstract concepts, such as biosafety, national strategic institutions, and transparency, were translated into tangible experiences. Building on Takoeva's (2021) notion of leadership episodes and Sklaveniti's (2020) emphasis on consequential moments that collectively accomplish leadership, resilience episodes are defined here as spaces for co-action where resilience has the opportunity to emerge through coordinated communicative and material actions (Raelin, 2019). These episodes are neither abstract nor retrospective reflections, but are

instead empirically evident, unfolding within the lived realities of disruption, uncertainty, and co-action.

Successful resilience episodes begin with a choice moment, often triggered by discursive processes identified in the Communicative Theory of Resilience, such as crafting normalcy, affirming identity, or maintaining networks. These moments then require reciprocal engagement among participants and culminate in a negotiated shift that establishes a new normal in response to adversity. In this study, an episode is identified when there is a traceable choice moment, reciprocal engagement, and an explicit or tacit agreement that redirects action. For example, in the case of the NBAF facility tours, the invitation functioned as the choice, community members' participation and questions represented reciprocation, and their reported increases in trust and confidence signaled the agreement that redirected action. These tours exemplify a complete resilience episode resulting in a resilience practice by demonstrating the effective use of spaces for co-action. The choice moment begins with NBAF's invitation to community stakeholders to visit the facility. This reflects an openness and a willingness to engage in a resilience episode. Reciprocation occurs when stakeholders accept the invitation and participate in the tour by engaging directly with staff and asking questions. The episode culminates in agreement. In this example, the agreement was proved by participants' reported increases in shared understanding, trust, and confidence in NBAF's operations. This new trajectory, emerging from a shared agreement as the process moves from invitation to mutual engagement and ultimately to a shared direction, illustrates how organizing experiential engagement can actively foster resilience practices through everyday lived experience. In this study, facility tours consistently produced agreement, as participants described them as transformative moments that bridged the gap between institutional abstraction and community reality. These tours exemplify

how organizing experiential engagement can collectively foster resilience through hands-on activities utilizing discursive and material resources, leading to increased trust and community goodwill despite numerous barriers.

As illustrated in Figure 2.1, the change in trajectory reflects a material and relational reconfiguration in previously established patterns of action. Accordingly, it is the collective agreement toward a new direction, emerging from a resilience episode, that signals the enactment of a resilience practice. One of the most compelling examples of a fully enacted resilience episode, culminating in a resilience practice, occurred during the Kansas Science Festival. The resilience practice emerged in a spontaneous, episodic interaction between Skylar, NBAF's Chief Facilitation Officer, and two retired teachers from the community. While I discuss this example in the finding *Organizing Through Diverse and Meaningful Communication Efforts*, it could just as readily be situated within *Organizing Through Calibrated Transparency*. The teachers expressed concern over recent federal budget cuts and the possible implications for NBAF's mission and safety. This initiated an invitation into a space for co-action with Skylar to gain insight and assurance. Skylar reciprocated the invitation by responding with openness and transparency and engaging them in meaningful, face-to-face dialogue that addressed their concerns. Through this interaction, a shared understanding emerged as the teachers engaged with Skylar and his assurances of NBAF's future. The resilience episode culminated in an agreement that demonstrated a resilience practice, as all parties recognized NBAF's continued commitment to safety and ability to carry out its mission despite political uncertainties. This interaction also highlights how resilience episodes often emerge provisionally in lived, episodic encounters that react and unfold organically in everyday, unplanned moments.

However, not all opened resilience episodes ultimately result in a resilience practice. To avoid treating resilience as inevitable, I distinguish between candidate episodes, which are spaces for co-action where a choice and reciprocation are present, but agreement is absent, and fully realized resilience episodes, where agreement is present, signaling the emergence of a resilience practice. Importantly, the concept of candidate resilience episodes helps reveal the uncertain and processual nature of co-constructed resilience practices, highlighting the conditions under which the emergence of a resilience practice stalls or dissolves. Ultimately, the emergence of a resilience practice hinges on the presence of agreement. Both the NBAF tours and the Manhattan, Kansas Science Festival interaction with the retired teachers illustrate how candidate episodes can evolve into fully realized episodes, emerging as a resilience practice. However, without the presence of an agreement that redirects action, the episode remains incomplete (Sklaveniti, 2020). In other words, a candidate episode dissolves before it becomes a fully realized episode (i.e., a resilience practice). For example, when NBAF staff sought to initiate a resilience episode focused on combating misinformation circulating in agricultural communities, some stakeholders reciprocated by engaging in dialogue. Others, however, expressed an unwillingness to participate in a resilience episode by signaling a divergence in the matter of concern, noting bluntly, “that’s not my concern.” The absence of reciprocation among the indifferent members and the lack of agreement on how to overcome the misinformation prevented the episode from culminating, constituting this as a candidate resilience episode that dissolved without producing a new trajectory.

It is important to reiterate that while many resilience episodes unfold in the context of adversity, they can also be triggered by anticipated threats or emerging concerns. Essentially, these anticipatory episodes aim to prepare for potential disruptions or setbacks by enhancing the

collective resilience capacity of NBAF and the broader community. In this study, many of the documented resilience episodes are best understood as anticipatory, manifesting in provisional conditions and illustrating resilience as a protective practice that is developed before the start of crises. The anticipatory orientation distinguishes RAP from traditional reactive models, underscoring the processual and often provisional nature of the approach. For instance, the experiential engagement activity of NBAF facility tours occurred in advance of any incident that might negatively affect the relationship between NBAF and the broader community. Whether anticipatory (such as NBAF facility tours) or reactive (like Skylar's interaction with the retired teachers), resilience episodes unfold through the same underlying dynamics, culminating in negotiated shifts that reconfigure patterns of action. Thus, while the timing may differ, proactive preparation versus response to adversity, the constitutive organizing processes of resilience remain consistent.

Unlike prior resilience scholarship that often treats resilience as a trait or individual accomplishment (Buzzanell, 2010, 2019), this framework emphasizes emergent organizing, socio-material entanglements, and the processual nature of becoming (Crevani & Endrissat, 2016). In doing so, it provides a more nuanced understanding of how resilience emerges as a situated, co-constructed practice that evolves over time and across different contexts.

Additionally, the distinction between candidate and fully realized episodes offers a more dynamic analysis of RAP. Instead of presuming resilience as the inevitable outcome of spaces for co-action, RAP shows how resilience is negotiated, sustained, or dissolved under complex and fragile conditions. Even when choice moments are reciprocated, candidate episodes reveal how factors like limited resources, operational constraints, or lingering fears hinder the episode from solidifying. Exploring these breakdowns is equally important as understanding how fully

realized episodes successfully emerged. Doing so underscores that resilience is not automatic but rather a messy and dynamic organizing effort.

These conceptual moves advance resilience theory and offer a practical lens for identifying and supporting resilience within organizational and community contexts. By theoretically constructing resilience episodes as an analytically observable phenomenon, researchers and practitioners gain a clearer understanding of how resilience is cultivated, negotiated, and sustained in the face of ongoing challenges.

Integrating Socio-materiality and Hybrid Agency into Resilience

Resilience research has largely emphasized discourse. However, Sergi (2016) and Cooren et al. (2013) demonstrate that material actors also possess agency in organizing processes. This study draws from the Communicative Constitution of Organization (CCO), specifically the Montreal School and its perspective on hybrid agency, explored in detail in Chapter Two, to examine how socio-materiality affects a resilience episode and whether it develops into a resilience practice. This concept is crucial because prior scholarship on resilience, including the Communicative Theory of Resilience, has undertheorized the role of materiality, despite Buzzanell's (2017) acknowledgment that resilience draws upon both discursive *and* material resources in crafting new normalcies. While discourse remained central, resilience practices in this study were repeatedly entangled with socio-material artifacts that influenced how participants experienced and interpreted interactions. Physical objects, such as security badges, rebar samples, and perimeter fencing, as well as socio-historical artifacts like emotions and historical memory, served as active participants with agency, redirecting dialogue, anchoring trust, and even foreclosing candidate episodes at times.

Earlier in this dissertation, I examined how materiality becomes agentic within leadership practice, actively shaping rather than merely reflecting the unfolding of collective action (Sergi, 2016). The same dynamic applies when resilience is approached from a practice perspective; materiality similarly participates in and influences the processes of organizing through which resilience is enacted. In this view, materials are not passive backdrops but active participants in the co-construction of resilience, constantly influencing organizing efforts in a given moment. The findings of this research study extend this argument by demonstrating how specific socio-historical artifacts, objects imbued with cultural memory, organizational history, and symbolic meaning, take on material agency in ways that affect the trajectory of organizing (Cooren et al., 2013). These artifacts have the power to influence if and how resilience episodes develop into a resilience practice by establishing shared understanding, surfacing tensions, or evoking (dis)trust. Consider NBAF's on-site tours. Receiving a visitor badge upon arrival was a trajectory-shaping moment of sense-making. In other words, the badge acted as a physical indication of inclusion and exclusion. It signaled that you are allowed to be in the facility while those without badges are not, serving as a constant reminder of security boundaries and symbolizing NBAF's seriousness about safety. This demonstrates how the artifact became material in the resilience organizing process through hybrid agency as participants engaged in collective sense-making. Similarly, when engineering students were invited to handle a three-inch rebar sample and a filtration system component, the objects materially redirected the conversation. Rather than discussing biosafety in abstract terms, participants marveled at the physical strength and precision of the design, which helped solidify the agreement that NBAF was built to protect both science advancement and the community.

The influence of socio-materiality on resilience from a practice perspective is especially apparent in the findings related to Research Question 2. Many of the factors that hinder a resilience episode from becoming a resilience practice stem from socio-material actors exercising agency within the organizing process. These observations confirm the power of hybrid agency in influencing the trajectory of collective action. This is highlighted in the theme *Lingering Fears and Negative Rumors: Disintegrating Spaces for Co-Action*. This theme reveals how unresolved concerns and persistent negative narratives can undermine the foundations of collaboration, even before spaces for co-action can fully emerge. For instance, negative socio-historical memories, such as prior negative stories about high-containment laboratories, exert agency on organizing by influencing present-day perceptions and interactions. Since the NBAF is inheriting the mission of Plum Island, many stakeholders often reference, sometimes unfairly, the negative rumors, mistrust, and fears associated with Plum Island when discussing the NBAF. In the findings, Parker, NBAF's Chief Creative Officer, explained at length how fear rooted in these lingering negative socio-historical memories can cause stakeholders who are being invited into a space for co-action to freeze, flee, or fight. Any of these reactions, they noted, severely hampers the ability to organize effectively toward completing a resilience episode. In other words, fear is granted agency within the organizing process, ultimately obstructing the progression of a resilience episode through the necessary stages for co-constructing a resilience practice.

It is essential to acknowledge that the undermining effects of factors such as fear, when they become agentic within the organizing process, can emerge at any stage of a resilience episode. To explore this theoretical insight further, we can use the theme of *Limited Resources: Preventing and Closing Spaces for Co-Action*. Throughout data collection and analysis, limited

resources emerged as a powerful agent capable of influencing the resilience organizing process. One notable resource was participants' personal energy, which influenced their capacity or willingness to engage in a resilience episode. Many described an internal decision-making process about whether to accept or remain in a space for co-action based on their energy levels. Personal energy functioned as a critical resource, valuable as gold, and imparted with substantial agency in shaping organizing efforts. For instance, individuals might decline an invitation to participate in a resilience episode because they perceive the energy cost as outweighing the potential benefits of a change in direction. Likewise, when energy reserves diminished during ongoing engagement, some might even choose to exit a resilience episode altogether, resulting in an incomplete resilience episode.

Summary

This study makes a theoretical contribution to the field of resilience by operationalizing resilience as a collective and socio-spatial process that emerges through dynamic organizing efforts within complex, real-world contexts aimed at overcoming setbacks and disruptions. Drawing on the research conducted by this study involving the National Bio-Agro Defense Facility and community stakeholders, the findings demonstrate a dual contribution to understanding resilience: first, by identifying the communicative and material conditions that enable successful spaces for co-action where resilience episodes unfold and culminate in a successful resilience practice; and second, by revealing the socio-material barriers that disrupt or prevent these spaces from forming or sustaining resilience practices.

Successful resilience episodes are characterized by productive, collaborative engagements that lead to a collectively agreed-upon direction. These fully realized resilience episodes signal that a resilience practice has occurred. Enablers such as experiential engagement

and strategic facilitation contributed to the maturation of resilience episodes by creating spaces for shared meaning-making, where trust was negotiated and reinforced by all participants in the organizing effort, including both human and non-human actors. The study also identifies key obstacles to resilience organizing, such as lingering fears shaped by negative socio-historical memories and persistent resource constraints, which function as agentic forces that disrupt collaborative actions and hinder trust-building efforts. These factors can cause participants to hesitate, disengage, or withdraw, leaving resilience episodes incomplete and weakening trust-building efforts.

By situating resilience within a practice-based, processual ontology and integrating the concept of hybrid agency, this research reframes resilience not as a static trait or individual accomplishment, but as ongoing, co-constructed work entangled with materiality and situated in context. Focusing on what enables and what obstructs spaces for co-action offers scholars and practitioners a nuanced framework for fostering resilience through intentional organizing, communication, and material engagement.

Practical Implications

As a community-engaged scholar, I believe that our research endeavors carry a responsibility not only to generate theoretical insight but to enrich the communities we study and serve. Boyd (2016) reminds us that good social science is “about actively engaging the very people that we seek to understand, actively contributing to the communities we spend time analyzing” (p. 1). Boyd’s (2016) call to action guides the following section by offering a pragmatic strategy that has the potential to benefit organizations like NBAF and the broader community. These practical implications are grounded in the real-world complexities of organizational life and shaped by a commitment that views resilience as a collective

accomplishment. In offering them, I bridge scholarly inquiry with meaningful progress, advancing both institutional capacity and community well-being.

Therefore, this section presents an engaged resilience communication strategy designed to strengthen organizational and stakeholder capacity for resilience and leadership. Grounded in the study's findings and framed through a practice-based lens, the practical implications of this study suggest the need for innovative and intentional approaches to resilience development. Organizations can gain actionable tools to navigate the inevitable disruptions, challenges, and relational tensions that arise in efforts to build and sustain trust within their communities by conceptualizing resilience through an anticipatory and practice-oriented lens. Resilience literature often emphasizes the themes of adaptation, recovery, and coping with disruptions or setbacks. However, it also focuses on resilience mainly as a trait or core competency inherent in an individual (Buzzanell, 2018). The collaborative strategy proposed to enhance an organization's resilience capacity is a significant shift from traditional approaches.

I will continue to draw on NBAF and the specific challenges it faces to demonstrate the value of a practice-based approach to cultivating resilience capacity. Within the NBAF's dynamic and complex operational environment, resilience emerges as an evolving process, rather than an individually produced product. NBAF's efforts reflect an intentional and collective attempt at navigating the adaptive challenge of cultivating trust and goodwill across organizational and community boundaries. Currently, NBAF utilizes a community liaison group (CLG) to confront these specific adaptive challenges. The CLG is a group comprising local, regional, and state leaders who meet every three months with NBAF leadership to discuss community views and feedback on NBAF's operations (USDA-NBAF, 2023). NBAF and the CLG constitute a cross-sector partnership that operates in the civil society arena, where

recognizing the complexities and nuances of social issues and their interdependence among stakeholders necessitates a collaborative response (Lewis et al., 2010; Selsky & Parker, 2005). As a means of collaboration, cross-sector partnerships can help produce meaning relating to trust, agency, networks, power relations, as well as other key aspects of human relations (Koschmann, 2016) that play pivotal roles in overcoming adaptive challenges.

Collaborative groups, such as the CLG, play a vital role in achieving resilience during periods of disruption. They can also play a crucial role in cultivating the collective resilience capacity in anticipation of inevitable setbacks. The central practical implication of this study lies in its ability to purposefully orient these ongoing efforts toward resilience development as an anticipatory organizing practice embedded in NBAF's broader community engagement strategy. These findings provide a foundation for the NBAF and similar organizations to design resilience development strategies that enhance their collective capacity to navigate adaptive challenges. The current scholarship on leadership-as-practice development (LaPD) provides a valuable framework for how an organization like NBAF can fully leverage a resilience development program. LaPD does not concentrate on the individual. Instead, it aligns with the LAP perspective, focusing on the discursive and material processes that arise among the participants involved in the enactment of leadership (Raelin, 2019; 2020).

Denyer and James (2016) suggested if leadership training had a practice approach it would follow four principles: (1) reviewing and renewing how the organization and its members conceive of leadership and engaging in critical reflection to renew a shared sense of leadership, (2) surfacing and working with leadership processes, practices, and interactions, (3) working in the learners' context on their organizational and adaptive challenges, and (4) working with the emotional and political dynamics of leadership in the system. These four principles provide the

foundation of leadership learning and development from a practice perspective. Their innovative framework for LaPD offers a useful parallel for rethinking the cultivation of anticipatory resilience. I propose the creation of a Resilience-as-Practice Development (RaPD) framework grounded in the same four core principles of LaPD. Similar to how LaPD moves the conversation from the individual leader to the emerging practice of leadership, RaPD shifts the development of resilience away from the individual to the collective. By integrating the theoretical framework of resilience-as-practice from this study with its findings into the collective perspective advanced by LaPD, I argue that a resilience development program holds significant practical value for organizations like NBAF, enabling them to cultivate, sustain, and strategically apply resilience, as well as leadership. What might RaPD look like in practice, particularly within the context of NBAF? Denyer and James' (2016) framework provides a ready-made guide for shaping this endeavor.

Denyer and James (2016) present the Collaborative Leadership Learning Group (CLLG) as a model example of LaPD, integrating the four key elements that support leadership learning aligned with LAP's processual ontology. This study demonstrates that those same principles are equally effective in fostering resilience and argues that the creation of a Collaborative Resilience Learning Group (CRLG) as a RaPD model provides organizations, such as NBAF, with a meaningful approach to fostering both anticipatory and reactive resilience capacity by intentionally cultivating the six communicative processes central to CTR in collaborative spaces utilized for critical reflection, storytelling, and sense-making. At the same time, the alignment between the CRLG framework and the CLLG model enables the development of resilience and leadership capacities in tandem. Denyer and James (2016) state that "CLLGs are anchored in practice, bringing together learners who can identify and work together on the challenges they

face collectively” (p. 269). Likewise, the use of a CRLG by high-risk facilities should encourage those involved to explore emotions, tensions, and challenging experiences that are integral to collectively fostering resilience within the specific context they are working (Denyer & James, 2016; Raelin, 2016). Furthermore, CRLG participants must be provided with a safe environment in which these collaborative learning and development efforts can occur effectively. This experience is facilitated by participants committing to each other and their shared learning outcomes (Denyer & James, 2016). Unlike the current iteration of the CLG where communication is present in a traditional format of sender and receiver of information (Planer & Godfrey-Smith, 2020), a CRLG would be steeped in collaborative dialogue where all participants partake in critical reflection and sense-making as they collectively work towards potential solutions to their shared challenge (Denyer & James, 2016).

Ultimately, a CRLG would aim to increase the collective capacity of NBAF, or other high-risk facilities, and the community to collectively enact resilience in response to the challenges presented with building trust and goodwill. To foster resilience in anticipation of inevitable setbacks while pursuing the adaptive challenge of cultivating community trust and goodwill, the process of CTR needs to be identified and discussed, guided by the four principles laid out in LaPD. For example, the first principle of LaPD, as outlined by Denyer and James (2016), is “reviewing and renewing leadership concepts held by learners and their organization” (p. 264). The members of the CRLG should be encouraged to critically reflect on their assumptions about resilience to expose potential tensions in the group's understanding of resilience concepts and to work towards a shared understanding of resilience that is grounded in a relational, processual, and constitutive approach (Brandhorst, 2018; Buzzanell, 2010, 2019). This example illustrates the consistency of a CRLG operating within the four established

principles of LaPD as the group brings to light processes, interactions, contextual factors, as well as emotional and political dynamics that influence the practice of developing resilience (Buzzanell, 2018; Denyer & James, 2016).

Furthermore, the creation of CRLGs must be strategically designed to encourage reflection and sense-making around the enabling organizing processes identified in RQ1 and anticipate the barriers outlined in RQ2 to fully realize the practical value of this study's findings. Each theme from RQ1 offers a strategic entry point for shaping CRLG activities. For instance, CRLG members can collaboratively design a co-organizing structure that expands experiential engagement opportunities for community stakeholders. This becomes especially critical as NBAF transitions to full operational status, at which point on-site tours, previously a cornerstone of trust-building, will no longer be feasible. As these tours come to a necessary end, the CRLG can help imagine, develop, and facilitate new forms of experiential engagement, such as virtual walkthroughs or interactive storytelling events that preserve the relational and immersive qualities of the original tours. Another example involves the nuanced challenge of transparency in high-containment environments, where openness must be carefully balanced with security imperatives. Within the CRLG, members can engage in collaborative dialogue and reflection to define what "calibrated transparency" means in practice and explore ways to make transparency a more co-constructed process between NBAF and the broader community. Thus, advocating for a perspective that recognizes transparency is more than simply releasing information, it should be about co-creating the conditions under which that information is shared. Through these facilitated discussions, the CRLG can help NBAF develop a communication strategy that promotes a more equitable definition of transparency, thereby fostering trust and confidence through relational disclosure that respects institutional boundaries while meeting community

expectations and resulting in the increased capacity for resilience to be collectively accomplished.

However, it is not enough for the CRLG to focus only on the enabling factors of productive resilience episodes. The CRLG must also remain sensitive to the barriers, identified in RQ2, that hinder spaces for co-action from solidifying. The CRLG, being aware of and participating in reflective dialogue concerning the hindering factors as well as enabling efforts of resilience episodes, demonstrates how they can actively cultivate anticipatory resilience. Buzzanell (2017) argues that resilience is not only reactive, but rather a proactive communicative process grounded in reflection on past practices and experiences, allowing us to create anticipatory resilience. Anticipatory resilience, she explains, is “fostered prior to human engagement with events that are perceived as disruptive, can be cultivated through stories, phrases, interactions with others during times of hardship, and memories that capture our imaginations and carry momentum” (Buzzanell, 2019, pp. 68–69). Through sense-making of antenarratives and lived experiences, CRLGs create a space for collective meaning-making and resource-building that can be drawn upon during future disruptions (Betts et al., 2021; Brandhorst, 2018; Buzzanell, 2019; Wilson et al., 2021). RQ2 surfaces key barriers, such as limited resources, that can be anticipated and addressed to ensure productive collaboration leading to resilience. Scarcity does more than constrain capacity. It alters the collaborative climate, shifting it from a generative to a reactive one. This shift can erode engagement, diminish interaction quality, and destabilize the trust structures vital to sustained co-action. In response, a CRLG can foreground participants' lived experiences to surface creative strategies for navigating these constraints. By viewing scarcity as a design challenge rather than a limitation, the CRLG

turns constraint into a driver for growth. It achieves this by leveraging relationships, remaining adaptable, and encouraging ingenuity to foster resilience in resource-limited environments.

The implementation of a CRLG, grounded in the principles of LaPD, offers a generative space to explore, understand, and cultivate resilience as a dynamic practice. Building on the study's findings and combining them with the communication aspects of CTR, the CRLG emerges as a platform for putting into action "constitutive process through which people reintegrate and actively construct their new normal through language, interaction, networks...within their material environment and societal discourse" (Buzzanell, 2019, p. 68). Through this integrated approach, participants can engage in reflective conversations, develop a common understanding, and learn to identify and change their action patterns to accomplish resilience. By building anticipatory resilience through storytelling and reflecting on past interactions, participants can create a clear story of how resilience developed as a shared achievement. This shows how CRLG members tap into their existing knowledge and experiences to deepen the conversation and foster learning. A CRLG should focus on organizing practices associated with the six communicative processes of resilience that people and organizations employ when reacting to setbacks. For example, the CRLG can discuss how NBAF and the community can better maintain and build their communication networks to prepare for the practice of resilience.

Additionally, the group can work through simulated disruptive scenarios to practice applying these communicative processes associated with developing resilience, such as utilizing alternative logics, leveraging communication networks, or affirming identity anchors, while revealing underlying tensions between the simulated issue and previously used methods of addressing it (Buzzanell, 2017). These examples illustrate the potential of a well-established

CRLG to enhance NBAF's collective capacity to foster resilience. Moreover, by embedding these thematic insights into the CRLG's design, NBAF and similar organizations can cultivate a collaborative learning environment that not only builds resilience but also sustains trust across institutional and community boundaries. This model provides a practical and scalable framework for high-containment laboratories and other complex institutions seeking to shift from one-way communication toward adaptive, relational engagement. It supports efforts to navigate adaptive challenges by fostering dialogue, trust, and collaborative sense-making across organizational boundaries.

Summary

In summary, this section highlighted the researcher's commitment to community-engaged scholarship by turning theoretical insights into a practical approach that fosters resilience within organizations and communities. Grounded in a practice-based perspective and molded by the study's findings, the proposed resilience development strategy aims to increase the collective capacity of organizations like NBAF to co-construct resilience to help them confront complex adaptive challenges, especially those involving trust-building and public goodwill. The discussion emphasized the value of collaborative, cross-sector partnerships, as shown by NBAF's Community Liaison Group.

Based on the Leadership-as-Practice Development framework, this study expands the idea by introducing Resilience-as-Practice Development (RaPD), which views resilience not as a fixed trait or individual skill but as a collective achievement fostered through discursive and socio-material organizing arrangements. RaPD emphasizes how resilience develops and is accomplished in practice, consistent with the anticipatory approach seen at NBAF. RaPD emphasizes that resilience is not merely something to be achieved but is continuously co-created

in spaces for co-action and refined through collaborative learning. Crucially, RaPD also distinguishes between anticipatory and reactive forms of resilience, highlighting how organizations and communities can proactively build capacity before crises happen while still being ready to adapt when disruptions occur. This section also introduced the idea of a Collaborative Resilience Learning Group (CRLG), presented as a RaPD initiative. The CRLG model offers both a structured and flexible framework for critical reflection, shared storytelling, and anticipatory sense-making, as it fosters the ongoing development of resilience through iterative dialogue and co-created learning.

The discussion of how this resilience development framework can be implemented in practice raises further questions about how to continue bridging the gap between scholarly inquiry and real-world application. To that end, the following section turns to the methodological implications of this study, particularly its grounding in principles of community-engaged scholarship.

Methodological Implications

Community-Engaged Scholarship and PIQDA: A Powerful Match

To truly understand the broader impact of the study's design, we need to look beyond its theoretical contributions and practical implications. We also need to consider the methodological implications that come with a community-engaged research approach. To highlight the methodological contributions of this work, the principles of community-engaged scholarship as outlined by Van de Ven (2007) are used as the standard for evaluation. From this perspective, success is assessed through two interconnected forms of knowledge creation: (1) developing practical results and (2) producing theoretical understanding. This dual focus provides a foundation for community-engaged scholarship, in which “scholarship means something more

than research, and engagement is the means for scholarship to flourish” (Van de Ven, 2007, p. 9). This orientation shaped not only the criteria for success but also the research process itself. For this study, Phronetic Iterative Qualitative Data Analysis (Tracy, 2018; Tracy et al., 2024) proved to be a highly suitable and adaptable method. The next section explains how the Phronetic Iterative Qualitative Data Analysis (PIQDA) approach, as used in this research, offers valuable insights for advancing community-engaged research. To demonstrate how these methodological commitments are applied in practice, I use PIQDA as both a conceptual and practical framework for inquiry.

I argue that PIQDA, a practice-oriented approach that “serves as an umbrella framework for qualitative inquiry” (Tracy, 2018, p. 63), resonates deeply with the core values of community-engaged research. As such, it warrants serious consideration by researchers across diverse disciplines who aim to generate both theoretical insight and practical impact through their work. PIQDA begins by identifying a concrete, practice-based dilemma and then works toward generating practical wisdom (*phronēsis*) that can inform and support meaningful social transformation (Tracy, 2018; Tracy & Hinrichs, 2017b). This project began with NBAF’s interest in partnering with university researchers to understand better how its communication and outreach efforts impact public perception. This invitation demonstrated a genuine interest in exploring how community engagement strategies impact trust, transparency, and perceptions in high-stakes scientific settings.

NBAF's outreach challenges are deeply rooted in real-world complexity, offering a valuable opportunity for community-engaged research. This partnership exemplifies the kind of real-world problem that PIQDA is designed to address. By focusing on a specific, practice-based issue, such as how different stakeholder groups perceive NBAF's messaging, researchers can

collaborate to generate insights that are both grounded in theory and practical in real-world situations. Additionally, PIQDA challenges a linear research approach by using an iterative process that fluidly moves between emerging, field-based insights (emic) and broader theoretical perspectives (etic) (Tracy, 2018). This enables researchers to continually refine their inquiry while remaining connected to the lived realities of the setting. This methodological flexibility was vital to the study, allowing a detailed exploration of resilience as a socially co-created, practice-centered process, especially as NBAF faces ongoing challenges and setbacks in its efforts to build trust within the community. The iterative, grounded nature of PIQDA also shaped how data were analyzed and interpreted throughout the study, distinguishing it from more linear or rigid methodological approaches.

Unlike strictly inductive or deductive approaches, PIQDA embraces an abductive logic that enables researchers to oscillate between discovery and application (Tracy, 2018). This iterative process involved constantly moving back and forth between data collection and analysis. Guided by the study's purpose, research questions, and the established frameworks of the Communicative Theory of Resilience and Leadership-as-Practice, changes to the amount of data needed or even what kind of data would further the study remained possible within PIQDA's framework. This adaptable characteristic proved vital while collaborating with a community partner operating within the complex environment of biosecurity. PIQDA allowed me to remain responsive, rather than adhere to strict protocol. I was able to adapt to emergent needs, shifting priorities, and relational dynamics. Importantly, its flexibility accommodated relational changes with NBAF while supporting my own iterative learning and reflection throughout the process. This responsive movement, valued in both PIQDA and community-engaged research, strengthened both the theoretical rigor and the practical relevance of the

findings. Furthermore, PIQDA emphasizes the researcher's role as an active participant in the research process. It recognizes that power, values, and positionality inherently shape qualitative inquiry (Tracy et al., 2024). This aligns with the ethical commitments of community-engaged scholarship, where researchers work with participants to co-create meaning (Frimann et al., 2019). These explicit characteristics of PIQDA are why it offers such methodological value in community-engaged inquiry. This becomes even more apparent when considering the concrete insights and outcomes it helped generate.

This study's use of PIQDA demonstrates a key methodological implication for community-engaged scholarship by emphasizing practical application as much as theoretical advancement. As Tracy (2018; 2024) emphasizes, PIQDA's strength lies in its ability to produce theoretical insight and practical knowledge that can benefit both the researcher and the participating community. PIQDA's influence became evident in the development of the Collaborative Resilience Learning Group (CRLG) concept that I introduced in the Practical Implications section. The idea of CRLG was formed through personal engagement and iterative reflection throughout my study, rather than emerging as a detached theoretical construct. This resulted in an actionable strategy grounded in real-world practice, exemplified by the PIQDA approach.

The benefit of employing PIQDA in the context of community-engaged research is that it advocates for a learning-by-doing approach, which directly aligns with the principles of practice development. In other words, PIQDA encourages researchers to be critically reflective and adaptable to produce meaningful findings, just as CRLG invites participants into reflection and collective sense-making to foster resilience. These requirements are essential when navigating complex and dynamic environments with community partners, as adaptive challenges are

collectively confronted. This illustrates why PIQDA offers a compelling methodological approach for scholars committed to practice-oriented community-engaged scholarship.

The similar values of PIQDA and community-engaged scholarship illustrate how the methodology can be used in practice. PIQDA is conceptually suited for research that seeks both theoretical insight and practical utility while offering flexibility to the data collection and analysis process. Flexibility was essential during all stages of the research process. From data collection and sense-making to iterative cycles of analysis and application, PIQDA's adaptability proved critical in navigating the needs of my community partnerships while ensuring the relevance of the findings both from an organizational and academic perspective.

In practical terms, this flexibility allowed me to begin the analysis process before all data had been collected, an approach that Tracy (2018) recommends within PIQDA. This early engagement with the data enabled a recursive, inductive—deductive movement that allowed me to make sense of emerging patterns from within the lived context of the community partner, while simultaneously framing those insights in dialogue with existing theoretical concepts. The iterative nature of PIQDA provided me with the space and opportunity to adapt and address gaps in the data collection and analysis phases. This helped me ensure that both theoretical and practical knowledge were being co-constructed as it pertained to Resilience-as-Practice. Therefore, I believe PIQDA offers an appropriate framework for community-engaged research due to its emphasis on producing practical knowledge that addresses adaptive challenges.

Summary

In summary, this section demonstrates the methodological possibilities of using PIQDA within a community-engaged research framework. Grounded in Van de Ven's (2007) principles of engaged scholarship, the research emphasizes dual knowledge production, practical outcomes,

and theoretical insight. PIQDA's flexible, reflexive, practice-oriented, and abductive approach enabled responsive collaboration with NBAF. It also supported the hypothetical creation of actionable strategies like the Collaborative Resilience Learning Group. PIQDA proved especially well-suited for navigating complexity, fostering trust, and advancing resilience practices in real-world contexts by prioritizing workability over abstraction.

Limitations

To be clear, this dissertation does not claim to address all possible consequences of examining resilience through a practice perspective. Instead, it aims to initiate a scholarly conversation about understanding resilience as a social accomplishment, something enacted *in situ* through the interplay of discursive and material resources. I argue that resilience scholars, particularly those investing in CTR scholarship, can draw on domain-specific practice perspectives, such as strategy-as-practice (SAP) and specifically leadership-as-practice (LAP), to gain the necessary theoretical footholds for exploring resilience from a practice perspective. These approaches emphasize the practical activities and interactions that constitute strategy and leadership. Resilience scholars can gain deeper insights into how resilience is operationalized in real-world contexts by adopting these practice-oriented perspectives. At the same time, a practice perspective presents inherent challenges that shape the limitations of this study.

Single Case Study Design—A Question of Generalizability

Studies with a practice perspective that focus on identifying a phenomenon within the specificity of situations can struggle with constructing generalizable themes (Raelin, 2019; Raelin & Robinson, 2022). This is challenging because a practice orientation demands a granular understanding of the immediate context and the interactions that occur within it, which are often complex and highly contextualized. Thus, identifying broader patterns or "isolating congruent

themes" can be difficult (Raelin & Robinson, 2022, p. 3). Because this dissertation is a single-case study focusing on NBAF, the findings may be more closely tied to the studied setting than transferable across diverse contexts. This depth comes with limitations in generalizability. While NBAF provides a compelling site to explore resilience-as-practice in high-risk federal facilities, its uniqueness (e.g., being the only BSL-4 large animal lab) makes it non-representative of most organizations, even other high-containment labs. For example, NBAF's status as a federally operated laboratory under the USDA poses distinct constraints that differ from those of university-affiliated research centers or privately held biotech firms.

High-containment laboratories and similar organizations operate within varied sociopolitical landscapes, stakeholder configurations, and institutional structures. Two influential institutions that contribute to a unique and contextual environment of the surrounding community of NBAF are Kansas State University and Fort Riley. This layered environment impacts how resilience is collectively enacted and accomplished. Resilience practices developed in urban centers or on tribal lands would likely differ significantly in their dynamics and priorities. These contextual differences impact the enactment of resilience practices through their own forms of agency. Due to this, it is essential to note that the findings of this study may be limited in their predictive value. Other facilities or communities attempting to replicate these practices (e.g., strategic facilitation, experiential engagement) may not encounter the same outcomes unless the contextual factors are similar.

Due to the limited empirical and theoretical scholarship on resilience as a practice, this dissertation necessarily adopted an exploratory and original approach. While I constructed a rigorous framework to encompass research design, data collection, analytical methods, and theoretical integration, it is impossible to capture every dimension of resilience from a practice-

oriented perspective. This becomes especially salient when we start to consider the multiple modes and resources used in accomplishing resilience, “thus going beyond a focus on only language for producing meaning” (Alvehus & Crevani, 2022, p. 1). All these factors can and will have an effect on the practice of resilience, leaving no two practices the same (Kempster et al., 2016). This again highlights the challenge of developing congruent themes across different sites and/or individuals. These are real challenges that all scholars face in the practice field.

Temporal Constraints of Observation

All data for this dissertation were collected during the pre-operational phase of NBAF, before it assumed full responsibility for the Plum Island mission. Community engagement efforts were highly visible and accessible, including on-site tours, media campaigns, and booths at local festivals. Whenever the NBAF transitions into full operational status, heightened security and bio-containment protocols will require more restricted access to the facility and its information. These new conditions limit the long-term ability of the engagement practices observed in this study and pose important questions about how trust-building can be sustained in such a restrictive environment.

The necessity for heightened security protocols will inevitably lead to the loss of key experiential touchpoints. For example, NBAF used facility tours as a trust-building activity. However, tours will not be available to stakeholders once NBAF becomes fully operational. This demonstrates discontinuity between the research content and NBAF’s future engagement landscape. More pointedly, the study captures the collective resilience organizing efforts during NBAF’s onboarding into the community, but not how it will be sustained under full-scale operational normalcy, where engagement opportunities become more limited. A key implication of this limitation is that the findings may overestimate the long-term viability of certain

resilience practices or underrepresent emerging challenges as NBAF transitions into routine high-security operations. These challenges may include diminished transparency, fewer invitations to spaces for co-action, and increased mistrust stemming from reduced visibility and access.

Summary

In summary, this dissertation seeks to initiate a scholarly conversation around resilience as a socially accomplished, practice-based phenomenon, enacted through the everyday work of individuals and groups. While it offers a grounded framework for understanding resilience in context, it does not claim to exhaust the conceptual or practical implications of this perspective. The use of a single case study design provides rich and contextual depth. However, the context-specific insights derived from this study remain inherently limited in terms of the generalizability of the findings across differing organizational settings, due to the unique dynamics of the organizing agents within them. Given the exploratory nature of this study, the framework developed here cannot account for all dimensions of resilience practices, particularly as its enactment varies across contexts, resources, and modes of organizing.

Additionally, this research was conducted during NBAF's pre-operational phase, a period marked by relatively open community engagement. As the facility moves towards operating at full capacity and more stringent security is needed, community access and information transparency are likely to diminish. This may potentially limit the long-term relevance of some of the enabling practices currently being used to build community trust and goodwill. These future real-world operational constraints raise the possibility that some of the findings may overemphasize the organizing ability of specific resilience strategies while potentially underemphasizing future challenges that arise from these constraining factors.

Future Research

As mentioned earlier, studying resilience from a practice-oriented approach indeed presents challenges, but these challenges also open numerous opportunities for exciting future research and exploration. Introducing a domain-specific practice perspective to the topic of resilience opens new pathways and research agendas for studying and exploring resilience, especially as it is produced *in situ*. There are abundant opportunities for both new and experienced scholars to begin studies in the field of resilience from a practice perspective. The total implications and new streams of research that will result from pursuing resilience as a practice are unknowable.

Longitudinal Study

One promising direction for future research on resilience as a practice is to adopt a longitudinal study design. Such an approach would help address the temporal limitations noted earlier by examining how resilience unfolds and adapts over extended periods of time. Building on the episodic, processual perspective of resilience used in this study, longitudinal research could trace the evolution of spaces for co-action, exploring how they emerge, persist, or dissolve in response to disruptions such as pandemics, policy shifts, or other crises. This extended view would offer more profound insight into the durability and adaptability of resilience practices within specific organizational and community contexts. It would also allow researchers to understand better how initial choice moments evolve into sustained practices of adaptation or, conversely, break down under strain.

A longitudinal design provides a valuable opportunity to examine how resilience practices develop over time, illustrating how individuals and groups learn from past disruptions, recalibrate their communication and material strategies, and adjust their approach to future

uncertainties (Raelin, 2019). Such research could also help uncover the long-term consequences, both intended and unintended, of resilience strategies implemented in response to a crisis. Significantly, this approach would deepen the theoretical understanding of resilience as a socially situated, evolving practice, while offering practical insights into how communities and organizations can cultivate resilience in ways that are sustainable, equitable, and contextually grounded.

Action Research Study Design

While this study adopted a practice-oriented lens, future resilience as a practice research could benefit from the intentional use of action research as a guiding methodology. Structuring inquiry around the principles of action research would emphasize the co-construction of knowledge through participatory engagement (Raelin, 2019). Reason and Bradbury (2015) describe action research as a collaborative process that develops a practical understanding of issues in efforts to support individual and collective advancement through reflexivity, theory, and practice. Using resilience inquiry and action research, future research could strengthen theoretical understanding and practical relevance through sustained, context-sensitive collaboration.

Furthermore, an action research design would allow researchers and community collaborators to actively interrogate and refine resilience practices as they evolve, rather than simply documenting them after the fact. Action research aligns with the phronetic, future-forming potential of praxis-oriented research while also supporting participatory reflexivity (Raelin, 2019). As Raelin (2019) argues, such efforts not only generate new knowledge and insight but also have the capacity to improve practice in real time. These commitments strongly resonate with the values underlying the earlier discussed CRLG approach to the potential

practical implications of this study, which aims to foster mutual learning and shared agency in response to complex, real-world challenges. Future studies adopting an action research frame could, for instance, embed CRLGs within organizations or communities facing disruption and trace how members reflect on, adapt, and transform their resilience practices over time.

Summary

In summary, approaching resilience through a practice-oriented lens presents both conceptual challenges and exciting opportunities for future inquiry. By introducing a domain-specific practice framework, this perspective opens new pathways for examining how resilience is enacted *in situ*, inviting scholars across disciplines and career stages to engage with its evolving contours. Promising directions include longitudinal studies that track how resilience practices emerge, adapt, and persist over time in response to disruptions. Such research can illuminate the role of experience in shaping adaptive capacities and reveal how communities sustain, or lose, resilience in changing conditions. Equally valuable is the use of action research methodologies, which emphasize collaborative, participatory inquiry. These approaches enable researchers and communities to co-create knowledge and iteratively refine resilience practices in real time, aligning with praxis-oriented values. Embedding models like Collaborative Resilience Learning Groups (CRLGs) within community settings could foster sustained mutual learning and adaptation, deepening both theoretical insight and practical impact.

Conclusion

In conclusion, this dissertation has clearly demonstrated that resilience emerges not as a fixed trait, static outcome, or individually produced product but as a collectively enacted, communicative, and socio-material practice. By situating resilience within a practice-based ontology, and integrating Leadership-as-Practice, the Communicative Theory of Resilience, and

the Communicative Constitution of Organizations, this study introduced Resilience-as-Practice (RAP) as both a conceptual framework and an empirical lens through which resilience can be observed, analyzed, understood, and fostered.

The empirical contributions of this case study, focused on NBAF and its surrounding community, emphasize the dual nature of resilience by demonstrating both its emergence in spaces for co-action and its vulnerability to breakdown amid socio-material barriers. Themes from Research Question One illuminated how resilience practices are co-constructed through collaborative organizing efforts. In contrast, Research Question Two revealed how real-world factors such as resource constraints, lingering fears, and language intimidation can disrupt or dissolve these fragile collaborative spaces. Together, these findings demonstrate that resilience is not guaranteed by intention alone. Resilience is enacted or obstructed through everyday organizing, shaped by human and non-human agency, and is embedded in its context. The concept of resilience episodes makes these dynamics visible, offering a practical and theoretical tool for recognizing when, why, and how resilience takes hold.

At its heart, this dissertation is driven by a belief that viewing resilience through a practice lens offers vital insights for addressing today's most adaptive and complex challenges, those that demand sustained collective action required to face our world's most wicked problems. Resilience, fundamentally, is about adapting to and overcoming adversity (Buzzanell, 2017; Richardson, 2002). Indeed, by foregrounding the collective dimensions made visible through a communicative perspective and the pragmatist roots of practice, this study explores resilience as a socio-spatial process of organizing to achieve a desired direction by co-creating a new normal. By moving beyond individual efforts toward shared action, the RAP framework

offers organizations and communities a deeper understanding of resilience as a dynamic, evolving process that invites collective participation and fosters a sense of belonging.

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Appendix A - Community Liaison Group (CLG) Interview Protocol

The Importance of Communication in High Containment Laboratories: Collaboration and

Community Resilience

Interview Protocol

Introduction - rapport building

1. Tell us about yourself and your role within the community.
 - a. How did you get involved in that role?
 - b. How long have you been in the community?
2. How would you describe the CLG?
 - a. What role do you or your organization play within the CLG?
3. Tell us about a time when you heard good things about NBAF?
 - a. What happened? What did you hear?
4. Tell us about a time when you heard concerns about NBAF?
 - a. What happened? What did you hear?
5. Tell us about when you heard inaccurate or misleading things about NBAF?
 - a. What happened? What did you hear?
6. When you think about NBAF, what word would describe it?
 - a. Why did you choose that word?

Section 1: Building and Creating Normalcy

1. How does NBAF contribute to the community?
 - a. What role do they play in the community, state, region, and nation?
 - b. What opportunities has NBAF created within the community? What challenges?
2. What challenges did you or your organization face before NBAF was built?

- a. Why?
 - b. How has NBAF changed your or your organization's daily work? Why?
3. How did NBAF communicate with you before their opening? What about after?
- a. How effective do you think these practices are? Why or why not?
 - b. What do you wish NBAF would do differently in their communication plan? Why?
 - c. What could NBAF do differently within the community?
4. What practices does NBAF use (e.g., tours, social media, CLG) contribute to creating a safety culture to defend the nation's agricultural interests?

Section 2: NBAF Identity and Community Identity

1. How would you describe NBAF to another community partner?
- a. What do they do? What is their role?
 - b. If you had to use a metaphor, what metaphor would you use to describe NBAF? (e.g., like a lunchbox because they protect XYZ from going bad)
2. During times of crisis or challenge, what role do you hope NBAF plays in the community?
- a. Do you believe NBAF is prepared to play that role? Why or Why not?
3. What is your overall impression of the NBAF facility? Its people?
- a. Why?
 - b. If you've taken a tour of NBAF, what questions did you have about the facility before the tour? What questions did you have after?
4. How do community members describe NBAF and their role to you?
- a. How does their description help or hurt NBAF's reputation?

Section 3: Communication Networks

1. Where do you receive most of your information when learning about NBAF?

- a. Detail your confidence level about the information you receive.
2. What is your relationship with other members of the CLG?
 - a. What is your perception of the Community Liaison Group (CLG)?
 - b. Which groups are most connected in your daily work?
3. Talk about experiences you have had where members of your community outside the CLG have asked you questions about NBAF?
 - a. What kinds of questions do members ask you?
 - b. What do these questions tell you about NBAF?
4. Have you ever experienced an uncomfortable/sensitive question about NBAF?
 - a. How did you respond?
 - b. Where would you go to receive advice on how to handle an uncomfortable/sensitive question?
5. Which groups are missing from the CLG that should be present?
 - a. Why are these groups missing?
 - b. What could be done to reach out to them?
6. Have you ever corrected incorrect (misinformation) about NBAF? What happened?
7. Who do you trust to communicate important information outside of traditional media sources?
 - a. In a crisis, whose information do you trust? Local mayors? Police chief? Congressperson? Do you follow community leaders on any of the social network platforms?
 - b. What is your comfort-level with a representative presenting about NBAF in your local high school? Grammar school?
8. What ideas do you have that NBAF can do to increase its communication network?

Conclusion

1. Is there anything else you'd like to say about NBAF that you haven't mentioned?
2. What questions do you wish we would have asked?

Demographic Information

1. What gender do you identify as?
2. What is your age?
3. What is your ethnicity?
4. What community do you represent (e.g., city/county in Kansas)?
5. What is the highest degree or level of education you have completed?

Appendix B - NBAF Communication Team Interview Protocol

RQ1: How are resilience dynamics co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?

1. How is your team going about creating a new normal in an environment of uncertainty regarding federal spending, fund allocation, and, for some in the USDA, job security?

2. How do you perceive the role of high-containment labs in fostering community trust?

a. How do you perceive the role of the CLG in fostering community trust?

b. Have these perceptions changed in the last six months as the USDA is confronted with a more uncertain operating environment due to disruptions in federal spending and funding allocation?

3. Can you share examples of successful collaborations between NBAF and community stakeholders?

a. Will the uncertainty associated with our new political environment impact your ability to collaborate successfully?

b. What is your team doing to confront and overcome these barriers to help ensure a continuation of successful collaboration?

4. Can you share any examples of unsuccessful collaborations between NBAF and community stakeholders?

a. Why do you think the effort resulted in collaboration breaking down?

5. What communication strategies have been most effective in addressing community concerns?

a. How do community members communicate with you?

b. Do you think that you are hearing from community stakeholders that you need to be hearing from? Those who have legitimate concerns or questions?

6. How do you navigate the balance between transparency and security in your interactions with the community?

7. What barriers have you encountered in building trust, and how were they addressed collaboratively?

a. Have there been instances when you or a CLG member or community member have a concern, but the reciprocating party did not view it as a matter of concern?

RQ2: What factors prevent co-action spaces from solidifying and driving resilience, particularly in building trust between high-containment labs and communities?

1. What challenges have you faced in creating spaces for co-action between NBAF and communities? Specifically, when it comes to building community trust and combatting misinformation.

a. Have you experienced a change in these challenges with the current environment of federal funding and job insecurity?

b. Has any CLG or community member voiced concern about being able to collaborate with NBAF regarding safety or community needs before and after the recent federal funding cuts?

c. What role does community engagement or prior experience with high-containment labs play in shaping the willingness to participate in co-action spaces?

2. How do differing priorities or values between NBAF and communities impact collaboration?

a. Have you experienced a priority or value shift over the last year or two that have the potential to impact collaboration?

- b. How do you address conflicts that arise from differing priorities or cultural values between NBAF and community stakeholders?
- 3. What impact do societal perceptions of high-containment labs have on community trust and resilience efforts?
 - a. How do leadership roles within both the labs and the community influence the development of co-action spaces?
 - b. How do you manage differences in knowledge, expertise, or language between scientific professionals and community members?
- 4. Are there specific policies or practices that hinder the development of co-action spaces?
 - a. Have policies related to safety, security, or regulation ever hindered your ability to collaborate effectively with communities?
 - b. What changes in practices or policies would better support the solidification of co-action spaces for resilience building?
- 5. How do you measure the success or failure of these collaborative efforts?
 - a. How do you identify and address setbacks when building co-action spaces or trust between labs and communities?

Appendix C - Community Liaison Group and NBAF Staff

Participants

Appendix Table C.1. Community Liaison Group Participants

Pseudonyms	Pseudonym Organization
Abby	Kansas Legislator
Andrew	Midwestern Livestock Trade Association
Daniel	Advocacy Group B
Gary	Advocacy Group A
Jeff	ABC College
Kayla	Non-Profit Team C (NTPC)
Keith	Midwestern Law Enforcement Agency (MLEA)
Kelli	Midwestern State Agricultural Agency (MSAA)
Mark	Sunrise Project Group
Molly	Advocacy Group J
Mason	Advocacy Group B
Richard	Midwestern Emergency Response Team (MERT)

Appendix Table C.2. NBAF Participants

Pseudonyms	Pseudonym NBAF Title
Emma	Science Fellow A
Emery	Science Fellow B
Skylar	Chief Facilitator Officer (CFO)
Alex	Chief Organizing Officer (COO)
Lorelai	Scientist A
Parker	Chief Creative Officer (CCO)
Jordan	NBAF Employee J

Appendix D - Community Liaison Group Interview Consent Form

The Importance of Communication in High Containment Laboratories:

Collaboration and Community Resilience Interview

Consent Form

This research study examines the experiences of high-containment facilities with outreach and public engagement in their surrounding communities.

Project Sponsor: United States Department of Agriculture

I _____ voluntarily agree to participate in this research study.

(Please Print Name)

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question. I have had the purpose and nature of this study explained to me, and I have had the opportunity to ask questions about the study.

I understand that participation involves a 45-60-minute-long interview discussing the kinds of efforts and responses that I have received from my communities about the National Bio and Agro-Defense Facility, the perceptions of the facility in the community, the impression of the facility, the communication strategies that I have adopted to talk about the facility, and other lessons learned.

My identity will be kept confidential. This will be done by changing my name and disguising any details of my interview that may reveal my identity. In any written material for this project, participants will be identified as "Participant" with a corresponding number. Demographics will be reported only in the aggregate.

I understand that I will not benefit directly from participating in this research. Benefits include helping to add knowledge to research regarding best practices for high-containment facilities in correcting inaccurate science information and increasing community resilience to misinformation and disinformation.

I agree to my interview being audio-recorded to allow for transcription. I understand that disguised extracts from my interview may be quoted in conference presentations and published papers.

I understand that signed consent forms will be kept on Dr. Sean Eddington's password-protected laptop, and original audio recordings and transcripts will be retained on Dr. Sean Eddington's and David Barnhart's password-protected laptops until the study is published.

I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the study publication date. I know the information collected as part of this research, even if identifiers are removed, will not be used, or distributed for future research studies.

I understand that if I have questions, I may contact principal investigator Dr. Sean Eddington at seaneddington@ksu.edu. If I have any questions or concerns regarding my rights as a subject in this study, I may contact the Kansas State University Institutional Review Board (IRB) Committee Chair, Dr. Lisa Rubin, at (785) 532-3224.

Signature of research participant _____

Date: _____

Appendix E - NBAF's Communication Team Interview Consent Form

The Importance of Communication in High Containment Laboratories: Resilience Practices Interview Consent Form

This research study examines the experiences of high-containment facilities with outreach and public engagement in their surrounding communities.

Project Sponsor: United States Department of Agriculture

I _____ voluntarily agree to participate in this research study.

(Please Print Name)

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question. I have had the purpose and nature of this study explained to me, and I have had the opportunity to ask questions about the study.

I understand that participation involves a 45-60-minute interview discussing the collaboration efforts and communication practices that I participate in in my role as part of the National Bio and Agro-Defense Facility, my efforts in working with CLG members and other stakeholders, the communication strategies that I have adopted to talk about the facility, and other lessons learned.

My identity will be kept confidential. This will be done by changing my name and disguising any details of my interview that may reveal my identity. In any written material for this project, participants will be identified as "Participant" with a corresponding number. Demographics will be reported only in the aggregate.

I understand that I will not benefit directly from participating in this research. Benefits include helping to add knowledge to research regarding best practices for high-containment facilities in correcting inaccurate science information and increasing community resilience to misinformation and disinformation.

I agree to my interview being audio-recorded to allow for transcription. I understand that disguised extracts from my interview may be quoted in conference presentations and published papers.

I understand that signed consent forms will be kept on Dr. Sean Eddington's password-protected laptop, and original audio recordings and transcripts will be retained on Dr. Sean Eddington's and David Barnhart's password-protected laptops until the study is published.

I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the study publication date. I know the information collected as part of this research, even if identifiers are removed, will not be used, or distributed for future research studies.

I understand that if I have questions, I may contact principal investigator Dr. Sean Eddington at seaneddington@ksu.edu. If I have any questions or concerns regarding my rights as a subject in this study, I may contact the Kansas State University Institutional Review Board (IRB) Committee Chair, Dr. Lisa Rubin, at (785) 532-3224.

Signature of research participant _____

Date: _____

Appendix F - Observation Consent Form

The Importance of Communication in High Containment Laboratories:

Resilience Practices-On Site Observation

Consent Form

This research study examines the experiences of high-containment facilities with outreach and public engagement in their surrounding communities.

Project Sponsor: United States Department of Agriculture

I _____ voluntarily agree to participate in this research study.

(Please Print Name)

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question. I have had the purpose and nature of this study explained to me, and I have had the opportunity to ask questions about the study.

I understand that my participation involves being observed during the on-site observation of the NBAF facility and that these observations are being used to better understand how NBAF officially and unofficially tries to work with members of the CLG, as well as other stakeholders, to establish spaces for collaboration and co-action aimed at producing trust and resilience within the community regarding NBAF's work.

My identity will be kept confidential. This will be done by changing my name and disguising any details of my interview that may reveal my identity. In any written material for this project, participants will be identified as "Participant" with a corresponding number. Demographics will be reported only in the aggregate.

I understand that I will not benefit directly from participating in this research. Benefits include helping to add knowledge to research regarding best practices for high-containment facilities in correcting inaccurate science information and increasing community resilience to misinformation and disinformation.

I agree with my observation being written down and used for the purpose of this research. I understand that disguised extracts from these observations may be used in conference presentations and published papers.

I understand that signed consent forms will be kept on Dr. Sean Eddington's password-protected laptop, and original audio recordings and transcripts will be retained on Dr. Sean Eddington's and David Barnhart's password-protected laptops until the study is published.

I understand that any notes taken during observations in which all identifying information has been removed will be retained for two years from the study publication date. I know the information collected as part of this research, even if identifiers are removed, will not be used, or distributed for future research studies.

I understand that if I have questions, I may contact principal investigator Dr. Sean Eddington at seaneddington@ksu.edu. If I have any questions or concerns regarding my rights as a subject in this study, I may contact the Kansas State University Institutional Review Board (IRB) Committee Chair, Dr. Lisa Rubin, at (785) 532-3224.

Signature of research participant _____

Date: _____

Appendix G - Observational Rubric

Appendix Figure G.1. S.P.E.A.K.I.N.G. Observational Rubric

S.P.E.A.K.I.N.G Model	Concept(s) And Observations
Situation (Scene & Setting)	Time & Place of Event--Environment of the Event
Participants	Who is involved--Specific roles
Ends	Goals/Purpose of Event
Acts	Form <i>and</i> Content of what is said. --Order of events
Key	The overall tone of the speech <i>and</i> event

Instrumentalities	Mediums/channels used to communicate during the event
Norms	What is socially appropriate at the event? Are specific rules of engagement used and/or accepted (e.g. hand raising, interruptions, volume)
Genres	The categories or types of speech acts utilized during the event

Note. Adapted from Hymes (1974)

Appendix H - Data Analysis Table: Themes with Corresponding Description and Code/Examples

Appendix Table H.1. (RQ1) Co-Constructing Resilience Practice

Theme	Description	Codes and Examples
Organizing Around Experiential Engagement	Intentional activities produced by NBAF that allow participants to use more than their hearing (e.g., sight, smell, taste, touch) to experience what NBAF does and their efforts at being secure and providing safety to their community and stakeholders. These activities prove to increase trust and safety satisfaction	Experiential engagement opportunities, such as tours and hands-on activities , have been crucial for building trust and understanding around the NBAF
Organizing Strategic Facilitation	Communicative practices that make uncertainty intelligible and actionable. Emerging through the work of NBAF staff, CLG members, or trusted intermediaries, strategic facilitation involves framing technical or contentious issues in ways that invite engagement and alignment. It is best understood not as a role, but as a situated accomplishment which communicatively fosters clarity, reciprocity, and direction within resilience efforts.	Empowering People, Building Relationships, Sharing the Burden, Leveraging Relationship Inventory Components
Organizing Through Calibrated Transparency	A communicative practice through which organizations deliberately adjust the degree of openness they extend to stakeholders. It enables resilience by providing enough disclosure to build trust, counter misinformation, and sustain co-action, while simultaneously withholding or shaping information to protect institutional security, authority, and control.	Qualifying Transparency, Impactful Transparency, Security, Open Communication

Organizing Due to Priority Convergence	The convergence of priorities among individuals, groups, or organizations forms the foundation for meaningful collaboration. When these priorities intersect, they create fertile ground for reciprocity and co-action, increasing the likelihood that all parties will embrace a shared direction.	"Priority Convergence," which involves identifying and prioritizing key audiences and stakeholders to increase understanding, trust, and support for the NBAF. Showing Value, Priorities, Motivation
Organizing Through Diverse and Meaningful Communication Efforts	NBAF and its stakeholders use diverse communication methods—such as social media, writing, and in-person interaction—to foster collaboration and co-action. Engaging messages, storytelling, and relational tone help bridge complex topics with public understanding, building trust and inviting mutual investment in resilience-building efforts.	Modes of Communication, Storytelling, Being Flexible, Finding Common Ground, and Getting on Each Other's Level

Appendix Table H.2. (RQ2) Disrupting Resilience Practice from being Accomplished

Theme	Description	Codes and Examples
Limited Resources: Preventing and Closing Spaces for co-action	Limited materials, funding, time, or personnel can constrain co-action spaces, requiring strategic choices based on ROI. Participation depends on individuals' and organization's capacity to commit personal resources like time and mental energy.	Time Boundaries, Balancing Time and Effort, Energy Levels, Resource Allocation
Operating Constraints: Hindering Spaces for co-action	Formal policies, informal norms, organizational complexity, and shifting external conditions can restrict co-action. These factors can create uncertainty and limit both permission and capacity to engage flexibly in collaborative spaces	Bureaucracy, Shifting Political Environment, Workplace Constraints, Physical Barriers, Shifting Circumstances
Language Intimidation: Creating Barriers to Productive Spaces for co-action	The use of technical or unfamiliar language—whether intentional or not—can overwhelm, confuse, or unintentionally alienate individuals, limiting their ability to engage in co-action. Even when used with harmless intent, such language can create barriers to understanding and contribute to language intimidation, discouraging meaningful participation.	Technical Language, Confusing Acronyms, Organizational Jargon, Requiring Specialized Knowledge, Feeling Dumb
Matter of Concern: Differing Perspectives Influencing the Necessity for Spaces for co-action	Diverging concerns or conflicting priorities among individuals or groups can hinder the formation of co-action spaces or cause existing ones to dissolve. When shared purpose or urgency is lacking, collaboration struggles to take root, emphasizing the importance of aligning perspectives for sustained collective effort.	Different Value Structure, Attention Span, Distractions, Not My Business, Importance Spectrum

Lingering Fears and Negative Rumors: Disintegrating Spaces for co- action	Negative histories, unresolved concerns, and inaccurate information—such as rumors or misinformation—can erode trust and prevent co- action from taking hold. When these issues go unaddressed or are met with dismissiveness, they often lead to disengagement, skepticism, and a lack of momentum for collaborative efforts.	Unresolved Concerns, Confusing Structures, Rumors, Digging In, Fear, Faulty Information, Uninformed Opinions
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Appendix I - Dissertation Executive Summary

Appendix Figure I.1. Executive Summary

Exploring the Complexities of Crafting New Normality Through Collaborative Situated Resilience Practices between High-Containment Laboratories and Communities

Organizations thrive by engaging with their external environment, making trust and goodwill within their communities essential. In today's fast-paced digital world, misinformation presents a significant challenge, and resilience is key to overcoming its impact. High-containment facilities like the NBAF (National Bio and Agro-Defense Facility) are particularly reliant on community trust, given their potential risks and the importance of their missions.

The NBAF exemplifies efforts to enhance trust and goodwill despite the challenges. Its communication team, though small, faces the monumental task of fostering resilience to counter skepticism and misinformation. My dissertation investigates how the NBAF, its Community-Liaison Group, and community members collaboratively build this resilience. By working across diverse groups and locations, the research explores strategies to navigate the complexities of trust-building and resilience in such a dynamic environment.

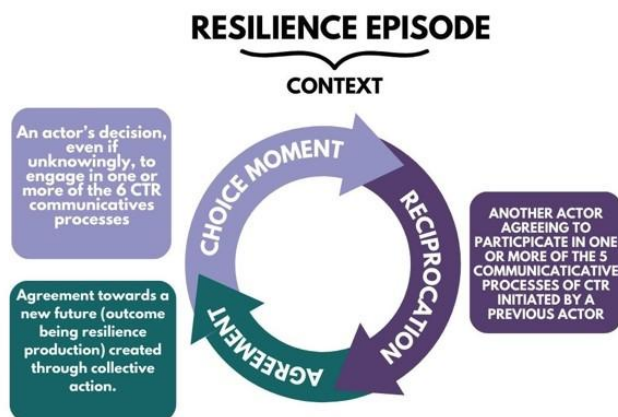
Two research questions inform this study:

RQ1: How are resilience practice(s) co-constructed between high-containment labs and community stakeholders to overcome barriers to building community trust?

RQ2: What factors prevent co-action spaces from solidifying and producing resilience, particularly in building trust between high-containment labs and communities?

To conceptualize resilience-as-practice (RAP), I established a theoretical framework that defines RAP as a socio-spatial process of organizing in accomplishing direction.

Analytical examination of RAP requires a means to study resilience from a practice perspective. I created and defined a Resilience Episode to distinguish Resilience-as-Practice from other resilience conceptualizations.



My dissertation will empirically analyze resilience practices within the NBAF-CLG partnership and among community members to offer insights into effective collaborative communication in complex environments. More specifically, the findings will contribute to our understanding of resilience as a collective, communicative process, emphasizing the necessity of continuous, collaborative efforts in addressing complex social challenges

Appendix J - Data Analysis Codebook

Appendix Table J.1. Complete Codebook

Code Name	Code Description	Examples	Close but not it
Showing Value	Justifying why others should pay attention to your organization and/or priorities. It can also be used as a means of justifying your presence, holding people in a space of co-action, and/or arguing for a specific path forward because of the value you bring to your community. This can take place internally, externally, and across systems.	"Those kinds of things are how we get them to be like, oh, this is important." "If you don't recognize, or if you don't have the knowledge of how important NBAF is, then you simply won't be as interested in that information."	Implying importance through visibility rather than meaningful justification.
Priority Convergence	The intersection of individuals, groups, or organizations' priorities. This intersection of priorities can facilitate reciprocation in co-action spaces and increase the likelihood that each party will desire a new direction to move forward with together.	"But in the end, you know those people at that top level that are gonna support and engage with us. You know, we're willing to spend more time to reach them, because they're...they'll help us make sure that we're here in the future." "I would say, in the last several months, really good communication with, like, the city planners. And they're coming to us much more proactively with...Here's what's going to be happening. So, you guys can prepare for it."	Occasionally aligning priorities without intentional collaboration.
Being Flexible	Recognizing that overcoming challenges and barriers requires a processual and evolving view of time and circumstances. Current	"Even if that means we have to use a different system. You know we...we have to shift responsibilities or shift gears."	Shifting approaches without active problem-solving or foresight.

	effort techniques may not be sufficient to operate in spaces for co-action productively.	"But we've been doing our best to figure out what the answer is, now...and then, if we need to develop that answer further in the future, we can."	
Experiential Engagement Opportunities	Activities regarding NBAF that allow participants to use more than their hearing (e.g., sight, smell, taste, touch) to experience what NBAF does and their efforts at being secure and providing safety to their community and stakeholders.	"you know, that we brought the community group in for Tours. But I think again...giving them those opportunities and showing them that we want you to see behind the scenes." "they said...I met these people, and they gave me the brief, and we walked through containment. And it's not like that. This is how it is."	Seeing or hearing about something without immersive or purposeful participation.
Modes of Communication	NBAF and stakeholders utilize different modes, means, and forms of communication to engage with each other, construct spaces for co-action, and collaborate (e.g., social media, face-to-face, written).	"Trust...building public trust is that next level. And that's where we do outreach presentations." "and finding different...different routes that we can take to figure out how to reach the community." "And I know that we do...radio interviews, which I think are super helpful. And then, obviously, all of our tours that we're able to do with stakeholders...just really finding every possible avenue that we can to reach people...is something that I know our staff has been working on."	Transmitting messages without ensuring meaningful exchange.
Appropriate Transparency	Open and transparent communication is used to provide NBAF's stakeholders with	"We can't bring everybody in, but we want you to...So, I think some of those	Sharing selectively to maintain appearances rather than build trust.

	information regarding the organization's function and security measures. Appropriate transparency is used to foster community trust, their open dialogue, and combating mis/disinformation.	efforts have made a big difference in...in that acceptance of...We realize you can't share everything. But you're sharing what you can." "And so nobody's gonna be a hundred percent transparent, but as much as you can" "And the way we were able to answer him was very transparent and honest about the risk that we have, but also trying to provide him with more facts."	
Qualifying Transparency	The process individuals and organizations use to determine what information is safe to share with others. Also, individuals will use this as a cognitive process to justify why they do not share 100 percent of their information (i.e., security, protocols). Sharing with community stakeholders the qualifying process/reason can at times be sufficient for the stakeholders when NBAF is not able to share some information. For example, NBAF telling CLG members that they are not able to share certain information about vaccine shipments for established security reasons.	"We have to be careful with what's going out there from a public standpoint, right?" "So, I can't physically let people in to see every aspect, because that's a security risk. I can't just open the doors because there are threats that would use that information against the facility or the nation or whatnot." "But there was...you know, one topic that came up that our FADDL director was able to say...you know...we can't share the details of that. But that's for security, right? For the security of the...the mission, the process, all those things. And you're right. Everyone's been very open to that."	Justifying your decisions regarding transparency based on convenience or fear rather than meaningful and accurate data.
Safety	NBAF's security features and functions have an effect on engagement activities, collaborative	"And usually it's not...another...another element is the security piece, right? We are a	Prioritizing restrictions at the cost of engagement without a recognition of the cost.

	efforts, and ultimately, spaces for co-action	high-level security facility." "You have to be...to build transparency, you know...It's got to be balanced with security."	
Establishing Common Definitions/Understanding	The practice of creating and then maintaining a shared language and perspective to be used during collaborative efforts and problem-solving activities. In other words, we can not end up at the same place together if we are using different maps or units of measurement.	"And you know, helping people to understand" "You know, if they're using terms that the general public doesn't understand or can misrepresent in the general public's frame of mind. Then that's going to change their perspective, too." "First, you have to get to that level of understanding and overcome those boundaries that they might have."	Believing consensus exists without verifying comprehension or forcing your understanding on others.
Following Policies	Adherence to established rules, guidelines, and protocols. It emphasizes the importance of compliance, even if that prevents spaces for co-action, collaboration, and transparency.	"We are in that...in a hiring freeze." "Yeah, we've got to get approvals to go out and speak." "And so, that's something that we've been struggling with is...when there's information out there that we would like to combat. But we're not able to, because of the current policies and procedures in place...that can be really challenging"	More than being annoyed at a rule you do not like.
Workplace Constraints	Not being able to do specific engagement activities that you believe would be beneficial due to the organization not allowing it. This code is closely tied to the	"You know, we...we need to stay away from certain topics." "And it's really hard for community members to understand why we can't answer important	Being too busy at work to participate in a meaningful engagement activity.

	following policies: However, this code can also be applied to informal norms or unspoken expectations, which can affect collaborative efforts.	questions." "I don't know why you can't just say, Hey, we lost this number of employees. We went from this number down to this number...you know, and we've been given instructions, you know, not to...not to say."	
Bureaucracy	The layers of complexity and organizational structure that bring uncertainty to participating in spaces for co-action or the ability to be agile in rapidly shifting circumstances and moments of invitation.	"So, it's really been the same, but it's just that extra step of it's more work. It's an extra step of filling out these forms and sending them in and getting approvals." "there are a lot of people who review anything before we put it out, right?" "there are a lot of people who review anything before we put it out, right?"	Informal layers that slow down action.
Finding Common Ground	Making a connection with a stakeholder to encourage reciprocation of an invitation to enter a space of co-action and collaborate in producing resilience.	"And you can make that connection. Hey, we both have kids. There's a similarity. You became, you become relatable because you are both coming at it from the struggles of a parent." "And I think that...And yeah, and I think that relating aspect is huge, for you know, building a little bit of trust." "You have to relate to them. You have to provide clear communication."	A fleeting connection rather than a foundation for mutual investment.
Getting on Each Others' Level	Contextual awareness regarding who you are trying to engage with. Can work in conjunction	"Come at it from a different aspect based on your audience. So elementary kids need a	Modifying tone without genuine effort to engage meaningful.

	with Finding Common Ground. However, this code is more about "how" we interact in those moments with the target audience.	different explanation and analogies than a college student." "But with stakeholders, especially stakeholders who aren't as engaged in scientific pursuits. They do a really good job of translating the information that NBAF gives them into words that the community can understand and apply more to themselves."	
Language Intimidation	The use of complex, technical, or unfamiliar language that overwhelms, manipulates, or discourages others from engaging in a discussion or entering a space of co-action	"If you don't have a scientific background, it can be so intimidating, and it can be hard to listen to a scientist explain the role of NBAF and to understand everything that it is that they're saying." "I know when it comes to scientific jargon...If you're someone who doesn't have any scientific understanding. If you read that first sentence of a news release or of something that we're trying to publish externally, and the first sentence includes maybe 30% terms that you don't understand....You just stop reading."	Unavoidable complex language required to talk about certain subjects.
Technical Language/Jargon	Words that are unfamiliar to an individual or audience. Resulting in the inability to follow along with the speaker or productively engage in the space. Is not purposefully used to discourage individuals	"So, I...I do say, don't use so much jargon that you lose them" "Yeah...absolutely! I think it [technical jargon/acronyms] absolutely does because nobody wants to look or feel like	Common language that should be easily recognizable, but goes misunderstood by an individual.

	from participating. The speakers intentions are usually harmless. However, it does have the ability to result in Language Intimidation.	they don't know, right? Nobody wants to feel stupid, right? "We have to put it in...into...you know, into the...the words that anyone can understand."	
Limited Resources	Signifies a constraint in the availability of essential materials, funds, time, personnel, or infrastructure necessary for creating or sustaining a space of co-action.	"So yeah, there...it's impossible to reach everybody, especially with a small team. Right?" "And yeah, so it's I, you can almost say resource-constrained." "Because there are 3 of us. And we can't physically be everywhere."	The desire to have unlimited resources. Barely meeting our goals.
Energy Levels	The ability of an individual to commit their personal resources (e.g., time, mental bandwidth) to a specific activity. In our case, a potential space of co-action.	"I mean, I think there are sometimes where I don't feel like defending the facility as far as I'm just...don't want to work...like I don't want to work 24/7. I don't want to have to be on my talking points 24/7." "Saturday, I said, I'm a little up in the air. I'm...I'm not sure, so you know. I...I guess there are factors like that."	Fluctuations in capacity without clear depletion or restoration.
Balancing Time and Effort	Having to make strategic decisions on which spaces for co-action to participate in or avoid. Often looked at from a Return on Investment (ROI) perspective.	"We're gonna have to reevaluate that, and you know, we just...we simply can't do everything that we've been doing, and that's for me.that's been the hardest thing." "I'm not...gonna go to...you know where you know whatever conference there...there is, you	Strategic use of energy that prioritizes efficiency over engagement.

		know, just some random conference" "You know there...there could be a time or a financial, you know...Kind of influence, I guess, on that."	
Matter of Concern/Priority/Value	Responses or observations that indicate importance, urgency, or significance to the potential construction of a space of co-action. It helps identify what individuals or groups prioritize, what they consider valuable, and what issues they perceive as pressing concerns. Can be tied to the code "Priority Convergence".	If they're coming and asking us for something, it's a priority to them, so it might not be for me. But I see that it is to them, and you know I try to accommodate them and just tell them, hey, you know this is gonna take me a little bit longer than normal" "Hey, you know...my...we're having a conference, you know. It's a 2-day conference here at the Hilton Garden Inn, and you know we're looking for somebody to come talk...And just...I don't want to go and just fill space." "it gets into what our focus in communicating to that livestock producer is going to be a higher priority, though, than that average reporter that's just interested in a general story about NBAF" "And so, I think that helps knowing where that target audience falls in that communication "Hierarchy of Needs"...helps us prioritize who takes our time."	Momentary importance without sustained focus or commitment.

Capturing Opportunities	Intentional efforts to enter and collaborate in the moment forming spaces for co-action. These tend to be unexpected opportunities. At times, they are even unsought out moments, but materialize through everyday life interactions.	"Which is why the CLG meeting was a really great opportunity. But we're making progress." "And they are actually a really big benefit, you know, to having those interactions anywhere you go in this community." "those invitations from the community are always super helpful."	Engaging when beneficial rather than fostering long-term value.
Being Present	Making oneself available to interact with stakeholders, participate in spaces for co-action, and even advocate for ones need in the appropriate space. In other words, you can not participate in resilience production if you are not present.	"I think, regardless of the size of the initial interaction, having any...any initial interaction, either with NBAF or with information regarding NBAF, will make you more interested in the second go around" "I mean, there's just so much happening that I think in everything you're fighting for a seat at the table, right?" "You're fighting for the attention."	Appearing in spaces without contributing meaningfully.
Prepping for Potential Practice Moments	Actively looking into the future to prepare and train to be productive collaborators in spaces for co-action and potential production of resilience. Helps reveal the processual nature of practice, including the socio-historical context repository that individuals bring to practice efforts.	"They're gonna have to react as just as much as we are gonna have to react, right? They've got their emergency management plans. They...They need to be ready just as much as we need to be ready" "You know, I do feel like there's real value in looking ahead and capturing this work so that other people can open others' eyes to see the...yeah, that there's a lot of value in	Thinking about preparation without active engagement in readiness efforts.

		that." "I think, can actually make you more effective, make our...all of our staff more effective. So, one of the aspects that we do do...in...in house...is prepare our employees for those conversations." "So it's just a good reminder, too, of...of what is standard in the industry and what we need to be prepared for."	
Building Relationships	Intentional actions and interactions that are purposeful in cultivating trust, understanding, and emotional connection between individuals, organizations, or communities. It encompasses both personal and professional relationships. These relationships are then leveraged to help NBAF facilitate spaces for co-action used to produce resilience.	"I mean, we...we, you know, encourage, you know, collaboration. And...and we want to have relationships. You know, with as many people as we can, you know, because eventually they're advocates for us one way or another." "And...and you know, eventually, like I said, you know, I think people are at...the more people we can talk to, I think the more advocates you know that we're...we're gonna have." "So, I think those relationships are huge to develop."	Forming relationships based on utility rather than trust or depth.
Rumors	Potential negative socio-historical information regarding an organization, in this case, NBAF, can adversely affect the opening and maintaining of spaces for co-action. Rumors and misinformation are	"I think some rumors that are out there...you know, if we...if we think about the rumor of Wuhan, you know, and Covid escaping from Wuhan, we don't know. Maybe it did. Maybe didn't. I don't know, but then people	Stories that evolve without fixed origins or accountability.

	typically perceived as synonymous with each other. However, this study distinguishes between the two by defining "rumor" as unverified information that spreads informally, usually through social interactions and is not typically meant to be harmful, though the effect is generally adverse on spaces for co-action. In contrast, "misinformation" is defined as false or misleading information that is shared, regardless of intent.	start to...so existing fear, maybe, is...is a barrier and pre...preconceived notions, and people still talk about rumors and misinformation that have...that started year, decades ago from Plum Island, and they apply it to NBAF." "You know, just those rumors create fear. And you know we know that fear-based reactions"	
Faulty Information	Refers to inaccurate, misleading, or incomplete data that can distort understanding, influence decisions, or spread misconceptions. Spreading or working off of faulty information does not happen on purpose and is usually the result of the information integrity of the initial source.	"So, there are...there is wrong, incorrect information out there which doesn't help us get people to understand or trust, right?" "Yeah, I think from what we've seen, misinformation and disinformation gets spread mostly by people that don't understand that it's false information"	Presenting or further distributing outright falsehoods.
Uninformed Opinions	Indicates actions resulting from judgments or viewpoints formed without sufficient knowledge, evidence, or critical analysis. These actions often rely on assumptions, biases, or incomplete information rather than factual understanding.	"And then, you know, they kind of form their own opinions, you know about what's going on there, and they get their opinions from, you know, from other places, right?" "I'll tell them something, and they'll say, Oh, well, I heard from so and so that...you know that's not the case that you know is this"	A simple agreement in an interaction moment with someone else's opinion.

Shifting Circumstances	Changing conditions that alter current work processes, personal situations, societal trends, and even global events that can affect priorities, bring about new challenges, and ultimately affect how people go into and/or participate in spaces for co-action.	"From a logistical standpoint...there are ways that we've been having to change the way that we approach our roles because our roles are becoming more limited. Our roles are becoming more fluctuating." "Cause...there is a re...like, not that. Yeah, it's...it has been challenging, right? Because there's a lot of things changing"	Momentary changes or non-influential changes that lead us to annoyance.
Shifting Political Environment	Evolving changes in governmental leaders, public sentiment, and global events, which can result in policy changes and/or how individuals and groups act in specific settings or respond to spaces for co-action.	"But there have been a couple of neat stories that we would have liked to share....even externally, that because of the climate of everything happening, it wouldn't feel right...right to." "I think that we've seen the possibility of a lack of trust being really prevalent right now, because with everything that's happening in the government, there's a lot that our facility can't answer." "Also, with the governmental changes, the different regulations that we have in place with what we're allowed to tell people...when we're not allowed to comment on things, that can be really difficult in garnering trust."	Gradual changes in discourse without distinct policy shifts.

Sharing the Burden	Distributing the authority and responsibility to internal and external members of the organization to actively participate in spaces for co-action, designed to produce resilience.	"We want those people to be advocates for us. We want them to go out." "We've got soldiers now out there in the community that hopefully, you know, they will step up and say, Hey, this is how it is" "How can we...how can we equip others at NBAF, or even the USDA, to do things that we don't have to do? You know, they don't require our skills. But they're important." "We also encourage them to be open about saying they work at NBAF, and to help use that as an opportunity to educate." "And we saw the community stand up on our behalf, right? Which was awesome!"	Forcing responsibility on others without fostering mutual investment.
Strategic Facilitator(s)	Individuals, internal and external to NBAF, who can facilitate effective collaborative efforts through their keen ability to help create clarity, alignment, and actionable strategies by fostering collaboration and ensuring productive conversations. Oftentimes, these individuals are in information-privileged positions (e.g., the CLG, NBAF staff, researchers)	"Now, having the people that are here, right...all the time, and having, you know, the...the folks we engage with and the community liaison group, and all of that...that helps, right? Because they are in these circles that we...you know, we're never going to be everywhere." "But, man, there are some people who are really dedicated to helping us communicate and see the value in it, and that's been a blessing." "And they brought us	Charisma without substance or used for personal reasons.

		information when there was and when there was information out there that wasn't positive. And so that was another one of those examples of really seeing the value of both the community relationships and then the community liaison group in action." "because even if we do have an opportunity to send people, for example, to a STEM event at a school...we still need people who want to go and staff that STEM event, and we want people who want to go and represent us."	
Self-Awareness	The ability to recognize and understand one's own emotions, thoughts, behaviors, and capabilities. If properly understood, it can be utilized to inform how one shows up in spaces for co-action in the most productive manner.	"So, then I'm sitting there going, but I gotta pay attention to that, and maybe I move through something a little bit faster to wake them up, you know, or give them something more thought-provoking to..." "So, I...I do say, don't use so much jargon that you lose them" "I definitely think, like I mentioned earlier, playing on each other's strengths has been super helpful for this." "I know that there are a couple of members on our communications team that are a lot better at writing with that scientific jargon and figuring out the right ways toward it than I	Reflecting regularly without applying insights for growth.

		am. And so, just knowing when I'm handed an assignment like, hey... Yes, I can write this, but then I'm going to give it to this person, because I know that they can help make it to the point where people would be able to understand what it is that I'm saying."	
Storytelling	Interacting with your audience in a manner that is engaging, non-threatening, and meaningful to appropriately deliver a message or idea. Using storytelling techniques and mannerisms can bridge the gap between the sharing of arduous scientific endeavors and the layperson current ability to understand the information at hand.	"I've given a couple of them...like how storytelling fits in with science communication. I've given some very, very brief presentations on that to our staff, but working with our scientists to help them become better communicators about their science" "Yeah, and then I, you know, I talk about, you know, just storytelling and...and how that can help because it...it does usually engage the audience." "This is what I want scientists to be able to do in their everyday life because that engages the audience. So, I think it's the mannerism in which you tell your science. And I think storytelling is one aspect"	Using stories casually without strategic framing or engagement.
Fear	An emotional state or reaction that hinders or prevents people from participating in a space of co-action.	"Certainly, disinformation is meant to create fear. That's not going to help in any of these things." "And that's just an	A moment of unease without fully developing into fear or avoidance.

		animal instinct that we still carry, so one...if someone is basing their opinion on the facility based on fear, one, they could fight it, which we saw a little bit when the facility was first being built." "And if they freeze, if they completely tune you out. You know, they may not be able to. They're not going to hear you either. So, definitely, Fear is a barrier to building trust." "The fear-mongering...I think, obviously...can be an issue when it comes to high containment labs."	
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Appendix K - Analytical Memo

Appendix Figure K.1. Example of Analytical Memos Used

The screenshot displays the 'Memo Manager' application interface. The top bar includes 'Start' and 'Format' tabs. Below this is a toolbar with icons for 'New Free Memo', 'Free Memos (1)', 'Code Memos (4)', 'In-Document Memos (6)', 'In-Media Memos (0)', 'Document Memos (0)', 'Document Group & Document Set Memos (0)', 'Code Set Memos (0)', 'Project Memo (0)', and 'Search in Memos'.

The left sidebar shows a hierarchical tree structure:

- Free Memos
 - Considering potential aspects of emotional intelligence
- Code Memos
 - Appropriate Transparency
 - Qualifying Transparency
 - Emotional Intelligence
 - Following Policies
 - Physical Barriers
- In-document memos
 - NBAF Comm Team Interviews
 - Sarah Interview Transcript, NBAF Comm Team
 - Pos. 38 Finding the Right Timing
 - Pos. 52 Engagment Styles and Means
 - Pos. 117 Physical Barriers
 - Pos. 153 Avoiding Group Think
 - Pos. 308 Emotional Intelligence
 - Pos. 328 Passion as Common Ground

- Sets

The main content area on the right displays four analytical memos, each with a title, a paragraph of text, and a source/citation line:

- Finding the Right Timing**
Even though this little conversation section is a pre-amble to the "official" research interview, I do think it points to an invitation and reciprocation to a resilience episode. Especially if we consider this research project as a whole, as an effort to produce and foster resilience regarding NBAF. Which I do.
NBAF Comm Team Interviews > Sarah Interview Transcript, NBAF Comm Team (Pos. 38) DPB, 5/28/2025 12:18 PM
- Engagment Styles and Means**
People engage and learn through different preferred styles and means
NBAF Comm Team Interviews > Sarah Interview Transcript, NBAF Comm Team (Pos. 52) DPB, 5/28/2025 12:12 PM
- Physical Barriers**
Even if NBAF wanted to open their doors to the general public to see for themselves their operation, what they do, and the security measures in place, they can not physically do this.
NBAF Comm Team Interviews > Sarah Interview Transcript, NBAF Comm Team (Pos. 117) DPB, 5/28/2025 12:14 PM
- Avoiding Group Think**
This section is a balancing point to "Establishing a Common Perspective". I think Sarah is stating that we want that diversity of thought early in the process, then we can agree on a direction forward. That common perspective.
NBAF Comm Team Interviews > Sarah Interview Transcript, NBAF Comm Team (Pos. 153) DPB, 5/28/2025 12:15 PM
- Emotional Intelligence**
When considering emotional intelligence, I believe we should be looking at it from a perspective on how do we show up to potential spaces of co-action.