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## Communication Markers of Resilience

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# Summary

Teams and organizations regularly face adversities, including technical challenges, tight deadlines, and pressure to perform. In this context, resilience refers to the demonstration of an effective response to such adversities. For example, swiftly replacing a broken piece of equipment or resolving a software issue is a demonstration of resilience. Sustaining resilience amidst adversity is usually not the responsibility of a single individual; instead, it requires a collective effort characterized by effective communication among those affected. Consequently, investigating communication dynamics is critical to understanding collective resilience amidst adversity. Previous research offers limited insights into specific communication behaviors behind resilient responses. This dissertation addresses this limitation by examining communication practices associated with resilience, or communication markers of resilience.

This dissertation encompasses three empirical studies spanning across three chapters. The second dissertation chapter examines communication within a water supply organization characterized by frequent disruptions which require resilient responses. We examined an extensive dataset that includes 5,521 disruptions, categorized into 1,997 clusters of concurring disruptions over 14 months, combined with 135,123 telephone conversations. The findings underscore the importance of communication activity or the amount of communication in managing concurrent disruptions. Notably, the study reveals that increasing both intra- and inter-departmental communication activity is crucial in quickly responding to heightened adversity characterized by increased number of concurrent disruptions.

In the third dissertation chapter, the focus shifts to a larger water supply organization, exploring 1,177 disruptions and 184,795 telephone conversations over six months. In this chapter, we conduct a more fine-grained analysis of the communication during water supply disruptions and aim to identify specific communication mechanisms associated with resilience. The findings suggest the necessity of maintaining both stable and flexible mechanisms of coordination. Such coordination can be achieved by practicing clustering in communication, ensuring equitable distribution of communication across the organization, disrupting routine communication patterns, and establishing hubs or individuals who receive the majority of communications.

Finally, the fourth dissertation chapter explores team cross-border communication during a time-sensitive, high-pressure context of a virtual

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hackathon. We analyze the communication and performance of 71 teams, encompassing 6,638 interactions on a specialized communication platform, over a period of three days. The results point to two effective strategies for managing external communication. The first is “bursty” communication, characterized by fluctuating between periods of intense and minimal communication activity. The second is minimizing the prevalence of multicomunication, or participating in multiple conversations simultaneously. These strategies are associated with higher team performance, indicating resilience in this highly adverse setting.

This dissertation contributes to resilience research by identifying communication behaviors as key markers of resilience, thereby addressing a notable limitation in the current body of literature. It systematically organizes these communication markers into categories related to activity, timing, and mechanisms, drawing upon established theories from the domains of social networks, communication, and organizational studies. This work challenges the “more is better” approach prevalent in resilience research, which posits that increased communication invariably foster resilience. Instead, our findings reveal that a myriad of communication aspects other than pure communication frequency play a role in resilience. Further, we show that the benefit of these different communication aspects is context-dependent, effective only under specific adverse conditions. By focusing on sources of adversity characterized by daily challenges and operations, this research adds a new dimension to resilience literature, which often concentrates on larger-scale events. It highlights how smaller-scale issues can accumulate over time and influence changes in employee communication, thus identifying a rarely-explored source of adversity related to the concurrence of events. Furthermore, we showcase how similar conceptualizations of communication, specifically in terms of communication activity, can have divergent impacts across different types of adversity (e.g., daily disruptions versus a single acute adverse event), further indicating the importance of the adversity context in understanding the benefit of different communication markers of resilience.

This dissertation shows that organizational resilience relies on effective communication and informal coordination, which are often unpredictable, posing challenges to systematic planning. Swift detection and adaptable responses are crucial in handling daily, especially concurrent, adversities. The research suggests two key strategies to enhance resilience: first, increasing employee awareness of adversities through clear communication about disruptions and implementing measures like communication breaks, reduced multitasking, and “quiet hours” to prevent attention depletion. Second, fostering flexible communication by encouraging employees to dynamically adapt their

communication to varying adversity levels, using serious game settings. These practices can foster a culture of adaptability and improvisation.

In conclusion, this dissertation addresses the challenge of managing resilience amidst adversity. Our research uses a comprehensive data collection method, capturing detailed, time-stamped communication events during different types of adverse situations ranging from everyday water supply disruptions, to the intensive environment of a hackathon, and scenarios involving multiple simultaneous disruptions. This approach helped us identify important communication markers of resilience, focusing on the activity, timing, and mechanisms of communication. We hope this research will guide and inspire future studies into understanding and improving how we prepare for and manage adversity.

