The Sensing-Seizing Gap: Embodied Stress Inoculation and Managerial Microfoundations

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Dissertation written under the supervision of professor

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Abstract

Among the causes of failure of managerial agency, paralysis, rather than intellectual deficits, is common. Managers sense exogenous challenges approaching yet fail to act when decisive action matters most. We propose a "sensing-seizing gap" at the microfoundational / manager-level associated with the Dynamic Capabilities framework. We describe this as a stress-induced action inhibition where decision-makers recognize threats or opportunities yet fail to commit due to physiological stress effects dragging upon cognition and behavioral control.

Drawing on Stress Inoculation Training (SIT) principles, we examine whether Muay Thai sparring, as a form of embodied stress inoculation, is associated with stronger managerial microfoundations, plausibly through physiological responses to pressure and the preservation of agency when deliberative processing fails.

Using sequential mixed methodology, we compared Muay Thai practitioners to active non-combat controls. Practitioners reported significantly higher self-reported sensing and seizing-relevant enactment capacities and resilience. Sparring intensity predicted outcomes beyond training volume, though moderate intensity outperformed hard, suggesting optimal challenge matters more than raw stress exposure. Interviewees revealed the transfer mechanism: practitioners described "relativizing" professional pressure against physical confrontation, reading intentions through opponent-trained perception, and developing automatic commitment under uncertainty.

Our findings are associational, not causal. Self-selection and self-reporting inflation likely contributed to the large observed effects. However, if this relationship proves robust under follow-up longitudinal testing, the implications are significant: effective leadership development requires training the body, not just the mind. Thus, decision makers (and leadership development) would benefit from stress regulation and action commitment training, alongside developing analytical skills.

Keywords: Dynamic Capabilities, Managerial Microfoundations, Sensing-Seizing Gap, Stress Inoculation Training, Resilience, Muay Thai

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Resumo

Entre as causas de falha da agência de gestão, a paralisia, mais do que défices intelectuais, é comum. Os gestores detetam desafios exógenos a aproximar-se, mas não agem quando a ação decisiva é crucial. Propomos uma "lacuna de deteção-apreensão" (*sensing-seizing gap*) ao nível dos micro-fundamentos do gestor, associada ao quadro das Capacidades Dinâmicas. Descrevemos isto como uma inibição da ação induzida pelo stress, onde os decisores reconhecem ameaças ou oportunidades, mas falham no compromisso devido a efeitos fisiológicos que condicionam a cognição e o controlo comportamental.

Baseando-nos nos princípios do Treino de Inoculação de Stress (TIS), examinamos se o *sparring* de Muay Thai, como forma de inoculação de stress, está associado a micro-fundamentos de gestão mais fortes.

Usando metodologia mista sequencial, comparámos praticantes de Muay Thai com controlos ativos não-combatentes. Os praticantes reportaram capacidades de atuação e resiliência significativamente superiores. A intensidade do sparring previu resultados para além do volume de treino, embora a intensidade moderada superasse a elevada, sugerindo que o desafio ideal importa mais do que a exposição bruta ao stress. Os entrevistados revelaram o mecanismo de transferência: "relativizar" a pressão profissional face ao confronto físico e desenvolver compromisso automático sob incerteza.

As nossas conclusões são associativas, não causais. Contudo, se esta relação se provar robusta em testes longitudinais, as implicações são significativas: o desenvolvimento de liderança eficaz requer treinar o corpo, não apenas a mente. Assim, os decisores beneficiariam de treino de regulação do stress e compromisso com a ação, a par de competências analíticas.

Palavras-chave: Capacidades Dinâmicas, Microfundamentos de Gestão, Lacuna de Deteção-Apreensão, Treino de Inoculação de Stress, Resiliência, Muay Thai

Título: A Lacuna de Deteção-Apreensão: Inoculação de Stress Incorporada e Micro-fundamentos de Gestão

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“Fire is the test of gold; adversity, of strong men.”

- Seneca, De Providentia 5.9

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AI tools were used to support the efficiency of this research. ChatGPT and Claude assisted with language refinement, grammar suggestions, and structuring content more clearly. However, the conceptual development, critical interpretation, analysis, and conclusions were carried out independently by me. I recognize the limitations of AI systems and took care to verify all outputs used. Full responsibility for the content and findings of this thesis remains with me.

To my Muay Thai coaches in Lisbon and Thailand, thank you for the discipline, resilience, and clarity that training provided. It was often the counterbalance I needed.

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1 Introduction

Hesitation, rather than lack of intelligence or data, is among the reasons that account for poor managerial decision-making. Managers might perceive risk approaching yet not act when decisive action is needed. This pattern suggests that firm success does not necessarily arise solely from information asymmetries, or superior resources traditionally posited by Resource-Based Theory. Success stems from differential capacity to act on available information relying on managerial agency (human capital), making essential strategic decisions that drive the value-creating outputs.

If a firm's strategic direction and survival are determined by the cumulative effect of managerial decision-making and, specifically, decisive action, we move from conceptions of the firm as a bundle of resources toward a focus on individual managers. As Bezos has repeatedly stated, most high-velocity decisions at Amazon are made with roughly 70% of the information one might ideally want, whereas waiting for 90% is fatal slowness (Bezos, 2016 shareholder letter).

While Teece (2007) emphasizes that superior firm performance depends on its ability to sense opportunities and threats and then seize them through timely action, the underlying mechanisms driving disconnects at the decision-point lack formal designation. Here, we propose a **sensing-seizing gap** within the microfoundations[1] of the Dynamic Capabilities (DC) framework caused by stress-induced action inhibition. Managers recognize threats or opportunities (sensing) yet delay or fail to initiate commitment behaviors (seizing) under acute stress. Lack of timeliness, which Barreto (2010) identifies as a core dimension of dynamic capability, is most likely to activate under high-stakes conditions: time pressure, social threat, or reputational risk.

With this notion, we do not aim to explain all forms of strategic delay. Our focus is restricted to the micro-level: the neurophysiological state of the decision-maker at the decision point under acute stress. Organizational inertia, resource dependence, poor incentives, and bounded rationality may coexist with the sensing-seizing gap, but are distinct. The gap refers specifically to the individual-level, stress-contingent link between recognition and commitment.

[1] Microfoundations refer to the individual-level cognitive processes and capabilities that underlie and help generate higher-level organizational outcomes, including dynamic capabilities. (Helfat and Peteraf, 2014)

Failure to act, despite recognizing disruption, is a recurring theme in accounts of incumbent decline, including *The Innovator's Dilemma* (Christensen, 1997). However, distinct from Christensen, who attributes this inertia to resource allocation and smooth earnings orientation firm constraints, we propose impediments at the individual level: managers' neurophysiological response to acute stress.

Motivated by the sensing and seizing distinction (Teece, 2007, 2018; Helfat and Peteraf, 2014) and Barreto's (2010) emphasis on timely decision-making as a distinct capability dimension, we propose stress induced action inhibition at the decision point. Although DC are firm-level constructs, they trace to managerial strategic choices and organizational routines (Felin et al., 2012; Helfat and Martin, 2015; Teece, 2023). Accordingly, DC are the firm-level theoretical frame, while the empirical unit of analysis is the individual manager and individual-level microfoundations.

This study tested whether embodied stress inoculation via an embodied stress training, specifically Muay Thai, conduces stronger self-reported sensing and seizing microfoundations and stress resilience. Comparing Muay Thai practitioners with active non-combat controls, we explored whether greater stress inoculation exposure is associated with stronger outcomes among practitioners. "Transforming" was retained for conceptual completeness but was not a primary focus in this exploratory study. We did not test micro-to-macro aggregation to firm-level DC or its impact on firm performance.

This project builds on threat rigidity (Staw et al., 1981), dual-process theory (Kahneman, 2011), and neurobiological evidence which shows how acute stress impairs prefrontal functioning (Arnsten, 2009), alongside work highlighting the central role of the brain in coordinating stress and adaptation across stressors (McEwen & Gianaros, 2010).

Strategic management literature has elaborated firm-level processes and cognitive microfoundations. However, behavioral and physiological mechanisms that enable managers to execute under pressure remain underdeveloped. Traditional management and leadership development programs tend to privilege cognitive and analytical tools, including case studies, frameworks, and declarative knowledge (Pfeffer and Fong, 2002). Yet these often show limited transfer into sustained behavioral change and measurable organizational impact, especially when workplace context does not reinforce application (Gurdjian et al., 2014; Beer et al., 2016).

We identified Muay Thai as a compelling vehicle for this transfer, aligning with SIT's three stages: (1) conceptual **education** about stress responses, (2) skill **acquisition** for managing physiological reactions, and (3) **application** under increasingly challenging conditions. Emerging evidence suggests Muay Thai may improve self-control and quality of life (Şahin et al., 2025), and that combat martial arts participation is associated with well-being and ego-resilience operating indirectly (Oh et al., 2025). Despite anecdotal reports[2] and emerging psychological evidence of combat sports building pressure-resistant mindsets, strategic management scholarship has yet to systematically explore how stress inoculation mechanisms in combat sports can aid individual managers. Nor has prior work examined the transfer pathways in managerial populations. The Research Question of this thesis is:

How does (physical) Stress Inoculation Training bear upon the microfoundations of managerial decision-making under pressure?

[2] Practitioner accounts, while anecdotal, suggest widespread adoption among executives. ONE Championship founder Chatri Sityodtong attributes business resilience to Muay Thai (Tim Ferriss Show, 2025); VeriSIM Life CEO Dr. Jo Varshney credits it for fundraising success (MSNBC, 2022); investor Michael Koch calls it "A CEO's Best Friend" (Medium, 2017)

2 Literature Review

This chapter situates the project at the intersection of strategic management and embodied cognition. Section 2.1 establishes the theoretical framework of Dynamic Capabilities as the organizational response to VUCA environments. Section 2.2 narrows the focus to the individual level, identifying threat rigidity and related psychological barriers that create the 'sensing-seizing gap.' Section 2.3 introduces embodied cognition as a theoretical alternative to purely cognitive leadership development, positioning Muay Thai as an exemplar. Section 2.4 details the neurophysiological mechanisms of Stress Inoculation Training (SIT) that facilitate transfer to managerial contexts. Section 2.5 identifies empirical gaps this study addresses.

2.1 Theoretical Foundations: Dynamic Capabilities in VUCA Contexts

From the battlefield to the boardroom, military strategy has long guided business leaders. Classics like Sun Tzu's *The Art of War* and Clausewitz's *On War* remain important texts used in management training because principles of conflict and competition are applicable to firm-level strategic decision-making. Military analogies provide a framework for navigating chaos known as VUCA. In volatile, uncertain, complex, and ambiguous environments, organizational performance is at risk unless leaders adopt adaptive responses (Bennett & Lemoine, 2014). This model describes volatility as rapid and unpredictable change, uncertainty as a lack of predictability, complexity as many interconnected parts, and ambiguity as unclear cause-effect relationships (Bennett & Lemoine, 2014). Consequently, an overemphasis is placed on strategizing and planning, necessitating Dynamic Capabilities (DC) (Teece et al., 1997).

DC are organizational processes that integrate, build, and reconfigure internal and external competencies to address rapidly evolving environments (Teece et al., 1997). This firm-level construct gestures towards examining the managerial microfoundations through which firms build and exercise those capabilities. Grounded in Resource-Based Theory (Barney, 1991; Barney et al., 2021), which posits the firm as a bundle of resources and capabilities (Barney, 2001; Barney et al., 2021), DC emphasize that to survive and stay competitive in fast-changing conditions, firms must continually respond to their surrounding business environment (Teece, 2007; Cristofaro & Lovallo, 2022). As Barreto (2010) stated, DC are a firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, make timely and market-oriented decisions, and changes to resource base.

At the organizational level, DC enable firms to achieve superior performance through resource orchestration in turbulent settings (Teece, 2007). Specifically, there are three interconnected dimensions (SST): **sensing**, which involves monitoring that continuously scans the environment and assesses opportunities and threats (Barreto, 2010); **seizing**, which entails committing resources to capitalize on identified opportunities through strategic investment decisions and commercialization (Teece, 2007); and **transforming**, which involves aligning and modifying assets with identified shifts to sustain performance and overcome resistance to change (Helfat & Peteraf, 2014).

SST dimensions are proposed to be strategic features of the firm. In practice, they are enacted through underlying cognitive mechanisms associated with managerial agency. SST require managers to combine rational analysis with instinctive responses, as explained by psychological theories that unpack how managers process environmental signals in real time (Kahneman, 2011). Sensing, in particular, encompasses both deliberate, effortful System 2 thinking, such as analytical evaluation of data, and fast, intuitive System 1 processes, such as automatic pattern recognition based on prior experience (Kahneman, 2011). Since acute stress can inhibit deliberative System 2 processing, strategic choices associated with DC in VUCA contexts rely heavily on a calibrated System 1 to fall back on and maintain function when analytical capacities are compromised.

Functionally, this adaptive cycle fosters organizational resilience, which Kantur and Iseri-Say (2012) define as the capacity to absorb change and adapt positively in the face of threats. Resilience arises from four key sources: a perceptual stance that supports threat detection (similar to sensing), contextual integrity that preserves internal coherence, strategic capacity that prepares resources for action, and strategic acting that drives proactive responses (paralleling seizing and transforming). Together, these elements produce organizational evolvability, representing post-disruption transformation where firms gain heightened sensitivity to environmental cues and deeper strategic wisdom (Kantur and Iseri-Say, 2012).

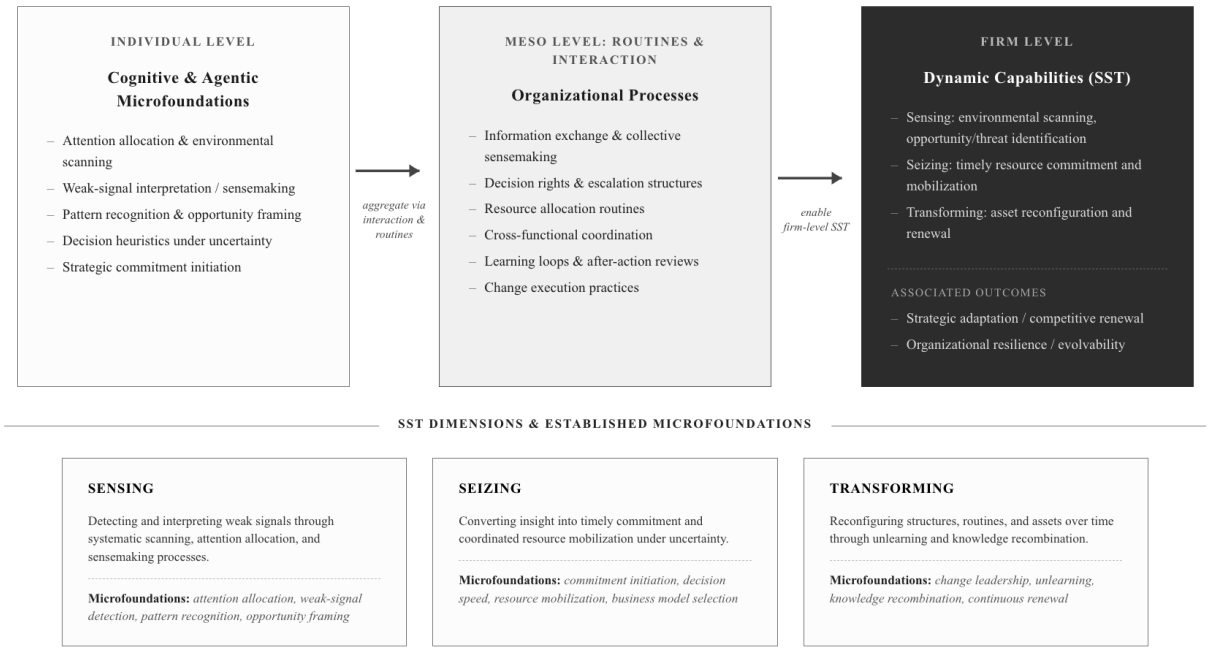
Within an organization, DC can be seen to be structured hierarchically. They originate at the individual level as microfoundations, which are rooted in cognitive processes like perception, problem-solving and decision processes that enable the company's strategy to evolve through its human capital (Helfat & Peteraf, 2014; Ghosh et al., 2022; Ruiz-Ortega et al., 2023). Individual capabilities aggregate to organizational outcomes over time via routines, with

sensing occurring through information exchange, seizing via delegated decisions, and transforming through change leadership (Teece, 2023). Group microfoundations involve team-driven strategic decision-making processes and sensemaking (Salvato & Vassolo, 2018; Eisenhardt & Martin, 2000), while organizational microfoundations include organizational structures and processes (Chen et al., 2023). In other words, the firm's or team's success depends on each actor's personal skills translating upwards into groups and later permeating the entire organization. The progression from VUCA demands to individual microfoundations highlights the potential for mind-body practices (embodied interventions) to develop intuitive resilience. This is a reason for exploring physical training that links personal development to organizational adaptation.

Individual-level sensing microfoundations involve managers' cognitive processes for detecting environmental shifts, which aggregate to firm-level vigilance (Helfat & Martin, 2015). These microfoundations enable managers to focus on relevant stimuli and filter out irrelevant information (Helfat & Martin, 2015), interpret anomalies as potential threats or opportunities, and execute the decision processes that initiate preliminary responses (Helfat & Martin, 2015). Managerial cognition improves this by enabling managers to interpret a broader range of information and to continuously refine their cognitions to new environmental realities (Heubeck, 2023). This cognitive capacity is particularly vital in digital contexts where sensing requires scanning and managers must rely on flexibility to integrate knowledge and detect patterns amidst data overload (Warner & Wäger, 2019). In sum, individual sensing microfoundations transform raw environmental data into actionable insights, serving as the bedrock for higher-level capabilities. Figure 1 summarizes the multilevel structure of DC and the SST dimensions, showing how individual microfoundations aggregate via routines into firm-level outcomes.

Figure 1: Dynamic Capabilities and Multilevel Microfoundations

Micro-to-macro aggregation: individual cognition and agency → organizational routines → firm-level SST capabilities



Note: This framework synthesizes the SST architecture (Teece, 2007; 2023) with multilevel aggregation logic (Felin et al., 2012; Chen et al., 2023). It posits that firm-level capabilities emerge from individual cognitive microfoundations (Helfat & Martin, 2015; Helfat & Peteraf, 2015) which are mediated through interpersonal interaction (Salvato & Vassolo, 2018) to form reliable organizational routines (Helfat & Winter, 2011). Arrows depict micro-to-macro aggregation; feedback loops from firm-level outcomes back to individual cognition are acknowledged but omitted for visual clarity.

Figure 1: Dynamic Capabilities and Multilevel Microfoundations

2.2 The Managerial Challenge: Threat Rigidity and Organizational Inertia

Sensing in practice manifests through specific managerial behaviors that contribute to threat and opportunity detection. One key aspect is reading weak signals, which are vague indications of a potential threat, that if overlooked, can escalate into crises (Ansoff, 1975). For instance, a manager might discern subtle shifts in consumer preferences from social media trends or competitor filings, anticipating market disruptions before they fully materialize and erode firm performance. Pattern recognition further operationalizes sensing, where managers connect unrelated events into coherent prototypes of viable opportunities (Baron & Ensley, 2006). An example is Chester Carlson recognizing the opportunity for the modern copy machine by connecting seemingly unrelated events such as technological advances, changes in business practices, and a huge growth in the number of college and graduate students, despite many others failing to perceive this opportunity (Baron & Ensley, 2006).

Intuitive decision making in threat detection complements this, relying on expert intuition (recognition-primed decision-making), where experienced decision makers match current

situations to mental models from past experience, enabling rapid judgements under uncertainty (Klein, 1993). Conversely, incumbent firms inadequately sensing emerging threats, such as Kodak infamously misjudging digital photography, causes businesses to be disrupted entirely in core business areas (Schoemaker et al., 2018). Nokia is another prominent example illustrating deficient pattern recognition. The firm failed to sense the smartphone revolution, despite its internal prototypes. In contrast, Apple embedded itself in an ecosystem-focused business model, where Steve Jobs linked intuitive touch interfaces, hardware and app ecosystems to consumer needs (Schoemaker et al., 2018). These examples highlight the importance of sensing as a proactive, cognitive skill that demands vigilance and connectivity to external signals.

However, even when properly adhering to these mechanisms, a persistent sensing-seizing gap undermines managerial effectiveness: managers may **cognitively recognize** opportunities or threats but fail to act decisively. This gap arises from psychological and organizational factors that limit or paralyze responsiveness. Threat rigidity exemplifies this, where perceived threats trigger narrowed attention, restricted information processing, and reliance on rigid plans stifling adaptive action (Gilbert, 2006). Acute stressors, such as time pressures or threat, further increase this gap by disrupting deliberate System 2 analytical strategies while favoring intuitive System 1 responses. In experienced individuals, this can improve responsiveness instead of leading to performance decline as is the case for inexperienced individuals (Kahneman, 2011; Klein, 1996). For instance, in the newspaper industry, executives at major incumbent firms sensed digital disruption but became rigid around print models, locking investments into replicating printed newspapers from fear of cannibalizing core revenues (Gilbert, 2006).

Cognitive biases further distort judgment (Tversky & Kahneman, 1974; Fryer & Jackson, 2008). However, even when awareness of the threat/opportunity exists, external and institutional constraints may still prevent managers from translating intentions into actions (Blake, 1999). In high-stakes settings, threat perception can produce inflexible plans and a focus on existing resources, as managers default to habitual responses under pressure, confining deliberate reconfiguration (Gilbert, 2006). Organizational inertia compounds individual hesitation, where organizational filters and power structures can cause weak signals to be neglected or delayed (Ilmola & Kuusi, 2006). This hinders seizing and transforming and underscores the need to bridge the gap between cognition and embodied action by cultivating resilience.

We clarify conceptual boundaries between the sensing-seizing gap, and adjacent constructs including threat rigidity, the intention-action gap, and organizational inertia, in Appendix C. The overview provides a comparative summary showing differences in levels of analysis, core mechanisms, and diagnostic indicators.

2.2.1 Limitations of Purely Cognitive Leadership Development Approaches

Leadership development is often framed as a knowledge problem. If managers understand the right frameworks, they should make better decisions. This assumption fits many executive programs, which still rely heavily on cognitive and analytical tools such as cases, lectures, and conceptual models. These formats are useful for building language, interpretation, and retrospective reasoning. Yet they are often weakest where leadership is most tested – when pressure is high and time is short.

Leadership is well defined by scholars as the capacity to produce useful change, whereas management emphasizes order and consistency (Zaleznik, 1977; Kotter, 1990). Self-management is noted as a core element of effective leadership, including the ability to regulate emotions (Bennis, 1989; Goleman, 1998). However, the problem is how those capacities are cultivated *when cognitive control is compromised*. Under acute stress, deliberative processing is harder to access and decision makers rely more on fast, habitual responses (Kahneman, 2011). Stress signaling can impair prefrontal functions that support inhibition, working memory, and flexible updating, which are precisely the resources needed to translate recognition into timely commitment (Arnsten, 2009).

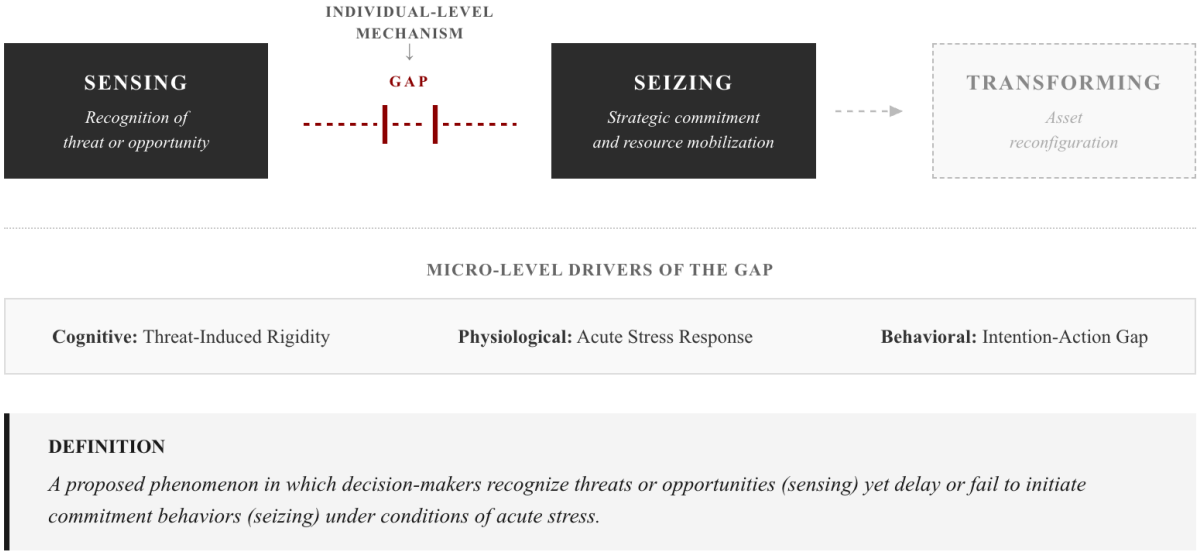
This helps explain why many leadership programs show limited transfer into sustained behavior change and organizational impact (Pfeffer and Fong, 2002; Gurdjian et al., 2014; Beer et al., 2016). Participants may leave with improved conceptual clarity, but they have not repeatedly practiced executing those concepts when arousal is elevated and consequences feel immediate. In effect, programs can install the software of leadership while undertraining the biological hardware needed to run it during a VUCA crisis.

This limitation motivates moving towards approaches that train regulation and action under pressure. The following section examines embodied stress inoculation as a pathway for

strengthening individual-level capacities that help convert sensing into seizing when hesitation is costly. Figure 2 depicts the proposed sensing-seizing gap construct and its theoretical antecedents.

Figure 2: The Sensing-Seizing Gap

Conceptual framework illustrating stress-induced action inhibition within the Dynamic Capabilities framework



Note. The figure situates the proposed gap between the firm-level capabilities of Sensing and Seizing. The gap is conceptualized as a microfoundational failure mode rooted in individual-level, stress-induced action inhibition. Transforming is depicted for theoretical continuity; this study focuses specifically on the immediacy of the sensing-to-seizing transition.

Source. Author's conceptualization. The framework integrates Dynamic Capabilities (Teece, 2007) with mechanisms from threat rigidity theory (Staw et al., 1981), dual-process models (Kahneman, 2011), intention-action research (Sheeran & Webb, 2016), and neurobiological stress research (Arnsten, 2009; McEwen & Gianaros, 2010).

Figure 2: The Sensing-Seizing Gap

2.3 Embodied Stress Inoculation as a Pathway to Managerial Microfoundations

While traditional literature views managerial strategic choices primarily as mental or analytical processes, it overlooks the physiological (embodied) aspects of decision-making that are crucial for adapting in unpredictable settings. This opens the door to investigating how physical practices can strengthen managerial microfoundations, thereby enhancing organizational resilience.

2.3.1 Principles of Embodied Cognition, Procedural Learning, and Far Transfer

Examining firm DC, as outlined earlier, tends to rely on cognitive microfoundations of managers that rely on explicit reasoning. However, this overlooks physiological dimensions of human decision-making. Dual-process theories suggest that high-pressure environments inhibit

the cognitive resources required for deliberative analysis, forcing managers to default to rapid, intuitive processing and responses (Evans & Stanovich, 2013; Kahneman, 2011). To address this, embodied practices activate these automatic response mechanisms. They integrate automatic physical reactions with conscious decision-making, thereby elevating performance when analytical thinking is compromised. This aligns with views that motor skill acquisition is not merely a matter of muscle memory but requires the integration of explicit cognitive strategies (Krakauer et al., 2019).

This perspective aligns with Barnett and Ceci's (2002) (skill) transfer taxonomy based on the similarity (distance) between the learning and application contexts. Near transfer entails contexts share significant overlap, and far transfer is where skills must bridge substantial differences in dimensions such as the knowledge domain, physical environment, and functional purpose (Barnett and Ceci, 2002). However, negative transfer may occur if the learned response is not adapted to the new domain. For instance, Muay Thai practitioners conditioned to respond with immediate, aggressive counters when struck may misapply this reaction in business negotiations. In this instance, an instinctive response to a challenging counteroffer could provoke conflict and derail collaborative deal-making, rather than promoting measured responses. Therefore, self-monitoring plays a key role. As Osman (2010) argues, self-monitoring can enable quick adjustments in goal-directed behavior to meet the changing demands of uncertain environments, a capacity relevant to managerial decision making.

Furthermore, embodied approaches highlight clear shortcomings in traditional leadership development programs. These are often ineffective at producing lasting change and converting conceptual knowledge into practical, adaptive actions in VUCA environments. The main issue is lack of deep experiential engagement (Day, 2000). Experiential learning cycles may offer a solution, incorporating stages of direct experience, reflective observation, abstract conceptualization, and active experimentation. In doing so, they create adaptable routes for acquiring skills, attuned to personal and situational factors (Kolb, 1984).

Embodied education argues that practical know-how is built through doing, in real situations, and it cannot be gained from abstract instruction alone (Francesconi & Tarozzi, 2012; Beckett & Morris, 2001). From a phenomenological view, this kind of skill comes from bodily effort and remains difficult to access without that effort (Francesconi & Tarozzi, 2012). This matters

for managerial sensing and seizing under pressure because leaders need to notice cues quickly and respond decisively when time is short and stress is high.

Embodied cognition is thus grounded in bodily interaction with the environment, where knowledge is reenacted through the same sensory and motor systems involved in its acquisition (Fugate et al., 2019). If richer sensorimotor encoding produces more reliable retrieval and use of knowledge, then physical practices under conditions resembling target stressors are the way to develop adaptive managerial responses.

2.3.2 Muay Thai as an Exemplar

Among combat sports, Muay Thai presents characteristics relevant for examining stress inoculation transfer to managerial contexts. Two dimensions distinguish it from related disciplines. The first lies in the nature of the threat. Grappling arts like Brazilian Jiu-Jitsu involve pressure and positional control, but they also include referee stoppages ('pauses') that briefly interrupt exchanges (Andreato et al., 2015). Muay Thai, by contrast, involves rapid, powerful striking in an unpredictable context, creating a near-continuous stream of immediate threats during exchanges (Silva et al., 2011). Sudden stimuli, such as strikes, approach rapidly and can trigger a startle response, a defensive reaction that includes a flinch response mediated by a brainstem circuit (Gómez-Nieto et al., 2020). Maintaining composure under these conditions requires suppressing flinch-type defensive reactions while continuing to think tactically. Acute threats trigger flinch responses that are difficult to suppress. However, training can help convert reactions into more functional responses to threat (Renden et al., 2016). Thus, inhibitory control may support clearer thinking under acute stress in managerial contexts.

The second dimension is attentional load. Traditional (Western) boxing limits striking to two points of contact, allowing practitioners to develop expertise within a constrained threat space. Muay Thai's eight weapons (fists, elbows, knees, shins) combined with clinch work likely increases working-memory and attentional-control demands, consistent with evidence that open-skill sports place higher demands on executive functions (Koch & Krenn, 2021). Practitioners cannot focus on a single threat vector; they must continuously shift attention across multiple inputs. This relates to sensorimotor gating, often described as filtering irrelevant information to prevent overstimulation (Gómez-Nieto et al., 2020).

MMA shares some of these features but allocates significant training time to ground fighting. Kickboxing is structurally similar but typically excludes clinch work and elbow strikes, reducing both tactical complexity and the intensity of close-range engagement.

Beyond physical techniques, Muay Thai employs ritualized pre-fight routines, specifically the Wai Kru Ram Muay, literally 'paying respect to the teacher' and 'boxing dance' (Vail, 2014). Rooted in Thai cultural practice, these rituals function as gestures of gratitude toward teachers and lineage and also serve distinct psychological functions relevant to leadership.

In sports psychology, preperformance routines are used to put performers in an 'optimally aroused, confident, and focused state' immediately before execution (Lidor & Singer, 2000). For the manager, this may offer a dual benefit: it provides a mechanism for deliberate **state management** by regulating arousal and minimizing distractions before performance (Orbach & Blumenstein, 2022), while simultaneously being grounded in **humility**. The cultural practice of acknowledging one's teachers and team may serve as a check against arrogance or ego, reminding the leader that capabilities are built upon the collective efforts of teams, a mindset essential for leadership in complex environments.

Empirical studies provide preliminary empirical support for Muay Thai's psychological benefits, detailing measurable outcomes under controlled conditions that suggest applicability to leadership roles. Şahin et al. (2025) implemented a six-week randomized controlled program with healthy sedentary male participants, using structured thrice-weekly Muay Thai training sessions (1.5 hours) to evaluate well-being-related outcomes. Through validated psychological scales, the intervention yielded improvements in quality of life (13-22%), love of life (15-20%), and self-control (23-25%) (Şahin et al., 2025). This indicates enhanced emotional and volitional capacities transferable to managerial tasks.

Complementing this, Oh et al. (2025) investigated combat martial arts in a cross-sectional study of international students via university intramural programs over a semester. Employing sequential mediation analysis with scales for well-being, positive emotions, stress, and resilience, the research demonstrated that participation elevated overall well-being by fostering positive emotions that mitigated stress and strengthened ego-resilience (Oh et al., 2025). These findings underscore how such training can alleviate adaptive challenges, paralleling managers' navigation of global uncertainties.

Combining aerobic exercise with novel learning experiences stimulates neural plasticity to support sustained cognitive integrity (Greenwood and Parasuraman, 2010). Furthermore, research on open-skill sports demonstrates that training in unpredictable environments improves cognitive flexibility (Di Russo et al., 2006). The need to react quickly to an opponent enhances the ability to inhibit impulsive responses and make faster decisions. Ultimately, cognitive demands of combat training may cultivate the executive functions required to suppress panic and act decisively in high-pressure environments.

Memory is also more effectively enhanced than when using only cognitive or only physical exercises (Schaefer et al., 2011). Skills gained carry over to other life domains, where the discipline of physical training strengthens strategic thinking and emotional regulation (Pierce et al., 2017). Elevated levels of BDNF (brain-derived neurotrophic factor, a protein that promotes neuron growth and survival) are also triggered by exercise, which in turn supports improved pattern recognition and resilience, skills directly relevant to cognitive adaptability in dynamic environments (Best, 2010).

2.4 Primary and Complementary Transfer Mechanisms and Boundary Conditions

Building on the embodied practices discussed above, this section considers the primary mechanism enabling skill transfer from Muay Thai to the managerial microfoundations of DC: stress inoculation training (SIT). Originating from Meichenbaum's (1985) cognitive-behavioral framework, SIT systematically cultivates coping skills and resilience via controlled exposure to stressors, enhancing performance in high-pressure domains (Saunders et al., 1996).

Transactional stress theory states that stress arises when environmental demands exceed an individual's perceived resources. Stress is not a fixed external event, but an interaction between environmental demands and an individual's perceived ability to cope (Lazarus & Folkman, 1984). Within this framework, Muay Thai strengthens 'secondary appraisals' (the evaluation of one's own resources to handle a situation) thereby allowing managers to reframe VUCA threats as manageable challenges.

Meta-analytic evidence indicates that SIT has moderate to strong effects on anxiety outcomes and moderate effects on performance across stress-relevant domains (Saunders et al., 1996),

relevant to the demands of combat sports. Flow states (Csikszentmihalyi, 1990) offer a complementary mechanism that will be explored later, but SIT's structured progression provides a transfer mechanism mirroring Muay Thai training. Stress training effects can, under certain conditions, generalize to novel stressors and tasks (Driskell et al., 2001). Such stress-adaptive individual capacities may be viewed as one potential microfoundation contributing to sensing, seizing, and transforming (adaptive reconfiguration) in dynamic environments (Teece, 2007).

SIT and the related Stress Exposure Training comprise three phases that progressively prepare individuals to perform under stress through information provision, skills acquisition, and graduated exposure and practice (Meichenbaum, 1985; Driskell & Johnston, 1998). In this paper, these phases are mapped to Muay Thai elements for embodied skill development. The **conceptual education phase** provides knowledge of stress responses, normalizing physiological and cognitive reactions to promote understanding (Saunders et al., 1996). In Muay Thai, this involves instruction on fight dynamics, such as opponent positioning, intensity shifts, momentum changes and fatigue signals, paralleling managerial awareness of exogeneities. The **skill rehearsal phase** emphasizes practicing coping strategies, building automaticity through repetition (Driskell & Johnston, 1998). Muay Thai operationalizes this via pad work and drilling under low-threat conditions, where trainees refine strikes and defenses while regulating arousal. The application and practice phase provides opportunities to apply skills under conditions that increasingly approximate the operational stress environment, and under some conditions positive training gains can generalize to novel stressors and tasks (Driskell et al., 2001). In Muay Thai, sparring under pressure simulates unpredictable combat, integrating prior phases to engrain adaptive responses transferable to real-time leadership decisions. This phased structure, validated in combat sports contexts, enhances resilience by aligning training stressors with target demands (Johnston & Cannon-Bowers, 1996).

Beyond sports and military or clinical contexts, SIT has been illustrated in corporate executive coaching (Dannels & Masters, 2020). Dannels and Masters (2020) present a coaching case illustration of a pharmaceutical senior vice president who used SIT-based techniques to manage anxiety related to turf wars, information overload, and subordinates' work products, and who reported more productive responses in these interactions over time.

Transfer from Muay Thai's physical threats to business threats proceeds via specific pathways, aligned with cognitive and emotional processes (Driskell et al., 2001). While a punch in the ring and a hostile rival in the boardroom may appear different, the brain can see both as high-stakes challenges and engage overlapping stress-regulation systems. In either case, the body often recruits many of the same stress mediators (including cortisol and autonomic arousal), while top-down control networks help regulate emotion, maintain composure, and support effective decision-making (McEwen & Gianaros, 2010). Practitioners regulate arousal by managing combat-induced physiological surges through breathing and focus, thereby reducing anxiety and facilitating composed responses in high-stakes business negotiations or crises.

Decision-making under temporal pressure develops through sparring's rapid judgments on incomplete cues, which may also enhance executive functions needed to execute strategic pivots. Empirical research confirms superior perceptual-cognitive skills in combat athletes (Milazzo et al., 2016). Recovery from setbacks is built by absorbing impacts and resuming engagement, a process that fosters mental toughness and iterative learning post-failure. This parallels a leader's rebound from losses, where studies link martial arts to reduced hostility and better impulse control, as well as enhanced emotional regulation (Kostorz et al., 2021). Reading opponent intentions sharpens perceptual acuity for nonverbal signals, such as feints, transferring to interpreting competitor strategies or team dynamics (Williams & Elliott, 1999; Ripoll et al., 1995). Exposure to physical adversity facilitates the implicit transfer of life skills, such as perseverance, which are essential for resilience in broader contexts (Chinkov & Holt, 2016).

It is critical to distinguish semantic sensing (the cognitive interpretation of data) from somatic sensing (the physiological detection of threat). Psychological stressors, such as competitive or socially evaluative situations, can trigger amygdala-driven stress pathways, which increase stress-related chemicals such as noradrenaline, dopamine, and cortisol (Arnsten, 2009). When levels rise, they can weaken the prefrontal cortex's top-down control, making it harder to sustain attention, hold information in working memory, and stay cognitively flexible. In that sense, abstract business threats and physical threats can recruit overlapping stress-response mechanisms. Thus, Muay Thai does not teach managerial domain-specific technical skills (semantic sensing) that depend on deliberate System 2 processing. Instead, it helps preserve access to those skills under pressure by improving regulation of stress arousal.

By using SIT to regulate the physiological arousal threshold, Muay Thai is hypothesized to raise the threshold at which this cognitive (System 2) impairment occurs. This preserves the manager's ability to access cognitive faculties. In this view, training acts on the biological hardware (the nervous system) to ensure the managerial software (sensing and seizing) can be accessed more reliably when needed most.

The boundary conditions under which skill transfer from Muay Thai to business leadership succeeds or fails, primarily depend on the similarity between training and application domains, as well as the use of metacognitive strategies to adapt learned behaviors (Barnett & Ceci, 2002). Transfer is most effective when the stressors in Muay Thai closely resemble those in managerial contexts, with shared underlying structures, or invariance that facilitate generalization (Vaeyens et al., 2009). For instance, the unpredictability of sparring resembles volatile market shifts. Reflective practices, such as post-training debriefs, further enhance this by enabling practitioners to consciously adjust combat skills for professional settings, much like talent transfer models in sports that emphasize adaptive pathways for athlete development (MacNamara & Collins, 2015). Additionally, varying intensity, opponents, or scenarios, and maintaining high motivation levels, help sustain and extend these skills, preventing erosion over time (Chua et al., 2019).

In contrast, skill transfer falters when domains diverge significantly, such as when Muay Thai's assertive heuristics conflict with business norms of collaboration, potentially leading to negative outcomes like impulsivity in decision-making (Osman, 2010). Insufficient reflection during training can exacerbate this, contributing to misapplication of skills, as observed in athlete development frameworks where mismatched experiences reduce long-term progress (Gulbin et al., 2013). Individual differences, including prior experience and personal motivation, also moderate these effects. Thus, Muay Thai's benefits for leadership are optimized only when these boundaries are carefully considered and addressed.

2.4.1 Flow State as a Complementary Mechanism

While SIT supports arousal regulation, flow may complement it by improving execution once a response has been selected. Csikszentmihalyi (1990) describes flow as an optimal experience marked by intense absorption and a sense of control, and it is fostered when perceived challenges are well matched to perceived skills. Neurocognitive accounts link flow to transient

hypofrontality, a temporary reduction of some prefrontal processes that may enable highly practiced skills to be carried out with less interference from explicit analytical processing (Dietrich, 2004).

Thus, SIT raises the threshold at which pressure overwhelms cognition, helping a manager stay composed in a crisis. Flow operates downstream by allowing well-learned actions to run without deliberative interference. In high-stakes situations this matters because additional checking at the point of commitment can become hesitation. A manager who has accurately diagnosed a threat but keeps revisiting the decision gains nothing from further analysis and may lose the window for action.

Muay Thai practitioners can become completely absorbed during shadowboxing and during focused mitt work with a partner or coach; both individual and socially coordinated flow are possible in this training context (Croom, 2022). For experienced practitioners, trained pattern recognition becomes more likely to trigger immediate action rather than stalled evaluation, tightening the sensing-seizing gap. Workplace studies link work-related flow components to higher colleague-rated in-role performance and beyond-role contributions. Demerouti (2006) reports this association is only present among employees high in conscientiousness (Bakker, 2008; Demerouti, 2006).

2.5 Research Gaps

Several gaps persist in the literature. Quantitative research indicates that combat sports, including Muay Thai, enhance psychological well-being, quality of life, and resilience in student populations. But there are few links with DC in managerial contexts (Şahin et al., 2025; Oh et al., 2025). Practitioners affirm skill transfer from martial arts training to everyday life, but explorations of this phenomenon are limited and often lack specificity (Croom, 2022; Chinkov & Holt, 2016). While recent studies have moved to address historical methodological shortcomings to confirm that martial arts training fosters resilience (Moore et al., 2021), evidence regarding specific leadership adaptability and related leadership qualities remains limited. Taken together, the literature suggests a promising but untested proposition: that embodied stress inoculation may address the physiological barriers underlying the sensing-seizing gap.

3 Methodology

To test how embodied stress inoculation via Muay Thai relates to the microfoundations of managerial decision-making under pressure, we adopted an exploratory sequential mixed-methods design (Creswell, 2014). We first conducted qualitative interviews to identify perceived transfer mechanisms and potential risks, then used a quantitative survey to test their associations in a larger sample and investigate the Research Question: **How does (physical) Stress Inoculation Training bear upon the microfoundations of managerial decision-making under pressure?**

The following hypotheses were formulated based on secondary data collection from the literature:

H1: Managers engaged in Muay Thai (with regular live sparring or competition) report higher individual-level microfoundations of sensing and seizing than active non-combat sport controls

H2: Managers exposed to regular combat-sport sparring or competition report higher stress resilience than active non-combat sport controls

H3: Among practitioners, the intensity of embodied stress inoculation training has a positive association with the individual-level microfoundations of sensing and seizing.

To answer the Research Question, we also examined:

1. transfer processes (1) - How do managers describe the process of transferring psychological skills developed in Muay Thai to specific workplace situations?

2. relevant training aspects (2) - What specific aspects of Muay Thai training do managers believe are most relevant for developing their professional capabilities, and why?

3. challenges like negative transfers (3) - What challenges or "negative transfers" have managers experienced when applying a martial arts mindset in a business context?

This design was optimal for novel interdisciplinary topics, as it balanced the 'what' of measurable patterns with the 'how' of lived experiences, a methodological strength often cited as necessary for understanding complex, multifaceted phenomena (Johnson & Onwuegbuzie, 2004; Tashakkori & Creswell, 2007). No hypothesis is specified for Transforming, as it is not the primary empirical focus and is assessed only exploratorily.

3.1 Qualitative Phase: Interview Design and Protocol

3.1.1 Sample and Recruitment

The qualitative data collection was used to examine skill transfer, address transfer processes, and to refine the survey for the quantitative phase. We purposively sampled 13 Muay Thai-practicing managers/leaders across levels of which 12 regularly engage in live sparring or fighting. For "Managers/leaders" we used professionals with decision authority and/or people-management responsibility. Participants were recruited via personal networks and LinkedIn to ensure diversity across industries (E.g., tech, finance, military, health) and organizational levels, capturing varied VUCA experiences. To handle professional heterogeneity, inclusion was narrowed to the shared experience of live sparring, maintaining high thematic density on stress inoculation.

3.1.2 Interview Protocol

We developed a semi-structured protocol to allow flexibility while ensuring coverage of key themes, drawing from prior martial arts transfer studies (Chinkov & Holt, 2016) and executive interview best practices (Welch et al., 2002; Harvey, 2011). The protocol (Appendix A) progressed from descriptive to analytical questions using a funnel approach to build rapport before probing sensitive topics like setbacks or negative transfers (Harvey, 2011).

3.1.3 Data Collection Procedures

We conducted interviews via Video (Google Meets) lasting 45+ minutes each, recorded and transcribed using fireflies.ai for efficiency. The length of interviews depended on the scope of questions and availability of interviewees.

3.2 Quantitative Phase: Survey Design and Measurement

3.2.1 Sample Size and Power

Qualitative themes informed survey construction; the quantitative phase tested H1-H3 using purposive sampling. We targeted 100 participants (50 per group), sufficient to detect medium-to-large effects in MANCOVA and regression designs, where we anticipated substantial group differences. The study is explicitly exploratory, designed to establish initial evidence for future longitudinal research.

- **Treatment Group:** Managers actively practicing Muay Thai with regular training (verified via Q12).
- **Control Group:** Active managers engaging in non-combative physical training at least weekly. Individuals with any history of combat sports involving live sparring (Q10d) were excluded to prevent contamination.

3.2.2 Measurement Frameworks and Instruments

For the dependent variables, we adapted the DC Scale from Kump et al. (2019) to the individual manager level and chose it over broader alternatives such as Wilden et al. (2013) for three reasons. First, Kump et al.'s items capture perceived capability and readiness, rather than asking how often specific activities occur, which matters because activity frequency does not necessarily indicate effectiveness. Second, we reworded items to match our level of analysis by shifting from firm-level statements to the individual manager as the agent, aligning measurement with the microfoundational focus. Third, the scale is relatively brief at 14 items across sensing, seizing, and transforming (for conceptual completeness), which reduces drop-off among time-constrained respondents.

To balance measurement quality with survey length, we used a shortened set of items from Kump et al. (2019) and prioritized items with the strongest reported factor loadings in their validation study, while retaining coverage of sensing and seizing. We also refined wording to fit high-stakes managerial contexts by adding qualifiers that make the items more diagnostic under pressure, such as quickly, sudden, and significant.

- **Sensing** (5 items): Focused on analytical vigilance (E.g., 'systematically observing changes') and early detection, associated with an item regarding nonverbal cue detection.
- **Seizing** (3 items): Targeted decisiveness (E.g., 'committing to courses of action') and rapid mobilization.
- **Transforming** (2 items; exploratory, included for SST completeness): Measured self-reported adaptive reconfiguration and willingness to abandon routines (Q5.1, Q5.2); third item in Q5 was an attention check and excluded.

To measure resilience, we employed the CD-RISC-10 (Connor & Davidson, 2003). We augmented this scale with one interview-derived item capturing stress relativization in professional contexts, for example “Professional challenges feel less threatening to me than they once did.”

Finally, to document perceived exposure to volatile conditions and reduce alternative explanations, we used a four-item short measure adapted from Döner and Efeoğlu (2023) and controlled for age, management tenure, meditation frequency, and weekly physical activity, consistent with recommendations on covariate adjustment in observational designs (Antonakis et al., 2010).

3.2.3 Interview-Informed Scale Adaptations

While validated instruments formed the methodological foundation of the survey, the sequential mixed-methods design enabled several theoretically grounded additions based on emergent themes from the qualitative phase. These adaptations reflected patterns that appeared across multiple interviews but were not fully captured by existing scales.

Interpersonal Sensing: Participants attributed their ability to read professional nonverbal cues to observing opponents during sparring. To capture this interpersonal dimension beyond the market focus of the original Kump et al. (2019) scale, we added an item to Q3 regarding body language. This addition extended the sensing construct to interpersonal information processing and aligned with calls to examine individual-level microfoundations (Helfat & Peteraf, 2014).

Stress Relativization: Participants described professional stressors as diminished after exposure to physical confrontation. To capture the cognitive reappraisal mechanism of stress inoculation theory (Meichenbaum, 1985), we added an item to the resilience scale (Q7) assessing if professional challenges felt less threatening than they once did.

Potential Negative Transfers: Q15 explored maladaptive outcomes. While many participants emphasized patience, others noted reduced tolerance for hesitation. We included items covering aggression, hasty decisions, superiority, and impatience to determine if these negative transfers represented systematic patterns or individual idiosyncrasies.

Training Component Attribution: Most participants identified live sparring as the primary driver of professional capabilities rather than conditioning. This consensus informed Q14b, which asked practitioners to identify the most impactful training component, providing validation for our theoretical emphasis on stress exposure while allowing for disconfirming evidence.

3.2.4 Survey Administration

The survey was administered via Qualtrics (approx. duration: 10 minutes). Quality controls included an embedded attention check and duplicate response prevention to ensure data integrity while preserving respondent anonymity.

3.3 Data Analysis Plan

Analysis proceeded in three phases: qualitative thematic analysis to explore mechanisms, quantitative hypothesis testing to validate relationships (H1-H3), and mixed-methods integration.

Qualitative Analysis

Interview transcripts were analyzed following the Gioia methodology (Gioia et al., 2013). Coding moved from first-order concepts using participant language (E.g., "reading body language," "sizing people up"), to second-order themes aggregating these into theoretical categories (E.g., Somatic Pattern Recognition), to aggregate dimensions were organized around sensing and seizing (Teece, 2007; Kump et al., 2019) and negative transfer boundary conditions. A recovery dimension was added to be conceptually similar to transforming.

Quantitative Analysis

Prior to hypothesis testing, assumptions were evaluated using Levene's test for homoscedasticity and Box's M test for equality of covariance matrices.

H1 was tested using MANCOVA, comparing practitioners against controls on Sensing and Seizing microfoundations simultaneously. H2 was tested using ANCOVA for Resilience.

H3 (Dose-Response): We tested H3 using Hierarchical Linear Regression on the practitioner subsample to identify which training factors predict Sensing, Seizing, and Resilience outcomes:

- Step 1: Control variables (Age, Management Tenure, Meditation)
- Step 2: Training volume (Years, Hours/Week)
- Step 3: Sparring Intensity (dummy-coded: Moderate and Hard, with Technical/Light as reference)

Mixed-Methods Integration

Findings were integrated through narrative synthesis, placing qualitative themes alongside quantitative results to examine convergence and divergence (Guetterman et al., 2015).

Testing the Sensing-Seizing Gap

To descriptively probe the sensing-seizing gap at the individual level, we computed correlations between Sensing and Seizing scores separately by group. We explored whether the association differed numerically between practitioners and controls, though no formal test of the difference was conducted.

3.4 Validity and Reliability

To enhance construct validity, we employed triangulation between the qualitative and quantitative datasets. Survey items were grounded directly in interview findings to ensure ecological validity. For example, the added survey item regarding 'nonverbal cue detection' (Q3) was derived from specific interview evidence (E.g., Respondent Jamul noting the necessity of reading fighter archetypes in the first round). Furthermore, the 'Potential Side Effects' scale (Q15) was included to systematically check for negative transfers identified in the qualitative phase (E.g., Respondent Martin discussing the risk of arrogance or aggression), ensuring a balanced view of the phenomenon.

Considering reliability and validity it must be acknowledged that the primary researcher possesses 1.5 years of Muay Thai experience. While this grants 'insider' status (Brannick & Coghlan, 2007) facilitating rapport and language precision, it introduced potential confirmation bias. To mitigate social desirability bias and confirmation bias, the survey included a 'Potential Negative Effects' scale (Q15) to normalize the reporting of adverse outcomes (E.g., aggression, impatience) and the interviews probed for negative transfer. Furthermore, triangulation between

interview themes (including negative transfers) and quantitative data allowed us to identify discrepancies between self-perception and reported behaviors.

3.5 Ethical Considerations

All participants provided informed consent prior to participation and could withdraw at any time without penalty. Risks were minimal and limited to time burden and possible discomfort reflecting on setbacks. Data were anonymized using pseudonyms, stored securely, and reported only in aggregate to reduce re-identification risk.

4 Results

4.1 Qualitative Findings

The n=13 sample comprised professionals from diverse industries, including venture capital, private equity, academia, and technology, with training experience ranging from 15 months to over 30 years. All statements were personal views and experiences and did not represent the views of employers or affiliated organizations.

Table 1: Expert Interview Participants

Expert #	First name	Muay Thai Exp.	Work Tenure	Industry / Title
1	Martin	30 years	25 years	Military (Former) / Education / Social Work
2	Jonas	2 years	2 years	Academia / Consulting
3	Jo	2.5 years (prev. boxing since 18)	27 years	Technology (Laser Mfg) / VP Project Management
4	Linda	10 years (boxing 20 years)	30 years	Tech & Media / Entrepreneur (Founder)
5	Jamul	37 years	27 years	Finance / Mining / Investment Banking / Gym Owner
6	Jelmer	16 years	12 years	Venture Building / Consulting / Contractor
7	Charlette	19 years	15 years	Government Agency / HR Business Partner
8	Sebastiano	3.5 years	8 years	Private Equity / Buy & Build Manager
9	Chase	3 years	12 years	Tech & Venture Capital / Business Development
10	Brennan	15 months	13 years	Tech (SaaS) / Founder & CEO
11	Darin	8 years (prev. others 15 years)	18 years	Non-profit & Education / SVP Recruitment
12	Helen	2.5 years	20 years	Banking (AI & Analytics) / Associate VP/ Executive
13	Eric	2 years	25 years	Digital Marketing / Entrepreneur

The total audio data analyzed approximated 16 hours. Data saturation was assessed by tracking the emergence of new first-order concepts across sequential interviews; by the ninth interview, no novel concepts related to stress regulation or pattern recognition emerged, though subsequent interviews continued to confirm and enrich existing themes.

Muay Thai was affirmed as a somatic training ground for the managerial microfoundations underlying firm-level DC. Participants consistently described a transfer mechanism wherein physical conditioning creates a psychological buffer, enabling them to bridge the "sensing-seizing gap" (see Section 2.2) in volatile environments. The findings are structured according to the Gioia methodology, progressing from informant-centric concepts to theoretical aggregate dimensions.

4.1.1 Data Structure

Table 2: Data Structure

First-Order Concepts (Participant Terms)	Second-Order Themes	Aggregate Dimensions
"Reading body language," "Sizing people up," "Noticing patterns," "Hyper-awareness of environment," "Distinguishing bluff from aggression"	Somatic Pattern Recognition	EMBODIED SENSING CAPABILITIES
"Understanding intent," "Empathy through contact," "Dropping ego/status," "Seeing humans not roles," "Respecting the opponent"	Interpersonal Calibration	
"Calmness in chaos," "Sabai Sabai," "It's just an email, not a punch," "Lowering heart rate," "Breathe to reset"	Physiological Stress Regulation	PHYSIOLOGICAL SEIZING ENABLERS
"Adjusting on the fly," "Not freezing," "Committing to the strike," "Decisiveness over perfection," "Problem-solving mode"	Decisive Action Mobilization	
"Getting back up," "Accepting the loss," "Immediate feedback loops," "Learning from failure," "Separating identity from outcome"	Resilience & Reconfiguration	RECOVERY, LEARNING & RENEWAL
"Hunting mode," "Too aggressive," "Micromanaging," "Treating colleagues as opponents," "Impatience with slowness"	Maladaptive Aggression	NEGATIVE TRANSFERS & BOUNDARY CONDITIONS
"Contextual mismatch," "Different rules of engagement," "Over-competitiveness," "Difficulty switching off"	Contextual Dissonance	

4.1.2 Embodied Sensing Capabilities

This dimension maps to the individual-level microfoundations underlying the firm's Sensing capability (Teece, 2007; Helfat & Peteraf, 2014). Participants described how the physical necessity of anticipating strikes transferred into a heightened ability to detect non-verbal cues and assess social dynamics in professional settings.

Somatic Pattern Recognition

Ten participants reported that the survival necessity of anticipating physical attacks during sparring trained them to scan for micro-expressions and energy shifts during business interactions. This pattern recognition was frequently characterized as automatic and involuntary such as a "quick size up" occurring without deliberate effort (Chase, Jonas, Jelmer). Participants described attending to postural cues, such as whether a stakeholder appears "closed off" via shoulder positioning (Jonas), and calibrating their approach based on rapid assessments of counterparts' dispositions.

Noteworthy was practitioners reporting that this skill proved particularly valuable in high-stakes interactions. Jelmer indicated that sparring experience enabled him to distinguish genuine aggression from performative bluffing in negotiations, a discernment he attributed to having "been on the receiving end" of physical aggression. This finding aligned with the embodied cognition framework (see Section 2.3.1), suggesting that repeated physical exposure to threat cues creates procedural recognition patterns that generalize to social domains.

However, this transfer was not uniformly automatic. Brennan noted that while the underlying capability exists, activating it in business contexts requires conscious effort and deliberate "reps." This divergence suggested individual variation in transfer readiness, implying that for some, the bridge between the dojo and the boardroom requires explicit cognitive construction.

Interpersonal Calibration

Seven participants noted that the physical intimacy of sparring fostered a form of "somatic empathy." By understanding the physical reality of their counterparts, they navigated power dynamics with greater attunement. Participants described how the physical meritocracy of the gym (where status is determined by skill rather than title) helped them deconstruct hierarchies in the workplace.

Jamul, for instance, explained how the mindset of a "technical fighter" (Muay Femur) applies to client origination, describing the process as diagnosing whether a counterpart is "aggressive, outgoing, or withdrawn" and adjusting one's energy to match or counter (Jamul).

Similarly, Sebastiano observed that physical confidence paradoxically leads to greater humility in leadership: "I have seen so many guys come in with their chest puffed out... [but] you learn humility. You can be proud, but you are not better than other people... The best fighters are the nicest people." (Sebastiano)

Having established how practitioners enhance their sensing capabilities, the following section examines how these perceptions translate into decisive action under pressure.

4.1.3 Physiological Seizing Enablers

This dimension addressed individual-level barriers that create the 'Sensing-Seizing Gap' at the firm level. While managers often cognitively recognize that a threat causes stress that can inhibit action, the data suggested Muay Thai functions as Stress Inoculation Training (SIT) (see Section 2.4), raising the threshold for crisis perception and enabling Seizing.

Physiological Stress Regulation

Twelve of thirteen participants cited relativization as a primary mechanism for emotional regulation. By comparing acute physical stress (combat) to professional stress, practitioners reframed the latter as manageable, thereby maintaining physiological stability during corporate crises. Participants described professional anxiety as "cognitive stress," which they found trivial when contrasted with the "physical stress" of defending against bodily harm (Linda).

This relativization appears to operate by recalibrating the fight-or-flight response. Sebastiano provided a vivid example of using physical exertion to regulate emotional states before a high-stakes interaction: "I had a really bad negotiation... I told my coach... 'You have to bring me into the headspace.' He made me train until I was on the floor cramping. Afterward, the negotiation [felt manageable by comparison]." (Sebastiano)

This finding provides empirical support for the stress inoculation mechanism described in Section 2.4, suggesting that exposure to physical stressors creates a buffer against psychological stressors.

However, a divergent case emerged with Charlette, who noted that her high tolerance for stress sometimes created an empathy gap. She reported difficulty relating to colleagues who felt overwhelmed by minor procedural issues, suggesting that high resilience can potentially reduce relatability in team settings.

Decisive Action Mobilization

Ten participants described a shift from analysis paralysis to action. The feedback loop of sparring, where hesitation results in immediate physical consequences, conditions managers to make "good enough" decisions quickly. This "action bias" is consistent with the requirement for seizing opportunities under uncertainty (Teece, 2007).

Practitioners drew direct parallels between ring strategy and business strategy, noting that both require committing to a course of action based on incomplete information (Darin). The training instills a habit of rapid pivoting; as Jo noted, just as one must adjust immediately when a strike fails, a project manager must ask, "What are we doing now?" rather than dwelling on the error (Jo).

Helen added that this mobilization often requires overriding the biological intuition to retreat. She explained that just as backing away from a kick often exposes one to greater danger, defensive behavior in business can lead to lost opportunities; therefore, the training conditioned her to suppress the urge to "close down" during a crisis and instead "lean in" to the friction to find a solution.

Beyond immediate decision-making, the following section examines how practitioners recover and adapt after setbacks.

Recovery, Learning, and Renewal

This dimension is conceptually adjacent to Teece's 'Transforming,' but here it captures individual-level recovery and learning narratives, not a tested firm-level transforming capability.

Resilience & Reconfiguration

Eleven participants described developing a "growth mindset" as a physical reality rather than an intellectual concept. The cycle of receiving a strike, analyzing the error, and resetting creates a procedural template for professional resilience. Participants characterized resilience not as the absence of failure, but as the speed of recovery.

Jamul utilized a fighter's adage to explain his approach to business deal-making: "I say to my students, 'The only fighter who never lost is the fighter who never fought.'... In business, nine out of ten deals are going to fail and that's okay because the upside of the one that works is going to compensate for the others." (Jamul)

Similarly, Chase noted that the sport altered his relationship with failure during economic volatility, providing a "foundation" that allowed him to treat business mistakes as temporary setbacks rather than existential threats (Chase). Eric extended this view by contrasting the discipline required for Muay Thai with the "microwave culture" of modern business that demands instant results. He argued that the inability to "be an expert on day one" in the gym cultivated the patience necessary for long-term strategic transformation, teaching him that true resilience means "continuing the days after you've been hit" rather than quitting when immediate success is absent.

However, Martin offered a divergent perspective regarding the physical costs of this resilience. He emphasized that while mental fortitude is enhanced, the physical toll of training (such as injuries or fatigue) can sometimes impede professional performance, highlighting a physiological boundary condition to the benefits of "toughness."

Feedback Integration

Five participants reported transferring the gym's culture of immediate feedback to their teams. Jelmer specifically noted that the humility required to admit struggle in sparring transferred to a greater willingness to seek professional guidance.

4.1.4 Negative Transfers and Boundary Conditions

While the preceding sections suggested positive transfers, participants also identified conditions under which the martial arts mindset becomes counterproductive. Addressing RQ3, participants identified specific risks where the "fighter mindset" became maladaptive in a corporate setting. The primary challenge involved modulating the "combat readiness" required for Seizing when the situation demanded diplomacy.

Maladaptive Aggression

Six participants noted moments where assertiveness bordered on aggression, or where the "hunting" instinct overpowered collaboration. This phenomenon was described as a difficulty in "switching off" the heightened state of arousal necessary for sparring.

Sebastiano introduced the concept of the "Hunting Mode" as a state requiring careful management. He noted that some practitioners become "hectic" and unable to deactivate this aggressive state, leading to inappropriate responses in negotiations where "you can't just be angry because someone says something hard" (Sebastiano). Similarly, Charlette observed that the martial arts filter can create a "survival of the fittest" bias, reducing patience for perceived weakness in colleagues: "The training toughened me up... so maybe it made me less patient. If other people were [expressing frustration] ... I just looked at them like, 'Really?'... I used to be [overly demanding] and in that way probably unbearable [as a young manager]." (Charlette)

Contextual Dissonance

A preliminary finding, noted by four participants, concerns contextual dissonance between martial arts hierarchy and democratic organizational structures. Darin noted that the traditional ritual and hierarchy inherent in Muay Thai (E.g., the Wai Kru, deference to the teacher) can be at odds with Western business cultures that prioritize egalitarianism and straightforward objectives.

Boundary Conditions

Participants emphasized that positive transfer is not inherent to the sport but relies on reflective practice and the specific training environment. Technical gyms that focus on skill acquisition (Muay Femur style) were described as fostering better leadership traits than gyms focused

purely on aggression or brawling (Muay Mat style). As Jamul noted, maintaining a culture of learning is essential to prevent the dilution of martial arts values into mere violence.

4.1.5 Summary of Qualitative Findings

Regarding Process, managers described a transfer mechanism based on "somatic reconditioning," where physical exposure to controlled stress lowers physiological arousal during professional challenges. Regarding Relevant Aspects, nine of thirteen participants explicitly identified live sparring as the most critical component for leadership development, citing its ability to simulate VUCA environments. Conversely, Sebastiano argued for pad-work as a superior tool for learning leadership signaling. Regarding Challenges, the data highlighted a risk of "empathy erosion," where resilient leaders may lose patience with colleagues lacking similar outlets.

These findings directly informed the construction of the quantitative survey (Appendix B). For example: the finding regarding nonverbal cue detection informed the addition of an item to Q3 (Sensing scale): "I pick up on nonverbal cues and body language that reveal others' true intentions." The stress relativization mechanism prompted the addition of an item to Q7 (Resilience scale): "Professional challenges feel less threatening to me than they once did."
The negative transfer findings directly shaped Q15 (Potential Side Effects), which includes items on aggression ("I sometimes feel an impulse to be overly aggressive") and impatience ("I have less patience for colleagues who hesitate").

The consensus around sparring as the primary transfer mechanism informed Q14b, which asks practitioners to identify the most impactful training component.

4.2 Quantitative Findings

4.2.1 Data Screening and Analytic Sample

A total of 134 responses were recorded. After removing 1 incomplete response, 4 failed attention checks, 1 sedentary/inactive case, 16 cases that did not fit the strict Muay Thai Treatment/clean Control criteria, and 3 implausible entries (management tenure > $age - 18$), the final analytic sample comprised n=109 managers (Control $n = 63$; Practitioner $n = 46$). As there were no missing values for covariates in this final set, the full sample (N=109) was utilized for all GLM/MANCOVA tests.

4.2.2 Psychometric Properties of Microfoundation Measures

Internal consistency was assessed using Cronbach's alpha (α). The adapted **Sensing** scale showed acceptable reliability (Control $\alpha = .745$; Practitioner $\alpha = .787$). **Seizing** was acceptable overall but lower in the control group (Control $\alpha = .653$; Practitioner $\alpha = .764$), consistent with the short item count ($k = 3$) and exploratory adaptation to the individual level. The **Resilience** composite showed acceptable reliability (Control $\alpha = .754$; Practitioner $\alpha = .756$).

The Transforming items (two-item exploratory subscale; third Q5 item was an attention check and excluded) showed poor internal consistency (Control $\alpha = .226$; Practitioner $\alpha = -.002$). Accordingly, Transforming is reported descriptively and excluded from hypothesis tests.

4.2.3 Descriptive Statistics and Group Comparability

Table 3 presents covariate comparisons between groups. Groups did not differ significantly on age, management tenure, or meditation frequency. However, practitioners reported significantly higher weekly physical activity, which was therefore controlled for in subsequent analyses.

Table 3: Group Comparability (Covariates)

Variable	Practitioners (n=46)	Controls (n=63)	t	p
Age (years)	38.20 (8.38)	39.75 (10.34)	0.84	.405
Management Tenure (years)	9.40 (5.29)	10.46 (7.61)	0.81	.419
Meditation Frequency	2.48 (1.09)	2.41 (1.42)	-0.27	.794
Weekly Physical Activity (hrs)	9.90 (2.80)	6.62 (3.16)	-5.61	<.001

Note: Values are M (SD). 5-point Meditation frequency scale (1=Never to 5=Daily).

4.2.4 H1 and H2: Group Differences in Microfoundations and Resilience

Hypothesis 1 predicted higher individual-level Sensing and Seizing microfoundations among practitioners. A MANCOVA was estimated ($N = 109$), controlling for *Age*, *Management Tenure*, *Meditation Frequency*, and *Total Weekly Physical Activity*.

H2 predicted higher Resilience. Both hypotheses were tested using covariance analysis (N=109), controlling for age, management tenure, meditation frequency, and weekly physical activity.

For H1, MANCOVA assumptions were satisfied: Box's M test (p=.096) and Levene's tests (Sensing p=.137; Seizing p=.184) were non-significant. The multivariate effect of group was significant (Pillai's Trace=.399, F(2,102)=33.89, p<.001), and univariate tests confirmed significant group differences for both Sensing and Seizing (Table 4).

For H2, ANCOVA revealed a significant group effect on Resilience (Table 4). Management tenure was also a significant predictor (p=.017).

Table 4: Group Differences in Microfoundations and Resilience

Outcome	Practitioners M_adj (SE)	Controls M_adj (SE)	F(1,103)	p	η^2p
Sensing	5.77 (0.17)	3.86 (0.14)	67.23	<.001	.395
Seizing	5.66 (0.17)	4.01 (0.14)	48.02	<.001	.318
Resilience	4.23 (0.08)	3.23 (0.07)	84.75	<.001	.451

Note: Sensing and Seizing tested via MANCOVA (Pillai's Trace=.399, F(2,102)=33.89, p<.001); Resilience tested via ANCOVA. All models adjusted for age, management tenure, meditation frequency, and weekly physical activity.

H1 and H2 are both supported (Table 4). Muay Thai practitioners reported significantly higher Sensing, Seizing, and Resilience scores than active controls, even after controlling for age, management experience, meditation, and physical activity levels.

4.2.5 H3: Dose-Response Relationship of Sparring Intensity Within Practitioners

Hypothesis 3 tested whether sparring intensity predicts self-reported microfoundational capabilities beyond training volume and demographics within practitioners ($n = 46$). Hierarchical regressions were estimated in three steps:

1. **Controls:** Age, Management Tenure, Meditation Frequency
2. **Training Volume:** Training Years, Training Hours/Week
3. **Intensity:** Moderate and Hard (reference: Technical/Light)

This approach first accounts for demographic differences (Step 1), then for how much practitioners train (Step 2), before testing whether training intensity adds predictive value beyond volume alone (Step 3).

Collinearity was acceptable (VIF < 1.9 for training and intensity terms). As shown in Table 5, adding intensity in Step 3 significantly improved model fit for all outcomes: Sensing (ΔR^2 = .104, p = .048), Seizing (ΔR^2 = .138, p = .017), and Resilience (ΔR^2 = .103, p = .032). In other words, knowing a practitioner's sparring intensity explains an additional 10–14% of variance beyond training volume alone.

Moderate intensity consistently predicted higher scores across all outcomes, while Hard intensity was marginal or non-significant. This suggests an optimal challenge point rather than a linear dose-response relationship.

Table 5: Hierarchical Regression: Intensity Effects (Step 3)

Outcome	R^2	ΔR^2	p (ΔR^2)	Moderate β (p)	Hard β (p)
Sensing	.401	.104	.048	.42 (.014)	.25 (.140)
Seizing	.428	.138	.017	.50 (.004)	.27 (.129)
Resilience	.485	.103	.032	.41 (.010)	.30 (.059)

Note: n = 46 practitioners. Reference category = Technical/Light intensity. β = standardized coefficient. Full regression outputs in Appendix E.3.

Hypothesis 3 is supported, with **moderate intensity** emerging as the most consistent intensity-related predictor across outcomes.

4.2.6 Exploratory: Sensing-Seizing Association by Group

To descriptively probe the sensing-seizing linkage at the individual level, a Pearson correlation was calculated between Sensing scores and Seizing scores, separately for each group.

- **Control** (sport-active non-sparring individuals): $r = .749, p < .001$ $(n = 63)$
- **Practitioner** (Muay Thai Sparring): $r = .832, p < .001$ $(n = 46)$

The association was numerically higher among practitioners, descriptively consistent with the interpretation that stress exposure may reduce hesitation between recognizing signals and acting (though formal moderation tests were not conducted). In other words, this indicates that practitioners who sense well also seize well (more consistently than controls).

4.2.7 Exploratory: Negative Transfer

Negative transfer was assessed among respondents who reported practicing combat sports (Muay Thai treatment group; $N = 46$). Overall, endorsement of maladaptive tendencies was low to moderate (Table 6). "Less patience for colleagues who hesitate" showed the highest mean (M = 3.46, SD = 1.49), whereas "an impulse to be overly aggressive" was lowest (M = 1.67, SD = 1.18). These descriptive results suggest that, if negative transfer occurs, it may be more likely to manifest as reduced tolerance for hesitation rather than overt aggression. These patterns align with qualitative findings, where several participants described reduced patience for hesitant colleagues (E.g., Charlette, Jonas) while explicitly rejecting overt aggression as counterproductive.

Table 6: Negative Transfer

Item	M	SD
I sometimes feel an impulse to be overly aggressive	1.67	1.18
I sometimes make decisions too quickly under pressure	2.83	1.53
My physical ability sometimes makes me feel superior	2.22	1.47
I have less patience for colleagues who hesitate	3.46	1.49

5 Discussion

5.1 Overview

This exploratory mixed-methods study examined whether Muay Thai training, especially live sparring, is associated with stronger self-reported sensing and seizing enactment capacities and higher stress resilience among managers. Drawing on Stress Inoculation Training (SIT) (Meichenbaum, 1985), we proposed that a key failure mode under disruption can be stress-contingent action inhibition: managers may recognize threats or opportunities yet hesitate to commit under acute pressure (a sensing-seizing gap).

Because the design was cross-sectional, self-reported, and non-randomized, the findings do not establish causality or temporal precedence, and selection or survivorship effects cannot be ruled out. Accordingly, the quantitative results were interpreted as associations consistent with SIT-based mechanisms, while the qualitative findings primarily illuminated perceived transfer processes.

Results converged across methods: compared with an active non-combat control group, practitioners reported higher sensing and seizing microfoundations and higher Resilience, controlling for age, management tenure, meditation, and weekly physical activity (N=109). Among Muay Thai practitioners (n=46), typical sparring intensity predicted sensing, seizing, and resilience even after controlling for training volume and demographics. This aligns with SIT's view that exposure to the stressor (pressure) is a key driver. Transforming was assessed only exploratorily and could not be measured reliably at the individual level in this dataset (Practitioner α = -.002), so we do not interpret it and focus instead on sensing, seizing, and resilience.

5.2 Convergence of Qualitative and Quantitative findings

Sensing as "somatic pattern recognition"

Interviewees described sensing not only as deliberate scanning but as embodied vigilance, such as reading micro-movements and intent under time pressure. They reported this transferring to meetings and negotiations as better detection of nonverbal cues and shifting stakeholder evaluations. This interpretation is consistent with research framing opportunity recognition as pattern recognition, in which people rely on cognitive frameworks to notice meaningful

connections across otherwise separate cues (Baron & Ensley, 2006). It also aligns with combat-sport evidence that implicit perceptual-motor training can enhance decision accuracy and visual-search efficiency in skilled karate fighters (Milazzo et al., 2016). For example, Jamul described quickly sizing up whether a counterpart is "aggressive, outgoing, or withdrawn" and adjusting accordingly. This fits recognition-primed decision making, in which experienced individuals recognize a situation as a familiar type, cue an initial course of action, and then mentally simulate and adapt it (Klein, 1993). Consistent with this, practitioners reported higher sensing than controls in adjusted models ($F(1,103)=67.226$, $p<.001$, $\eta^2p=.395$; adjusted means 5.767 vs 3.860). While self-reported results cannot confirm perceptual accuracy, the alignment between reported experience and group-level differences supports a coherent mixed-method pattern: managers who practice Muay Thai with sparring report stronger sensing-related microfoundations, including interpersonal cue detection.

Seizing Microfoundations as Trained Commitment Under Pressure

The overlap here is about the moment of commitment. Interviewees repeatedly contrasted "knowing what to do" with "actually doing it," and described sparring consequences as training a bias toward action over hesitation, supported by concrete regulation tactics (breathing, resets, reframing). This pattern is consistent with the threat rigidity literature, which suggests that threat can restrict information processing and increase reliance on well learned responses, reducing flexibility when the situation demands adaptation (Gilbert, 2006; Staw et al., 1981).

The qualitative data suggest that sparring may counteract this rigidity. Jo noted that when a strike fails you must adjust immediately, and a project manager should ask "What are we doing now?" rather than dwelling on the error. Helen added that training conditioned her to suppress the urge to "close down" during a crisis and instead "lean in" to the friction. The quantitative result matches that theme: practitioners also reported higher seizing microfoundations ($F(1,103)=48.018$, $p<.001$, $\eta^2p=.318$; adjusted means 5.656 vs 4.013). While not proving that they are objectively better, it shows that both the interviews and the survey point to the same pattern. They hesitate less and commit faster under uncertainty, which is what the seizing items measure.

Resilience as Staying Functional and Recovering Faster (Q7)

Resilience is where the quantitative effect is strongest and the interviews explain what "resilience" looked like in practice. Practitioners reported higher resilience than controls

($F(1,103)=84.754$, $p<.001$, $\eta^2p=.451$; adjusted means 4.226 vs 3.228). Interviews clarify that this was not mainly described as 'positivity', but as staying functional during pressure and recovering faster after setbacks, often through "relativizing" professional stress compared with sparring. This relativization mechanism aligns with transactional stress theory, which defines psychological stress as a person-environment relationship appraised as taxing or exceeding one's resources and endangering well-being (Lazarus & Folkman, 1984). As described in Section 2.4, Muay Thai may help managers feel more capable of handling pressure, so demanding situations feel more like manageable challenges than threats (Lazarus & Folkman, 1984). Sebastiano's account of using intense training to achieve mental clarity before a difficult negotiation ("He made me train until I was on the floor cramping. Afterward, the negotiation felt manageable by comparison") exemplifies this reappraisal process. Similarly, Jamul's adage that "the only fighter who never lost is the fighter who never fought" frames setbacks as part of learning, which parallels Kantur and Iseri-Say's view of organizational evolvability as the outcome of resilience, marked by recovery, adaptation or continuity, and renewal in an improved post-event state with greater understanding and sensitivity (Kantur & Iseri-Say, 2012). At the same time, the interviews add an important limit and potential negative transfer. Some managers reported an empathy gap with colleagues who feel overwhelmed by minor stress. This suggests resilience gains can come with interpersonal costs.

Boundary Conditions and Negative Transfer

Here, our qualitative and quantitative exploratory findings overlap notably. In interviews, we heard that the "fighter mindset" can sometimes backfire at work through being too quick to act, too direct, or hard to switch off. This is consistent with Barnett and Ceci's (2002) taxonomy of far transfer, which emphasizes that transfer depends on how training and application contexts differ and that applying prior routines can sometimes backfire as negative transfer when a learned procedure is carried into a setting where it does not fit. Sebastiano's concept of "Hunting Mode" illustrates this risk because some practitioners become "hectic" and unable to deactivate this aggressive state, leading to inappropriate responses in negotiations. Charlette's observation that the martial arts filter can create a "survival of the fittest" bias, reducing patience for perceived weakness in colleagues, supports the same concern. As Osman (2010) argues, self-monitoring has adaptive value because regularly assessing the effectiveness of one's actions can prompt quick adjustments to meet changing demands in uncertain environments. On the 1 to 7 scale, even the highest negative transfer remained below the midpoint. In our practitioner survey, the highest endorsement was less patience for colleagues who hesitate when decisions

are needed (M=3.46), followed by making decisions too quickly under pressure (M=2.83). By contrast, feeling superior to peers (M=2.22) and an impulse to be aggressive in professional conflicts (M=1.67) were lower. Overall, negative transfer appears more likely to take the form of impatience and speed under pressure than any overt aggression.

5.3 Within-Group Evidence: The Impact of Training Intensity (H3)

The strongest rival explanation is selection and survivorship. Stress-tolerant individuals may be more likely to persist in sparring-based training, meaning observed differences could reflect filtering (selection) rather than training effects. Our design cannot eliminate this possibility.

This is why H3 is pivotal. Within practitioners (n=46), sparring intensity explained incremental variance in outcomes beyond demographics and training volume: ΔR^2=.104 for Sensing (p=.048), ΔR^2=.138 for Seizing (p=.017), and ΔR^2=.103 for Resilience (p=.032). This pattern is less consistent with a general exercise or training volume explanation, since we control for training years and hours per week, and overall weekly physical activity was covaried in the between-group models and was non-significant there. Instead, it fits SIT's stressor-specific logic that exposure intensity should matter, and it is less consistent with a "commitment-only" story where training volume would be expected to dominate. This finding aligns with the three-phase structure of stress inoculation training described by Meichenbaum and echoed in applied adaptations such as stress exposure training (Meichenbaum, 1985; Driskell & Johnston, 1998). In the application and follow-through phase, coping skills are practiced and applied in progressively more demanding, criterion-like situations to support generalization beyond training. The qualitative data support this interpretation. Nine of thirteen participants explicitly identified live sparring as the most critical component for leadership development, citing its ability to simulate VUCA environments (Section 4.1.5).

At the same time, the intensity pattern is not monotonic. Moderate intensity was the most consistent predictor, while hard sparring was only marginal for Resilience (p=.059) and non-significant for Sensing (p=.140) and Seizing (p=.129). One interpretation draws on the Challenge Point Framework (Guadagnoli & Lee, 2004), which argues that learning is optimized at an intermediate level of functional task difficulty. When difficulty is too high, available information becomes unmanageable and learning is reduced. This logic parallels stress

exposure training principles, which emphasize graduated challenge to prevent overwhelming trainees while still approximating criterion demands (Driskell & Johnston, 1998).

The qualitative data offer additional texture to this pattern. Jamul distinguished between technical gyms that prioritize skill acquisition and gyms oriented purely toward aggression, arguing that the former foster better leadership traits. Martin similarly advocated for the playful or flow-based approach native to Thailand over the rigid and aggressive training styles often found in Europe, suggesting that a relaxed mind adapts faster than a tense one. Another is that the "hard" category is smaller or more heterogeneous, which would produce noisier estimates. A third is measurement variation, since respondents may interpret "hard/competitive" differently across gyms and cultures. These interpretations are plausible rather than proven. With n=46 practitioners and seven predictors, the regression estimates are less precise and should be treated as preliminary signals that motivate more refined intensity measurement.

5.4 Effect sizes and Self-Report Inflation Risks

Our observed effect sizes ($\eta^2p \approx .32$-$.45$) were large for behavioral research, so we interpreted them cautiously. In a cross-sectional, non-randomized, self-report design, differences can be inflated by selection or survivorship, common method variance, and respondents answering in ways that fit their identity and investment in training (E.g. going to Thailand). One plausible interpretation is that Muay Thai practitioners develop not only better stress regulation habits, but also stronger self-efficacy as people who can handle pressure. In VUCA situations, that belief can matter in its own right, because it may reduce hesitation and support decisive action, even if some of the measured difference reflects identity and self-perception rather than physiological disposition. Thus, rather than mere error, this inflation might serve a functional role. By bolstering self-efficacy, the training could mitigate anxiety-induced paralysis, potentially converting subjective confidence into actionable capacity.

5.5 Transforming (Exploratory): Level-of-Analysis Boundary

Given our focus on the sensing-seizing gap, transforming was only assessed exploratorily. However, it showed unacceptable reliability (Practitioner $\alpha = -.002$), suggesting this construct may not be capturable at the individual level with the present instrument. Compared to sensing and seizing, which map more directly onto individual readiness and commitment under pressure, **transforming may be harder to capture at the individual level** because it often

depends on longer-horizon coordination and organizational constraints. Accordingly, we do not interpret Transforming and focus on sensing, seizing, and resilience.

5.6 The Sensing-Seizing Gap: Promising Construct, Under-Identified Measurement

We defined the sensing-seizing gap as stress-contingent action inhibition at decision points. As elaborated in Section 2.2 and Appendix C, this construct is distinct from adjacent phenomena. Threat rigidity emphasizes restricted information processing and more centralized control under threat, often producing reliance on dominant, well learned responses and reduced flexibility (Staw et al., 1981). Structural inertia operates at the organizational level through constraints such as routines, sunk costs, internal coalitions, and legitimacy and accountability pressures, rather than individual stress responses (Hannan & Freeman, 1984). The sensing-seizing gap instead concerns individual-level inhibition at the moment of commitment, even when recognition of what to do is intact. Our qualitative findings are compatible with this mechanism, especially with accounts of reduced freezing and faster commitment under pressure. Linda's contrast between the paralysis of "future tripping" and the immediate presence required in combat, and Helen's description of overriding the biological intuition to retreat, both illustrate the stress-contingent nature of this inhibition.

Quantitatively, we could only probe the sensing-seizing relationship indirectly using correlations between our Sensing and Seizing scales: Control r=.749 (n=63) versus Practitioner r=.832 (n=46). This is directionally consistent with a tighter coupling among practitioners, but it does not test stress-contingent inhibition, and we did not evaluate the difference with a formal moderation test.

The main reason is measurement feasibility: capturing inhibition at the decision point typically requires behavioral data collected under time pressure or induced stress, which is difficult to implement with working managers in a short, cross-sectional online study. The construct remains theoretically useful, but it is empirically under-identified in the present design.

5.7 Micro-to-Macro Translation: Necessary but Insufficient

DC are firm-level constructs, while our measures capture self-reported individual-level microfoundations that theory suggests can contribute to collective routines and capabilities. As Felin et al. (2012) state, routines and capabilities can be explained via microfoundations in

individuals, processes and interactions, and structure, and by how these elements aggregate into collective constructs. Teece (2023) likewise distinguishes high-level sensing, seizing, and transforming from their underlying microfoundations.

Our findings therefore address these individual-level readiness elements for sensing and seizing, rather than firm-level DC themselves. Even if embodied stress exposure is associated with greater individual sensing and seizing readiness, translation into firm outcomes depends on organizational conditions, such as decision rights, psychological safety, incentive alignment, and resource flexibility. Chen et al. (2023) argue that microfoundations extend beyond individuals to structural elements such as rule systems and organizational design that can enable or constrain how individual agency is exercised. Interviewee Martin's warning that physical resilience can reduce patience for hesitant colleagues suggests that individual-level gains may generate group-level friction if they are not managed carefully. Our contribution is, therefore, best framed as identifying a plausible individual-level input that helps inform firm-level sensing and seizing under uncertainty.

6 Conclusion

This thesis deploys DC using Muay Thai sparring as an example of controlled stress exposure to close the sensing and seizing gap. We measured self-reported sensing and seizing microfoundations and resilience at the individual level across interviews and a survey, with active non-combat controls. Practitioners reported higher Sensing (η^2p=.395), Seizing (η^2p=.318), and Resilience (η^2p=.451). Within practitioners (n=46), sparring intensity explained additional variance beyond demographics and training volume (ΔR^2=.104 for Sensing, .138 for Seizing, .103 for Resilience). These results provide convergent, preliminary evidence consistent with stress inoculation logic.

At the same time, the cross-sectional, self-report design prevents causal claims and cannot rule out self-selection or survivorship. The Research Question's "how" was addressed primarily through qualitative accounts of transfer mechanisms, while quantitative results were interpreted as associations consistent with SIT rather than demonstrated developmental effects. Moreover, Transforming showed unacceptable reliability (Practitioner α= -.002) and was excluded, so the study cannot claim effects across the full sensing, seizing, and transforming cycle.

This thesis advances microfoundations by proposing that strategic inaction may trace to stress-contingent inhibition at the individual level. Recognizing threats may be intact while commitment to action falters under arousal. Strategic management and Stress Inoculation Training are proposed as a plausible pathway whereby embodied practice under controlled stress may enhance managerial agency when deliberation is compromised. We finally provide an embodied perspective on leadership development, showing that reported transfer is not purely cognitive. Practitioners describe sensing and seizing as shaped by procedural vigilance, regulation routines, and learned commitment under uncertainty, alongside identifiable risks of negative transfer such as impatience and miscalibrated assertiveness.

Future research should test these mechanisms more directly. Longitudinal designs tracking managers from pre-sparring to regular sparring would help separate training effects from selection. Behavioral operationalizing of the sensing, seizing gap under time pressure, such as decision latency, commitment initiation, multi-source ratings, and physiological recovery indicators, would align measurement with theory more tightly. Finally, multi-level studies

should examine when individual readiness translates into organizational seizing, testing moderators such as decision rights and psychological safety.

In sum, this study offers early evidence that sparring-based training is associated with higher self-reported sensing, seizing, and resilience among managers. The central claim is not that combat sports create DC, but that embodied exposure to controlled stress may be a pathway for managers to manage themselves when hesitation is costly, thereby compromising DC. This insight warrants more rigorous causal and multi-level testing.

7 Bibliography

Andreato, L. V., Julio, U. F., Gonçalves Panissa, V. L., Del Conti Esteves, J. V., Hardt, F., Franzói de Moraes, S. M., Oliveira de Souza, C., & Franchini, E. (2015). Brazilian jiu-jitsu simulated competition part II: Physical performance, time-motion, technical-tactical analyses, and perceptual responses. *The Journal of Strength & Conditioning Research, 29*(7), 2015–2025. https://doi.org/10.1519/JSC.0000000000000819

Ansoff, H. I. (1975). Managing strategic surprise by response to weak signals. *California Management Review, 18*(2), 21–33. https://doi.org/10.2307/41164635

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly, 21*(6), 1086–1120. https://doi.org/10.1016/j.leaqua.2010.10.010

Arnsten, A. F. T. (2009). Stress signalling pathways that impair prefrontal cortex structure and function. *Nature Reviews Neuroscience, 10*(6), 410–422. https://doi.org/10.1038/nrn2648

Bakker, A. B. (2008). The work-related flow inventory: Construction and initial validation of the WOLF. *Journal of Vocational Behavior, 72*(3), 400–414. https://doi.org/10.1016/j.jvb.2007.11.007

Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin, 128*(4), 612–637. https://doi.org/10.1037/0033-2909.128.4.612

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. B. (2001). Is the resource-based "view" a useful perspective for strategic management research? Yes. *Academy of Management Review, 26*(1), 41–56. https://doi.org/10.5465/AMR.2001.4011938

Barney, J. B., Ketchen, D. J., Jr., & Wright, M. (2021). Resource-based theory and the value creation framework. *Journal of Management, 47*(7), 1936–1955. https://doi.org/10.1177/01492063211021655

Baron, R. A., & Ensley, M. D. (2006). Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management Science, 52*(9), 1331–1344. https://doi.org/10.1287/mnsc.1060.0538

Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management, 36*(1), 256–280. https://doi.org/10.1177/0149206309350776

Beckett, D., & Morris, G. (2001). Ontological performance: Bodies, identities and learning. *Studies in the Education of Adults, 33*(1), 35–48. https://doi.org/10.1080/02660830.2001.11661439

Beer, M., Finnström, M., & Schrader, D. (2016). Why leadership training fails-and what to do about it. *Harvard Business Review, 94*(10), 50–57. https://hbr.org/2016/10/why-leadership-training-fails-and-what-to-do-about-it

Bennett, N., & Lemoine, G. J. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business Horizons, 57*(3), 311–317. https://doi.org/10.1016/j.bushor.2014.01.001

Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods* (5th ed.). Oxford University Press.

Bennis, W. (1989). *Why leaders can't lead: The unconscious conspiracy continues*. Jossey-Bass.

Best, J. R. (2010). Effects of physical activity on children's executive function: Contributions of experimental research on aerobic exercise. *Developmental Review, 30*(4), 331–351. https://doi.org/10.1016/j.dr.2010.08.001

Bezos, J. P. (2017, April 17). *2016 letter to shareholders*. About Amazon. https://www.aboutamazon.com/news/company-news/2016-letter-to-shareholders

Blake, J. (1999). Overcoming the 'value-action gap' in environmental policy: Tensions between national policy and local experience. *Local Environment, 4*(3), 257–278. https://doi.org/10.1080/13549839908725599

Brannick, T., & Coghlan, D. (2007). In defense of being "native": The case for insider academic research. *Organizational Research Methods, 10*(1), 59–74. https://doi.org/10.1177/1094428106289253

Cameron, R., & Molina-Azorin, J. F. (2011). The acceptance of mixed methods in business and management research. *International Journal of Organizational Analysis, 19*(3), 256–271. https://doi.org/10.1108/19348831111149204

Chen, Y., Liu, L., Li, W., Xie, Z., & Wei, C. (2023). Microfoundations of dynamic capabilities: A systematic review and a multilevel framework. *Management Decision, 61*(6), 1717–1753. https://doi.org/10.1108/MD-05-2022-0615

Chinkov, F., & Holt, N. L. (2016). Implicit transfer of life skills through participation in Brazilian Jiu-Jitsu. *Journal of Applied Sport Psychology, 28*(2), 139–153. https://doi.org/10.1080/10413200.2015.1086447

Christensen, C. M. (2016). *The innovator's dilemma: When new technologies cause great firms to fail* (Reprint ed.). Harvard Business Review Press. (Original work published 1997)

Chua, L.-K., Dimapilis, M. K., Iwatsuki, T., Abdollahipour, R., Lewthwaite, R., & Wulf, G. (2019). Practice variability promotes an external focus of attention and enhances motor skill learning. *Human Movement Science, 64,* 307–319. https://doi.org/10.1016/j.humov.2019.02.015

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*(2), 76–82. https://doi.org/10.1002/da.10113

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.

Cristofaro, M., & Lovallo, D. (2022). From framework to theory: An evolutionary view of dynamic capabilities and their microfoundations. *Journal of Management and Organization, 28*(3), 429–450. https://doi.org/10.1017/jmo.2022.35

Croom, A. M. (2022). Muay Thai, psychological well-being, and cultivation of combat-relevant affordances. *Philosophies, 7*(3), 65. https://doi.org/10.3390/philosophies7030065

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.

Dannels, L. P., & Masters, J. D. (2020). Getting executives to SIT: building leaders' resilience and stress tolerance for enhanced organizational effectiveness. *Development and Learning in Organizations: An International Journal, 34*(5), 1–4. https://doi.org/10.1108/DLO-05-2019-0122

Day, D. V. (2000). Leadership development: A review in context. *The Leadership Quarterly, 11*(4), 581–613. https://doi.org/10.1016/S1048-9843(00)00061-8

Demerouti, E. (2006). Job characteristics, flow, and performance: The moderating role of conscientiousness. *Journal of Occupational Health Psychology, 11*(3), 266–280. https://doi.org/10.1037/1076-8998.11.3.266

Di Russo, F., Taddei, F., Apnile, T., & Spinelli, D. (2006). Neural correlates of fast stimulus discrimination and response selection in top-level fencers. *Neuroscience Letters, 408*(2), 113–118. https://doi.org/10.1016/j.neulet.2006.08.085

Dietrich, A. (2004). Neurocognitive mechanisms underlying the experience of flow. *Consciousness and Cognition, 13*(4), 746–761. https://doi.org/10.1016/j.concog.2004.07.002

Döner, E., & Efeoğlu, İ. E. (2023). Being affected by VUCA factors? Developing the "Perceived VUCA Exposure" scale. *GAB Akademi, 3*(2), 28–53. https://doi.org/10.5281/zenodo.10448744

Driskell, J. E., & Johnston, J. H. (1998). Stress exposure training. In J. A. Cannon-Bowers & E. Salas (Eds.), *Making decisions under stress: Implications for individual and team training* (pp. 191–217). American Psychological Association. https://doi.org/10.1037/10278-007

Driskell, J. E., Johnston, J. H., & Salas, E. (2001). Does stress training generalize to novel settings? Human Factors, 43(1), 99–110. https://doi.org/10.1518/001872001775992471

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal, 21*(10-11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Evans, J. St. B. T., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on Psychological Science, 8*(3), 223–241. https://doi.org/10.1177/1745691612460685

Felin, T., Foss, N. J., Heimeriks, K. H., & Madsen, T. L. (2012). Microfoundations of routines and capabilities: Individuals, processes, and structure. *Journal of Management Studies, 49*(8), 1351–1374. https://doi.org/10.1111/j.1467-6486.2012.01052.x

Francesconi, D., & Tarozzi, M. (2012). Embodied education: A convergence of phenomenological pedagogy and embodiment. *Studia Phaenomenologica, 12*, 263–288. https://doi.org/10.7761/SP.12.263

Fryer, R. G., Jr., & Jackson, M. O. (2008). A categorical model of cognition and biased decision making. *The B.E. Journal of Theoretical Economics, 8*(1), Article 6. https://doi.org/10.2202/1935-1704.1357

Fugate, J. M. B., Macrine, S. L., & Cipriano, C. (2019). The role of embodied cognition for transforming learning. *International Journal of School & Educational Psychology, 7*(4), 274–288. https://doi.org/10.1080/21683603.2018.1443856

Ghosh, S., Hughes, M., Hodgkinson, I., & Hughes, P. (2022). Digital transformation of industrial businesses: A dynamic capability approach. Technovation, 113, Article 102414. https://doi.org/10.1016/j.technovation.2021.102414

Gilbert, C. G. (2006). Change in the presence of residual fit: Can competing frames coexist? *Organization Science, 17*(1), 150–167. https://doi.org/10.1287/orsc.1050.0160

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia Methodology. *Organizational Research Methods, 16*(1), 15–31. https://doi.org/10.1177/1094428112452151

Goleman, D. (1998). The emotional intelligence of leaders. *Leader to Leader,* (10), 20–26. https://doi.org/10.1002/ltl.40619981008

Gómez-Nieto, R., Hormigo, S., & López, D. E. (2020). Prepulse inhibition of the auditory startle reflex assessment as a hallmark of brainstem sensorimotor gating mechanisms. *Brain Sciences, 10*(9), Article 639. https://doi.org/10.3390/brainsci10090639

Greenwood, P. M., & Parasuraman, R. (2010). Neuronal and cognitive plasticity: A neurocognitive framework for ameliorating cognitive aging. *Frontiers in Aging Neuroscience*, 2, 150. https://doi.org/10.3389/fnagi.2010.00150

Guadagnoli, M. A., & Lee, T. D. (2004). Challenge point: A framework for conceptualizing the effects of various practice conditions in motor learning. *Journal of Motor Behavior, 36*(2), 212–224. https://doi.org/10.3200/JMBR.36.2.212-224

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *Annals of Family Medicine, 13*(6), 554–561. https://doi.org/10.1370/afm.1865

Gulbin, J. P., Croser, M. J., Morley, E. J., & Weissensteiner, J. R. (2013). An integrated framework for the optimisation of sport and athlete development: A practitioner approach. *Journal of Sports Sciences, 31*(12), 1319–1331. https://doi.org/10.1080/02640414.2013.781661

Gurdjian, P., Halbeisen, T., & Lane, K. (2014). Why leadership-development programs fail. *McKinsey Quarterly,* (1), 121–126. https://www.mckinsey.com/featured-insights/leadership/why-leadership-development-programs-fail

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review, 49*(2), 149–164. https://doi.org/10.2307/2095567

Harvey, W. S. (2011). Strategies for conducting elite interviews. *Qualitative Research, 11*(4), 431–441. https://doi.org/10.1177/1468794111404329

Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of Management, 41*(5), 1281–1312. https://doi.org/10.1177/0149206314561301 [Online first 2014]

Helfat, C. E., & Peteraf, M. A. (2014). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal, 36*(6), 831–850. https://doi.org/10.1002/smj.2247

Helfat, C. E., & Winter, S. G. (2011). Untangling dynamic and operational capabilities: Strategy for the (N)ever-changing world. *Strategic Management Journal, 32*(11), 1243–1250. https://doi.org/10.1002/smj.955

Heubeck, T. (2023). Managerial capabilities as facilitators of digital transformation? Dynamic managerial capabilities as antecedents to digital business model transformation and firm performance. *Digital Business, 3*(1), Article 100053. https://doi.org/10.1016/j.digbus.2023.100053

Ilmola, L., & Kuusi, O. (2006). Filters of weak signals hinder foresight: Monitoring weak signals efficiently in corporate decision-making. *Futures, 38*(8), 908–924. https://doi.org/10.1016/j.futures.2005.12.019

Johnston, J. H., & Cannon-Bowers, J. A. (1996). Training for stress exposure. In J. E. Driskell & E. Salas (Eds.), *Stress and human performance* (pp. 223–256). Lawrence Erlbaum Associates.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

Kahneman, D. (2011). Thinking, fast and slow. Farrar, Straus and Giroux.

Kantur, D., & İşeri-Say, A. (2012). Organizational resilience: A conceptual integrative framework. *Journal of Management & Organization, 18*(6), 762–773. https://doi.org/10.5172/jmo.2012.18.6.762

Klein, G. A. (1993). A recognition-primed decision (RPD) model of rapid decision making. In G. A. Klein, J. Orasanu, R. Calderwood, & C. E. Zsambok (Eds.), *Decision making in action: Models and methods* (pp. 138–147). Ablex Publishing.

Klein, G. (1996). The effect of acute stressors on decision making. In J. E. Driskell & E. Salas (Eds.), *Stress and human performance* (pp. 49–88). Lawrence Erlbaum

Koch, P., & Krenn, B. (2021). Executive functions in elite athletes—Comparing open-skill and closed-skill sports and considering the role of athletes' past involvement in both sport categories. *Psychology of Sport and Exercise, 55*, Article 101925. https://doi.org/10.1016/j.psychsport.2021.101925

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Kostorz, K., & Sas-Nowosielski, K. (2021). Aggression dimensions among athletes practising martial arts and combat sports. *Frontiers in Psychology, 12*, Article 696943. https://doi.org/10.3389/fpsyg.2021.696943

Kotter, J. P. (1990). What leaders really do. Harvard Business Review, 68(3), 103–111.

Krakauer, J. W., Hadjiosif, A. M., Xu, J., Wong, A. L., & Haith, A. M. (2019). Motor learning. *Comprehensive Physiology, 9*(2), 613–663. https://doi.org/10.1002/cphy.c170043

Kump, B., Engelmann, A., Kessler, A., & Schweiger, C. (2019). Toward a dynamic capabilities scale: Measuring organizational sensing, seizing, and transforming capacities. *Industrial and Corporate Change, 28*(5), 1149–1172. https://doi.org/10.1093/icc/dty054

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer.

Lidor, R., & Singer, R. N. (2000). Teaching preperformance routines to beginners. *Journal of Physical Education, Recreation & Dance, 71*(7), 34–36. https://doi.org/10.1080/07303084.2000.10605175

MacNamara, Á., & Collins, D. (2015). Second chances: Investigating athletes' experiences of talent transfer. *PLOS ONE, 10*(11), Article e0143592. https://doi.org/10.1371/journal.pone.0143592

McEwen, B. S., & Gianaros, P. J. (2010). Central role of the brain in stress and adaptation: Links to socioeconomic status, health, and disease. *Annals of the New York Academy of Sciences, 1186*, 190–222. https://doi.org/10.1111/j.1749-6632.2009.05331.x

Meichenbaum, D. (1985). *Stress inoculation training*. Pergamon Press.

Milazzo, N., Farrow, D., & Fournier, J. F. (2016). Effect of implicit perceptual-motor training on decision-making skills and underpinning gaze behavior in combat athletes. *Perceptual and Motor Skills, 123*(1), 300–323. https://doi.org/10.1177/0031512516656816

Moore, B., Woodcock, S., & Dudley, D. (2021). Well-being warriors: A randomized controlled trial examining the effects of martial arts training on secondary students' resilience. *British Journal of Educational Psychology, 91*(4), 1369–1394. https://doi.org/10.1111/bjep.12422

Oh, Y.-T., Ryu, M.-A., & Uhm, J.-P. (2025). The role of intramural combat martial arts in enhancing well-being among international students: A combined theoretical approach. *Frontiers in Psychiatry, 16*, Article 1582731. https://doi.org/10.3389/fpsyt.2025.1582731

Orbach, I., & Blumenstein, B. (2022). Preparatory routines for emotional regulation in performance enhancement. *Frontiers in Psychology, 13*, Article 948512. https://doi.org/10.3389/fpsyg.2022.948512

Osman, M. (2010). Controlling uncertainty: A review of human behavior in complex dynamic environments. *Psychological Bulletin, 136*(1), 65–86. https://doi.org/10.1037/a0017815

Pfeffer, J., & Fong, C. T. (2002). The end of business schools? Less success than meets the eye. *Academy of Management Learning & Education, 1*(1), 78–95. https://doi.org/10.5465/AMLE.2002.7373679

Pierce, S., Gould, D., & Camiré, M. (2017). Definition and model of life skills transfer. *International Review of Sport and Exercise Psychology, 10*(1), 186–211. https://doi.org/10.1080/1750984X.2016.1199727

Renden, P. G., Savelsbergh, G. J. P., & Oudejans, R. R. D. (2017). Effects of reflex-based self-defence training on police performance in simulated high-pressure arrest situations. *Ergonomics, 60*(5), 669–679. https://doi.org/10.1080/00140139.2016.1205222

Ripoll, H., Kerlirzin, Y., Stein, J.-F., & Reine, B. (1995). Analysis of information processing, decision making, and visual strategies in complex problem solving sport situations. *Human Movement Science, 14*(3), 325–349. https://doi.org/10.1016/0167-9457(95)00019-O

Roelofs, K. (2017). Freeze for action: neurobiological mechanisms in animal and human freezing. *Philosophical Transactions of the Royal Society B: Biological Sciences, 372*(1718), Article 20160206. https://doi.org/10.1098/rstb.2016.0206

Ruiz-Ortega, M. J., Rodrigo-Alarcón, J., & Parra-Requena, G. (2024). New directions to create dynamic capabilities: The role of pioneering orientation and interorganizational relationships. *European Management Journal, 42*(3), 371–384. https://doi.org/10.1016/j.emj.2023.01.005

Şahin, O., Yılmaz, C., Sezer, S. Y., Şahin, F. N., Ceylan, L., Çelikel, B. E., Tan, Ç., Akkuş Uçar, M., & Kirikoğlu, N. (2025). Muay Thai exercises improve quality of life, love of life and self-control. *Frontiers in Psychology, 16*, Article 1584160. https://doi.org/10.3389/fpsyg.2025.1584160

Salvato, C., & Vassolo, R. (2018). The sources of dynamism in dynamic capabilities. *Strategic Management Journal, 39*(6), 1728–1752. https://doi.org/10.1002/smj.2703

Saunders, T., Driskell, J. E., Johnston, J. H., & Salas, E. (1996). The effect of stress inoculation training on anxiety and performance. *Journal of Occupational Health Psychology, 1*(2), 170–186. https://doi.org/10.1037/1076-8998.1.2.170

Schaefer, S., & Schumacher, V. (2011). The interplay between cognitive and motor functioning in healthy older adults: Findings from dual-task studies and suggestions for intervention. *Gerontology, 57*(2), 239–246. https://doi.org/10.1159/000322197

Schoemaker, P. J. H., Heaton, S., & Teece, D. (2018). Innovation, dynamic capabilities, and leadership. *California Management Review, 61*(1), 15–42. https://doi.org/10.1177/0008125618790246

Sheeran, P., & Webb, T. L. (2016). The intention–behavior gap. *Social and Personality Psychology Compass, 10*(9), 503–518. https://doi.org/10.1111/spc3.12265

Silva, J. J. R., Del Vecchio, F. B., Picanço, L. M., Takito, M. Y., & Franchini, E. (2011). Time-motion analysis in Muay-Thai and kick-boxing amateur matches. *Journal of Human Sport and Exercise, 6(*3), 490–496. https://doi.org/10.4100/jhse.2011.63.02

Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly, 26*(4), 501–524. https://doi.org/10.2307/2392337

Tashakkori, A., & Creswell, J. W. (2007). The new era of mixed methods. *Journal of Mixed Methods Research, 1*(1), 3–7. https://doi.org/10.1177/2345678906293042

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning, 51*(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

Teece, D. J. (2023). The evolution of the dynamic capabilities framework. In R. Adams, D. Grichnik, A. Pundziene, & C. Volkmann (Eds.), *Artificiality and sustainability in entrepreneurship* (pp. 113–129). Springer. https://doi.org/10.1007/978-3-031-11371-0_6

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*(4157), 1124–1131. https://doi.org/10.1126/science.185.4157.1124

Vaeyens, R., Güllich, A., Warr, C. R., & Philippaerts, R. (2009). Talent identification and promotion programmes of Olympic athletes. *Journal of Sports Sciences, 27*(13), 1367–1380. https://doi.org/10.1080/02640410903110974

Vail, P. (2014). Muay Thai: Inventing tradition for a national symbol. *Sojourn: Journal of Social Issues in Southeast Asia, 29*(3), 509–553. https://doi.org/10.1355/sj29-3b

Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning, 52*(3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

Welch, C., Marschan-Piekkari, R., Penttinen, H., & Tahvanainen, M. (2002). Corporate elites as informants in qualitative international business research. *International Business Review, 11*(5), 611–628. https://doi.org/10.1016/S0969-5931(02)00039-2

Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic capabilities and performance: Strategy, structure and environment. *Long Range Planning, 46*(1–2), 72–96. https://doi.org/10.1016/j.lrp.2012.12.001

Williams, A. M., & Elliott, D. (1999). Anxiety, expertise, and visual search strategy in karate. *Journal of Sport & Exercise Psychology, 21*(4), 362–375. https://doi.org/10.1123/jsep.21.4.362

Zaleznik, A. (1977). Managers and leaders: Are they different? *Harvard Business Review, 55*(3), 67–78

8 Appendices

Appendix A: Interview Protocol

Intro

Thank you very much for taking the time today. My name is Aaron, and as part of my master's thesis at the Católica Lisbon School of Business and Economics, I am conducting a study examining how Muay Thai may influence or enhance leadership capabilities in volatile, uncertain, complex, and ambiguous business environments.

Before we begin the interview, I would like to briefly draw your attention to the code of conduct. The data you provide will be anonymized, analyzed exclusively by me, and used solely for research purposes. You may withdraw your data at any time. If you prefer to remain anonymous, I will of course respect that; if not, I can also refer to you by name.

I would now kindly ask you to give your consent for the processing of your data as described.

Opening & Background (5 minutes)

Training Profile:

1. "How long have you been training Muay Thai, and how many sessions per week do you typically attend?"
(establishes intensity for H3)

2. "What motivated you to start and continue Muay Thai training?"
(reveals self-selection factors and potential biases in skill transfer)

3. "What's your typical training mix - pads, sparring, conditioning, clinch work?"
(identifies key components for RQ2)

Professional Context:

4. "Describe your current role and any leadership/management responsibilities."
(context for dynamic capabilities)

5. "Would you describe your work environment as fast-changing, unpredictable, multifaceted, or unclear in some ways? Can you provide specific examples?"
(VUCA validation with illustrations, rephrased for accessibility)

SENSING - Environmental Awareness (7 minutes)

Pattern Recognition:

6. "Tell me about a time you spotted a business risk or opportunity at work that others might have missed. In what ways, if any, did Muay Thai training influence this?"
(sensing capability tied to weak signal detection and perceptual acuity, using "business risk" for business tone)

7. "In what ways, if any, do you read body language and non-verbal cues differently in meetings since starting Muay Thai training?"
(enhanced perception from embodied practices, linking to opponent reading in sparring)

Situational Awareness:

8. "In what ways, if any, has Muay Thai changed how you monitor your work environment for potential risks or opportunities?"
(sensing mechanism and early warning capability, rephrased "scan" to "monitor" for everyday business language)

SEIZING - Taking Action (7 minutes)

Decision Speed:

9. "Describe a quick decision you made at work in a high-pressure situation - in what ways, if any, did your Muay Thai training influence your decisiveness or reduce hesitation?"
(seizing speed, closure of sensing-seizing gap, and intuitive responses, rephrased for clarity)

Confrontation Management:

10. "How do you handle tense situations or difficult colleagues now compared to before training, and has this made you more direct or assertive in professional discussions?"
(conflict navigation and calibrated assertiveness, addressing potential negative transfers, using "tense situations" and "difficult colleagues" for accessibility)

RESILIENCE, RECOVERY, ADAPTATION – Similar to "Transforming" (7 minutes)

Resilience Building:

11. "How do you recover from professional setbacks or failures now compared to before training, and can you compare taking hits in sparring to handling criticism or failure at work?"
(recovery capability via stress inoculation, rephrased "bounce back" to "recover" for business tone)

12. “In what ways, if any, has Muay Thai helped you turn business challenges or failures into growth opportunities?”
(post-disruption evolvability and growth mindset, rephrased antifragility for simplicity)

Continuous Adaptation:

13. “How has training influenced your ability to adjust when plans or situations change unexpectedly at work, compared to before?”
(transforming capability, reconfiguration, and iterative refinement, rephrased for relatability)

STRESS & RESILIENCE MECHANISM (5 minutes)

14. “How does your body respond to work pressure now compared to before training, and has your ability to handle stress improved?”
(physiological changes, stress tolerance, and arousal regulation for H2, rephrased threshold for accessibility)

15. “Do you use breathing techniques or mental strategies from Muay Thai during stressful work moments? If not, what other strategies do you employ?”
(coping mechanisms from SIT phases)

16. “How did progressing from light to full sparring help prepare you for managing rising pressures at work?”
(progressive exposure in stress inoculation, rephrased for business context)

TRANSFER PROCESS - (4 minutes)

RQ1 Focus

17. “When you apply Muay Thai lessons at work, is it a deliberate choice or more instinctive? What specific situations trigger your ‘fighter mindset’ in professional settings?”
(deliberate vs unconscious transfer and activation mechanisms, rephrased for natural flow)

18. “Can you walk through your thought process when dealing with a difficult stakeholder or challenging situation at work?”
(mental model transfer, using “dealing with” for business tone)

19. “The Wai Kru centers a fighter. Do you use similar rituals to get focused before high-pressure work situations?” *(embodied practices and cultural transfer)*

TRAINING COMPONENTS - (4 minutes)

RQ2 Focus

20. “Which aspect of training - sparring, pads, conditioning, clinch, or rituals - has the biggest impact on your leadership, and why?”
(component ranking, rationale, and unique value proposition, E.g., 360-degree awareness, rephrased for directness)

21. “How does the Muay Thai culture of ‘respecting the teacher’ (Wai Kru) influence how you treat your own mentors or team?”
(distinctiveness and cultural transfer to organizational values, rephrased for accessibility)

22. “If you could only keep one training element for professional benefit, which would it be and why?”
(core mechanism identification)

NEGATIVE TRANSFER - (4 minutes)

RQ3 Focus

23. “Has the ‘fighter mindset’ ever backfired? For example, reacting too quickly or being too aggressive?”
(boundary identification, over-application risks, and context sensitivity)

24. “What aspects of Muay Thai mentality don’t fit well in your work environment?”
(domain divergence and negative transfer, rephrased for simplicity)

25. “How do you adjust or tone down your approach when it’s needed in business situations?”
(calibration ability via metacognition, rephrased “dial back” for everyday language)

CLOSING & INTEGRATION (2 minutes)

26. “On a scale of 1-10, how much has Muay Thai impacted your professional performance, and what specific leadership or management skill has improved most?”
(quantification for survey refinement toward H1/H2 and primary benefit identification)

27. “What would colleagues say has changed about your leadership style since you started training?”
(external validation of observable changes)

28. “What’s the one thing our survey must capture about this experience to best validate these insights?”
(survey development insight for quantitative phase)

Appendix B: Survey Questions & Reasoning

Note: Comments were added in […] to make the survey understandable for the reader of this paper. They were not visible to the participants of the survey.

Intro & Consent

Welcome and thank you for participating in this research study.

This survey examines how leaders and professionals handle pressure and make decisions in demanding work environments. Your responses will contribute to research on leadership development and resilience training.

The survey takes approximately 10 minutes to complete. All responses are anonymous and will be used for academic research purposes only.

By proceeding, you consent to participate in this study.

[select] I consent to participate in this study

Professional Context

Q1a. What is your current employment role?

Options: C-Suite, VP, Director, Senior Manager, Middle Manager, Team Lead, Employee (no personnel), Entrepreneur

Q1b. What is the primary industry you work in?

Options: Technology, Finance, Healthcare, Manufacturing, Consulting, Education, Government, NGO, Other: [Text Entry]

Q1c. What is your management tenure (Years managing people)?

[Text Entry]

Q2. Your Work Environment *Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)*

Please rate the extent to which you agree with the following statements:

- The competitive landscape of my industry shifts rapidly and unexpectedly
- I often have to make decisions with incomplete information.
- My organization faces challenges involving many interconnected variables
- It is often unclear how a decision will impact future outcomes

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Decision-Making & Adaptation

Q3. Changes and Opportunities [SENSING microfoundations]

Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)

- I systematically observe and analyze changes in our business environment
- I am skilled at identifying subtle indicators of threats before they become obvious
- I often spot new opportunities earlier than my peers
- I pick up on nonverbal cues and body language that reveal others' true intentions

Q4. Taking Action [SEIZING microfoundations]

Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)

- When I identify an opportunity, I act immediately to mobilize resources
- I decisively commit to specific courses of action even when the outcome is uncertain
- I rarely hesitate when a strategic decision is required

Q5. Adapting to Change [TRANFORMING microfoundations - exploratory]

Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)

- I systematically reconfigure our team's processes when market conditions change
- I am willing to abandon established routines if they no longer fit the environment
- Please select "Somewhat Disagree" for this item to ensure data quality

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Mindset & Resilience

Q6. Your Attitude Toward Stress

Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)

- The experience of stress depletes my health and vitality
- Experiencing stress facilitates my learning and growth
- Stress helps me perform better and be more productive

Q7. Please indicate how true each statement is for you [adapted version of the Connor-Davidson Resilience Scale (CD-RISC-10)] *Scale: 0 (Not true at all), 1 (Rarely true), 2 (Sometimes true), 3 (Often true), 4 (True nearly all the time)*

- I am able to adapt when changes occur
- I can deal with whatever comes my way

- Having to cope with stress can make me stronger
- I tend to bounce back after hardship
- Under pressure, I stay focused and think clearly
- I am not easily discouraged by failure
- I handle unpleasant feelings well
- Professional challenges feel less threatening to me than they once did

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Acting under Pressure

Q8. Pressure *Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)*

- I am aware of my body's stress signals (E.g., elevated heart rate, muscle tension) in high-pressure situations.
- I use deliberate techniques (E.g., controlled breathing, posture adjustment) to regulate my stress response.
- I am comfortable functioning in high-conflict or aggressive negotiations
- I view high-pressure situations as challenges to master rather than threats to avoid
- Exposure to difficult situations in the past has made me physically calmer in crises
- I feel confident handling confrontational professional situations
- I am rarely intimidated by senior colleagues or high-stakes counterparts

Q9. Flow State

Scale: 1 (Never), 2 (Rarely), 3 (Sometimes), 4 (Often), 5 (Frequently), 6 (Every Time)

- How often do you experience "flow" in your professional work? (a state of complete absorption and focus)
- How often do you experience "flow" during your physical training or hobbies?

Activities & Lifestyle

Q10. Which of the following do you practice regularly (at least 1x per week)?

(Select all that apply)

- Endurance Sports (E.g., Running, Cycling, Swimming, Triathlon)
- Team Sports (E.g., Football, Basketball, Rugby)
- Strength Training (E.g., Weightlifting, Bodybuilding)

- HIIT (E.g., High-Intensity Interval Training / CrossFit)
- Combat Sports / Martial Arts (E.g., Boxing, Muay Thai, BJJ, MMA, Wrestling)
- Yoga / Pilates
- Other: [Text Entry]
- None

Q10b. How many hours per week do you practice the activities? (combined)
[Displayed only if "None" is not selected in Q10] [Text Entry]

Q10c. Does your primary physical activity involve direct competition or confrontation with an opponent?

- No - I train individually or in a group without direct opposition (E.g., running, gym, yoga, swimming)
- Occasionally - Periodic competitive events or matches
- Yes - Regular direct confrontation with opponents (E.g., sparring, competitive team sports with physical contact)

Q10d. Have you EVER regularly trained in combat sports or martial arts with live sparring (in the past or present)?

- Yes
- No

Q11. Apart from the physical activities above, how often do you engage in regulation practices to regulate stress? (E.g., Meditation, Breathwork, Prayer, or active Mindfulness)

- Never
- Rarely (Less than once a week)
- Occasionally (1-2 times a week)
- Frequently (3-4 times a week)
- Daily

Combat Sports Practice *(Section appears conditional based on combat sports answer)*

Q12. What is the primary combat sport you practice?

- Western Boxing
- Kickboxing / K1
- Muay Thai
- MMA
- BJJ / Grappling
- Wrestling
- Other, please specify: [Text Entry]

Q12b. Do you regularly train in any other combat sports besides your primary discipline?

- No, only my primary discipline
- Yes, but less training time than my primary discipline
- Yes, approximately equal time split

Q13a. How many years have you trained your primary combat sport? (if <1 year, please enter decimals like "0.5")

[Text Entry]

Q13b. How many hours per week do you train your primary combat sport?

[Text Entry]

Q14. Which best describes the intensity of your sparring (or one-on-one drill) practice? (Please select the level you practice most frequently)

- No live sparring: Bag, pads, or technique drills only
- Technical/ Light: Focus on movement and flow. Minimal physical impact
- Active/ Moderate: Real resistance and contact, but safety is prioritized
- Hard/ Competitive: Fight simulation, high pressure, significant physical contact

Q14b. Which training component has contributed MOST to your professional capabilities? (Select one)

- Technique drills / pad work
- Light technical sparring
- Hard / competitive sparring
- Competition / actual fights

- Physical conditioning / fitness training
- None - I don't see a connection

Q15. Potential Side Effects *Scale: 1 (Strongly Disagree) to 7 (Strongly Agree)*

- I sometimes feel an impulse to be overly aggressive in professional conflicts
- I sometimes make decisions too quickly under pressure
- My physical ability sometimes makes me feel superior to my peers
- I have less patience for colleagues who hesitate when decisions are needed

Q16. To what extent has your martial arts training influenced each of the following in your professional life? *Scale: 1 (No influence) to 7 (Strong Influence)*

- How calmly I react under pressure
- My ability to read people's intentions and body language
- My speed and decisiveness in making decisions
- My recovery from setbacks and failures
- My confidence in confrontational situations
- My self-discipline and consistency in professional routines
- My physical energy and stamina at work

Demographics [shortened for space]

Q17a. What is your age in years?

Q17b. What is your gender?

Q17c. What is your highest level of education completed?

Q17d. Country of Residence

End of Survey

Thank you for completing this survey.

Your responses contribute to research on leadership development and stress resilience at Católica Lisbon School of Business & Economics.

Appendix C: Comparison of the Sensing-Seizing Gap with Adjacent Constructs

Table C.1: The Sensing-Seizing Gap Compared to Adjacent Concepts

Construct	Core definition	Level of analysis	Core mechanism	Typical triggers	Boundary conditions and key distinctions
Sensing-Seizing gap (present study)	Defined by us as a stress-*contingent* breakdown where cognitive recognition of a threat/opportunity fails to translate into commitment behaviors at the decision-point. The terms *sensing* and *seizing*, and their role in the dynamic capabilities cycle, follow Teece's dynamic capabilities framework.[1]	Individual manager (Micro-foundational); aggregates to organizational level	Acute stress can impair PFC-dependent top-down control and shift behavior toward more reflexive, emotion-driven responding.[2] Under threat, stress can also elicit freezing (behavioral inhibition), which may delay commitment ("seizing Microfoundation") despite recognition. [3]	High-stakes episodes: time pressure, reputational threat, irreversible decisions, salient downside risk	**Theoretical positioning:** Dynamic capabilities are firm-level constructs.[1] This study adopts a microfoundational lens: individual managers are the point where breakdown occurs, and when multiple managers experience stress-induced hesitation, these failures cumulate upward, weakening the firm's aggregate seizing capability. **Appears when:** a manager recognizes a threat/opportunity but fails to initiate commitment at the decision point: "saw it but couldn't pull the trigger," gated by acute stress. **Is not:** generic inertia, poor incentives, lack of resources, forgetting, or sensing failure ("not noticing").
Intention-behavior gap (intention-action gap)	Intentions frequently fail to translate into behavior due to self-regulation failures and situational constraints. [6]	Individual	Weak intention stability, competing goals, forgetting, low self-control, contextual barriers; implementation intentions ("if-then" plans) reduce the gap.[6]	Temptation, fatigue, low accountability, ambiguous cues, conflicting incentives	**Key distinction:** The intention–action gap assumes an intention has already formed. The failure is in *executing* that intention over time ("I meant to do it but didn't follow through"). The sensing–seizing gap concerns breakdown at the *commitment-formation stage* - failure to initiate commitment at the decision point ("I saw what needed to be done but couldn't commit in that moment"). **Diagnostic:** "I meant to do it later" → intention-action gap. "I saw it but couldn't pull the trigger" → sensing-seizing gap.
Threat rigidity	Under threat, entities show restriction in information processing and constriction of control, leading behavior to become less varied/flexible and more	Individual, group, organizational	Threat appraisals induce cognitive/behavioral constriction (attentional narrowing, routine reliance).[4]	Environmental jolts, performance decline, perceived survival threat,	**Key distinction:** Threat rigidity predicts a shift toward *rigid action* under threat such as narrowing attention, tightening control, and doing more of what is already familiar. It often leads to doing the wrong thing harder. The sensing-seizing gap predicts *non-action*. Recognition occurs but commitment initiation is inhibited. It leads to delay,

	reliant on dominant, well-learned responses.[4]			resource loss cues	avoidance, and non-commitment. **Diagnostic examples:** *Rigidity without sensing–seizing gap:* A firm sees disruption and acts. However, rigidly: cuts budgets, doubles down on core product, centralizes control. Seizing occurred, just in a rigid way. *Sensing–seizing gap without rigidity:* A manager accurately diagnoses a threat and brainstorms options, but keeps postponing, won't commit in meetings, avoids the hard call. Recognition is intact; commitment initiation fails.
Structural (Organizational) inertia	Persistent resistance to change in organizational forms, routines, or resource allocations. Slow reorganization relative to environmental change. [5]	Organization (structures, routines, coalitions/ politics)	Structural persistence: routines, sunk costs, political coalitions, governance constraints slow or block change independent of individual cognition.	Age/size, tightly coupled routines, complexity, legacy assets, internal politics, success traps.	**Key distinction:** Inertia operates at the firm level through structures and politics. It can occur even when leaders are decisive (the system blocks change) and does not 'require' acute stress. The sensing-seizing gap is microfoundational: it occurs when individual managers experience acute stress at decision points. When widespread, such hesitation aggregates to weaken the firm's seizing capability. However, the mechanism is stress response, not structural resistance.

Note: Bracketed numbers in the table correspond to the following sources (full references in the bibliography):

[1] Teece et al. (1997); Teece (2007)

[2] Arnsten (2009)

[3] Roelofs (2017)

[4] Staw et al. (1981)

[5] Hannan & Freeman (1984)

[6] Sheeran & Webb (2016)

Appendix D: Qualitative Results (Interview Summaries)

Interview #1 - Martin

Executive Summary:
The interviewee, Martin, has experience spanning military, social work and as a therapist with over two decades of practicing Muay Thai. He argues that the primary utility of martial arts for executives lies in the regulation of physiological arousal. By habituating the body to acute physical threats during sparring, professional stressors such as negotiations or deadlines become comparatively trivial. This process of relativization allows the manager to maintain a low heart rate and clear cognitive function in situations that might otherwise trigger panic or emotional volatility.

He distinguishes sharply between the rigid and aggressive training styles often found in Europe and the playful or flow-based approach native to Thailand. Martin advocates for the latter as a superior model for leadership. He suggests that a relaxed mind adapts faster than a tense one. This supports a decision-making philosophy he illustrates with the metaphor of drawing a sword. The decision to act represents a distinct threshold. Before this point, analysis occurs. Once the sword is drawn, or the decision is made, the leader must commit fully without hesitation. The training conditions the individual to accept the immediate consequences of an action and adjust dynamically rather than freezing in a state of doubt.

Significant attention is also given to the potential downsides of this practice. Martin warns that the high alertness and dominance required in combat can manifest maladaptively in the office. He describes a "hunting mode" or "killer instinct" that can lead to impatience with slower colleagues or inappropriate aggression. He highlights that physical resilience must go with self-regulation to prevent the martial mindset from eroding team psychological safety.

Key Topics:

- The mechanism of stress inoculation where physical combat exposure reduces the psychological impact of corporate stressors
- The application of somatic pattern recognition to interpret nonverbal cues and intent during business interactions
- The necessity of total commitment to strategic decisions to overcome the freeze response common in high pressure environments
- The role of ritual and tradition in grounding the ego and maintaining humility despite increasing physical capability
- The specific risks of negative transfer including reduced patience and the potential for intimidation in collaborative settings

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Key Insights:
The core argument presented is that decisive leadership is fundamentally a physiological capacity rather than solely an intellectual one. The interview suggests that the gap between recognizing a problem and acting on it is often caused by unmanaged stress responses. By engaging in controlled physical conflict, a manager effectively raises their threshold for stress. This allows them to bridge the sensing seizing gap by retaining agency when others might succumb to inertia. However, this enhanced capacity for action requires a counterbalance of soft skills. The ultimate value of the training is not just the ability to endure pressure but the wisdom to discern when to deploy intensity and when to remain playful and relaxed.

Interview #2 - Jonas

Executive Summary:

Jonas serves as a doctoral candidate and consultant who combines academic rigor with the intense physical demands of Muay Thai. He views his martial arts practice as a vital counterweight to the analytical nature of his business and academic environments. Jonas argues that the primary benefit of this training is the cultivation of physiological control which directly enhances his ability to lead under pressure. He describes a specific transition where the physical exhaustion of training quiets the mind and forces a state of alert presence that he terms a holistic perspective. This state allows him to navigate volatile stakeholder relationships with a calmness that his peers often lack.

His narrative relies heavily on the metaphor of immediate consequence. In the ring he notes that hesitation leads to immediate physical pain and realizing that a bad decision is better than no decision at all. He applies this directly to his management style by prioritizing active commitment over prolonged analysis. Jonas believes that the ability to detach and view a situation from a "bird's eye view" during physical conflict allows him to objectively analyze ego-driven superiors without feeling intimidated. He credits sparring with teaching him to read intent through body mechanics such as shoulder tension rather than relying solely on deceptive facial expressions.

However, Jonas identifies distinct negative transfers where this conditioned mindset clashes with corporate norms. He reports a marked decrease in patience for colleagues who hesitate or complain about minor issues. The directness required in combat sports sometimes makes the political nuances of office communication feel inefficient or dishonest to him. He implies that while his resilience has increased, he risks developing an empathy gap where he struggles to relate to the lower stress thresholds of his non-training peers.

Key Topics:

- Correlation between physical exhaustion and mental clarity in decision making
- Transition from analytical paralysis to intuitive action under pressure
- Value of committing to imperfect decisions to maintain momentum
- Reading nonverbal intent through somatic cues rather than facial mimicry
- Relativization of professional stress compared to physical survival threats
- Reduction of intimidation when dealing with high status stakeholders
- Risks of impatience and reduced empathy for hesitation in others
- Dissonance between the honesty of combat and office politics

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Key Insights:

The central argument presented by Jonas is that physical resilience serves as the foundational hardware for psychological stability. By repeatedly exposing himself to the visceral threat of physical confrontation he recalibrates his baseline for stress. This process makes professional pressure as well as interpersonal conflicts appear manageable by comparison. The interview suggests that effective leadership in volatile environments may depend less on cognitive frameworks and more on the biological capacity to suppress the freeze response. Ultimately, he frames decisiveness not as an intellectual skill but as a learned physiological habit that must be maintained through regular exposure to controlled adversity.

Interview #3 - Jo

Executive Summary:

Jo serves as a Vice President of Project Management within a high-tech manufacturing firm and relies on his prior background in Boxing and now Muay Thai to navigate volatile business environments. His professional approach is grounded in the concept of stress relativization where the acute physical threat of combat sports renders professional anxieties manageable by comparison. Jo argues that the physiological regulation required to suppress flinch responses in the ring directly transfers to maintaining composure during high-stakes negotiations. He describes a specific physiological mechanism where the ability to control breathing and lower heart rates during physical confrontation allows him to mask emotions and remain analytical while counterparts become visibly agitated.

Regarding decision-making Jo utilizes the metaphor of combination striking to describe his management style. Just as a fighter must commit to a sequence of moves without hesitation to avoid counterattacks, he advocates for rapid commitment to imperfect plans over analysis paralysis. He views business strategy through the lens of predicting opponent moves similar to anticipating strikes two or three steps ahead. This somatic conditioning allows him to bridge the gap between recognizing a threat and taking action.

However, Jo identifies distinct downsides to this conditioning. He notes a potential for negative transfer where the heightened state of combat readiness can manifest as impatience with slower colleagues. He explicitly warns that the competitive instinct to win every exchange can be maladaptive in collaborative settings where consensus is required rather than domination. He emphasizes that while the fighter mindset enhances individual resilience it requires conscious modulation to avoid alienating team members who lack similar outlets for stress release.

Key Topics:

- Utilization of physical stress exposure to relativize and lower physiological arousal during corporate crises
- Application of combat foresight to predict stakeholder behaviors and nonverbal negotiation tactics
- Development of rapid decisiveness through the immediate feedback loops inherent in sparring
- Risks of maladaptive aggression and reduced patience for hesitation among collaborative peers
- Importance of live sparring intensity for developing genuine resilience compared to static technical drills
- Implementation of breathwork and cold exposure to train the nervous system for high-pressure functionality

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Key Insights:

The central argument derived from this interview is that leadership in volatile environments acts as a physiological capability rather than a purely intellectual one. Jo demonstrates that engaging in controlled physical conflict creates a somatic buffer that insulates the manager from professional anxiety. This biological resilience allows the executive to bypass the freeze response common in high-pressure scenarios and enables a reliable transition from passive observation to active strategic intervention.

Interview #4 - Linda

Executive Summary:

Linda is an experienced entrepreneur and former corporate executive currently operating in Southeast Asia. She details how decades of Muay Thai training provided a somatic foundation for leadership during high stakes crises including political instability and business pivots. Her narrative posits that the primary transfer from the ring to the boardroom is physiological control. She describes how the physical necessity of remaining calm while being attacked trains the body to suppress panic responses during professional stress. She explicitly contrasts the paralysis of "future tripping" or ruminating on worst case scenarios with the immediate presence required in combat.

Her metaphors regarding decisiveness focus on the refusal to freeze. She draws a direct parallel between the combat requirement to counterattack immediately after absorbing a strike and the business necessity of rapid problem solving following a setback. She views hesitation as the most dangerous response in both contexts. Consequently, she treats business challenges as problems to be solved with the same immediacy as blocking and returning a kick. She further distinguishes between two training mindsets. She contrasts an ego driven or aggressive Western approach which can lead to bullying behavior with the traditional Thai Buddhist approach that emphasizes respect and spiritual grounding.

The interviewee also frankly addresses the negative effects of this conditioning. She admits that the high pain tolerance and resilience developed through fighting initially resulted in a lack of empathy as a manager. She describes an early career tendency to view complaining colleagues as weak and acknowledges that her combat hardened threshold for stress made her overly demanding and impatient. She concludes that effective leadership required her to retain the internal toughness of the fighter while learning to project compassion and patience outwardly to her team.

Key Topics:

- Physiological stress regulation through controlled breathing techniques
- The relativization of corporate pressure against the reality of physical combat
- Rapid commitment to action and the mitigation of analysis paralysis
- The use of physical confrontation metaphors to frame business problem solving
- Enhanced perception of nonverbal cues and body language in negotiations
- The danger of high personal resilience leading to reduced empathy for others
- Distinctions between aggressive dominance and spiritual humility in leadership
- The role of sparring in developing composure under chaotic conditions

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Key Insights:

The central argument presented in the interview is that resilience is a physical skill rather than purely an intellectual trait. By subjecting the body to controlled volatility and acute stress the subject inoculated her nervous system against the debilitating effects of fear. This somatic conditioning allows the leader to bypass the emotional freeze response that often accompanies uncertainty. The interview suggests that the sensing seizing gap is closed not by having more data but by having a physiological tolerance for chaos that permits the executive to act decisively while others are still processing the shock.

Interview #5 - Jamul

Executive Summary:

Jamul integrates over two decades of experience in high-level investment banking with a lifelong dedication to Muay Thai to articulate a leadership philosophy grounded in physiological regulation and risk management. He characterizes effective leadership through the lens of a technical fighter whose primary objective is problem solving rather than brute force aggression. This approach relies heavily on the concept of pattern recognition where intuition is described not as a mystical feeling but as the result of established neural pathways built through repetitive exposure to high pressure scenarios. He posits that the ability to read an opponent in the ring within the first round directly parallels the business necessity of rapidly diagnosing the psychological state and motivations of a client or counterparty.

The interviewee employs a compelling metaphor regarding the inverse relationship between defensive safety and strategic opportunity. He argues that while retreating offers the highest safety it simultaneously eliminates the possibility of success because one cannot strike effectively from a distance. This physical reality forces the practitioner to become comfortable operating within a zone of danger where the risk of failure is high but necessary for reward. This mindset frames resilience as an acceptance of inevitable loss where setbacks are viewed as statistical probabilities rather than existential threats. Jamul notes that this perspective helps compartmentalize professional stress because the physical immediacy of combat training renders corporate anxieties less significant by comparison.

Despite these benefits the interviewee identifies distinct risks associated with the fighter mindset in a professional context. He warns that rapid success can lead to an inflated ego where individuals believe they are invincible which often precipitates a career or personal demise. He further notes that the most dominant individuals often make poor leaders because their excessive endurance or intensity can demoralize a team that cannot maintain the same pace. Consequently, he advocates for a leadership style of high performance with the empathy required to maintain group cohesion rather than simply maximizing individual output.

Key Topics:

- Reframing intuition as rapid data processing and subconscious pattern recognition.
- The necessity of live sparring to simulate the unpredictability of business environments.
- Distinguishing between safety seeking behaviors and calculated strategic risk taking.
- The role of physical stress exposure in relativizing and mitigating professional anxiety.
- Potential negative transfers including ego inflation and substance abuse issues.
- Selecting leaders based on sustainable team dynamics rather than individual physical dominance.
- Utilizing nonverbal cues and somatic empathy to diagnose stakeholder intentions.
- The importance of immediate feedback loops in accelerating skill acquisition.

Key Insights:

The central argument presented confirms that physical stress inoculation serves as a critical mechanism for bridging the gap between recognizing a threat and taking decisive action. By habituating the nervous system to acute conflict through live sparring the practitioner lowers their physiological arousal response to professional stressors which allows them to maintain cognitive clarity when others might freeze. This process transforms abstract concepts of resilience into embodied capabilities where the manager learns to suppress the natural instinct to retreat and instead proactively engages with friction to secure a strategic advantage.

Interview #6 - Jelmer

Executive Summary:

Jelmer is a seasoned venture builder and Muay Thai practitioner who utilizes his fifteen years of martial arts experience to navigate volatile business environments. He proposes that exposure to physical aggression substantially raises the threshold for psychological stress perception in the workplace. By regularly facing immediate physical threats during sparring he frames professional conflict as comparatively trivial which allows him to maintain composure during high stakes negotiations. This physiological regulation prevents him from entering a reactive fight or flight state during interpersonal disputes and enables him to assess situations objectively rather than emotionally. He specifically notes that this training allows him to distinguish between performative intimidation and genuine aggression in business counterparts.

The interviewee emphasizes the concept of performance under pressure where immediate feedback loops define the learning process. He compares the binary outcome of sparring to business decision making by noting that hesitation in the ring results in physical consequences which conditions a bias toward decisive action. He describes a specific mental shift involving running toward the fire where he actively seeks difficult challenges to accelerate professional growth. This mindset fosters a feedback culture where he invites critique from colleagues with the same humility required to ask a sparring partner how they landed a successful strike. He argues that this approach transforms failure from an identity crisis into a simple data point for reconfiguration.

Despite these benefits Jelmer acknowledges distinct downsides regarding how martial arts conditioning translates to social settings. He reports a subconscious habit of assessing the physical threat level of individuals upon entering a room which he describes as a primal calculation of whether he could dominate them physically. This automatic threat assessment can lead to reduced patience for colleagues who display hesitation or lack decisiveness. He observes that the high intensity focus required for combat sports can sometimes manifest as maladaptive aggression or a difficulty in deactivating the combat readiness state when a softer diplomatic approach is required.

Key Topics:

- Relativization of professional stress against physical threats
- Enhanced ability to detect bluffing versus genuine aggression
- Development of an automatic action bias under uncertainty
- Translation of immediate feedback loops from sparring to management
- Subconscious physical threat assessment in non-violent settings
- Reduced tolerance for hesitation among team members
- Utilization of breath work for nervous system regulation
- Distinction between intellectual learning and embodied skill acquisition

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Key Insights:

The interview suggests that physical stress inoculation serves as a foundational mechanism for bridging the gap between analyzing a situation and committing to action. By conditioning the nervous system to function amidst physical chaos the practitioner develops a resilience that is physiological rather than merely intellectual. This embodied capability allows leaders to maintain agency during corporate crises by overriding the instinct to freeze and instead executing decisions with the same immediacy required in combat.

Interview #7 - Charlette

Executive Summary:

Charlette is an HR Business Partner in a government agency with nearly two decades of experience in Muay Thai and Brazilian Jiu Jitsu. Her professional role involves high pressure responsibilities such as managing workforce planning and navigating complex labor relations with multiple unions. She credits her extensive martial arts background with establishing a foundational discipline that allows her to navigate these volatile professional landscapes effectively. Her training facilitates a distinct separation between immediate emotional reactions and calculated responses which she describes as the ability to assess risk instantly without succumbing to impulsive anger or frustration during confrontation.

She utilizes the metaphor of a duck on a lake to describe her professional demeanor where she maintains a serene exterior while her mind rapidly processes information and assesses potential outcomes underneath the surface. This physiological control allows her to filter out nonessential stress and focus on critical decision making during chaotic moments. The interviewee notes that the physical reality of combat sports creates a powerful reference point that diminishes the perceived severity of workplace conflicts. She explains that getting physically struck in training recalibrates her stress threshold so that verbal confrontations or bureaucratic obstacles appear manageable by comparison. This narrows the gap between sensing a problem and seizing the solution because the paralyzing effect of fear is removed.

However, she identifies specific downsides to this heightened resilience specifically regarding interpersonal dynamics. Charlette acknowledges an empathy gap where her high tolerance for discomfort makes it difficult to relate to colleagues who express distress over minor operational issues. She describes an internal reaction of impatience when peers complain about low stakes problems because her baseline for stress is set significantly higher. This conditioned toughness can lead to a strict mentality that may alienate team members who lack similar stress inoculation outlets and perceive her calmness as detachment.

Key Topics:

- Physiological regulation and the maintenance of a calm exterior during internal high-speed processing
- Relativization of corporate stressors through exposure to physical combat intensity
- Development of patience and discipline to mitigate impulsive emotional reactions
- Enhanced observation regarding body language and nonverbal cues in negotiations
- Potential disconnects with colleagues due to disparate thresholds for stress tolerance
- The role of humility and ego management learned through repeated sparring defeats
- Application of rapid risk assessment and decisive action in ambiguous environments

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Key Insights:

The core argument presented by Charlette is that physical combat training functions as a physiological filter that removes emotional noise from professional decision making. By habitually exposing herself to acute physical stress she has raised the threshold at which psychological pressure triggers a flight or ‘freeze’ response. This allows her to operate with a dual consciousness where she can empathetically listen to aggrieved stakeholders while simultaneously calculating strategic risks and outcomes. The interview suggests that embodied stress inoculation does not merely toughen the leader but fundamentally alters their perception of threat which enables them to remain effective and act decisively in environments characterized by uncertainty and conflict.

Interview #8 - Sebastiano

Executive Summary:

Sebastiano combines his background in private equity and investment banking with intensive Muay Thai training to manage the psychological demands of high stakes business environments. He argues that the primary benefit of martial arts is not physical dominance but the cultivation of a specific mental state he terms hunting mode. This state allows him to filter out emotional noise and focus entirely on the objective at hand during negotiations. He posits that the physiological regulation learned in the ring directly translates to the boardroom. By controlling his breathing and visual focus during physical confrontation he creates a template for maintaining composure when facing verbal aggression or high-pressure business decisions.

He utilizes the metaphor of two intelligent apes sitting at a wooden table to deconstruct the artificial seriousness of corporate meetings. This perspective allows him to detach from the immediate emotional weight of a negotiation and view it as a manageable interaction. He further illustrates the necessity of decisiveness through training drills involving a pool noodle where hesitation results in immediate physical feedback. This conditioning forces him to overcome the freeze response and commit to a course of action regardless of fatigue or fear. He views this as a critical mechanism for bridging the gap between analyzing a situation and executing a decision.

However, Sebastiano cautions against the indiscriminate application of this mindset. He notes that the heightened state of readiness required for sparring can manifest as impatience or maladaptive aggression in a corporate setting. He describes the challenge of deactivating this combat readiness to engage in collaborative work without intimidating colleagues who may lack similar outlets for stress. He emphasizes that the training provides a necessary release that prevents him from carrying competitive aggression into his personal or professional relationships.

Key Topics:

- Regulation of autonomic stress responses through controlled breathing and peripheral vision
- Application of the hunting mode concept to narrow focus during critical tasks
- Relativization of corporate stakes by comparing them to physical survival
- Development of decisiveness through immediate feedback loops in training
- Risks of reduced patience for hesitation among team members
- Use of physical exhaustion to achieve mental clarity prior to negotiations
- Observation of nonverbal cues and body language to assess opponent intent
- Separation of ego from professional outcomes through the practice of humility

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Key Insights:

The interview suggests that physical resilience serves as a foundational element for managerial decisiveness. Sebastiano demonstrates that embodied stress inoculation effectively raises the threshold for psychological panic. This physiological buffer allows a leader to bridge the gap between recognizing a problem and taking action. The ability to remain comfortable while under attack in the ring fosters a sense of agency that persists when professional structures become volatile or hostile. Ultimately the data indicates that training the body to endure stress creates a psychological distance from corporate anxiety that enables clearer and faster strategic execution.

Interview #9 - Chase

Executive Summary:

Chase, a professional in the technology and venture capital sectors, utilized Muay Thai to navigate the volatility of the pandemic economy and high-pressure business development roles. His approach centers on the Thai concept of Sabai Sabai which translates to maintaining a state of deep relaxation and composure amidst chaos. He explicitly connects the physiological regulation learned in the ring to professional performance. By consciously slowing his breathing during intense sparring rounds, he trains his body to lower its heart rate and override anxiety responses. This physical conditioning allows him to remain present during high stakes business negotiations and perceive them with the same calculated calm he applies to physical combat.

The interviewee employs distinct metaphors regarding conflict and decisiveness. He likens the initial phase of a business meeting to the first round of a fight where one must assess the opponent without overcommitting. This sizing up involves reading nonverbal cues and energy levels to determine if a counterpart is aggressive or reserved. Chase argues that physical sparring reduces the paralysis of overthinking. He contrasts the immediate consequence of physical error against the abstract threat of a difficult email and notes that the physical risk of getting punched provides a perspective that diminishes corporate anxiety. This stress relativization lets him execute decisions with greater speed and less fear of failure.

Despite these benefits, Chase acknowledges specific downsides to adopting a fighter mindset in a corporate environment. He admits that the conditioning can lead to maladaptive aggression where he might push for a knockout in a deal too early rather than nurturing the relationship. He also identifies a decreased tolerance for hesitation among colleagues. The heightened pace of martial arts decision making can manifest as impatience with peers who require more time to act. He suggests that while the confidence gained from training is generally positive, it requires careful modulation to ensure it does not alienate team members or lead to impulsive strategic risks.

Key Topics:

- Physiological stress regulation through controlled breathing techniques
- Relativization of professional anxiety against physical threats
- Rapid assessment of non-verbal cues and stakeholder intentions
- Strategic patience and the importance of a feeling out process
- Action bias and the reduction of procrastination under pressure
- Risks of impatience and overly aggressive negotiation tactics
- Value of community and humility in skill acquisition
- Transfer of mental clarity from sparring to decision making

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Key Insights:

The central argument presented by Chase is that physical resilience serves as a foundational hardware upgrade for managerial decision making. By exposing the nervous system to controlled physical stress, the practitioner raises the threshold at which psychological stress causes cognitive inhibition. This allows the leader to maintain access to higher order thinking during crises and commit to actions without hesitation. The interview suggests that embodied training does not merely teach resilience concepts but instills a biological capacity for composure that directly translates to improved decision speed and emotional stability in volatile business environments.

Interview #10 - Brennan

Executive Summary:

Brennan serves as a founder and CEO who utilizes the physical demands of Muay Thai to enhance his executive leadership capabilities. He actively leverages the high intensity of three-hour training sessions to calibrate his physiological response to professional pressure. The interviewee describes a process of stress relativization where the acute physical threat of sparring renders business anxieties less debilitating. This comparative framework allows him to mitigate panic responses during corporate crises. He suggests that the ability to remain calm while under physical duress directly transfers to maintaining composure during high stakes negotiations.

He emphasizes the accumulation of repetitions as the fundamental driver of confidence and competence. The interviewee argues that hesitation often results from a fear of insufficient information or a lack of experience. He counters this by applying a striking mindset where one must commit to action with only partial certainty. He posits that waiting for perfect conditions is fatal in both combat and business. This philosophy supports a rapid decision cycle where the leader commits to a course of action once they possess approximately seventy percent of the necessary information. This practice shifts the focus from avoiding failure to acquiring experience through high volume iteration. He views agility and the ability to adjust on the fly as superior to rigid long-term planning.

The intersection of these domains also reshapes how he views professional conflict and risk. Brennan explicitly reframes the concept of the opponent in sales environments. He views the counterparty as a partner while treating their objections or lack of resources as the actual adversary. This distinction helps mitigate the potential downside of increased aggression often associated with combat sports. He acknowledges that this training makes him riskier in terms of decision speed but argues that this is a necessary adaptation. He views comfort as a detrimental state that hinders growth and relies on the discomfort of training to maintain the sharpness required for effective leadership.

Key Topics:

- Utilization of somatic stress to regulate professional anxiety and panic
- Application of high-volume repetition to build behavioral automaticity
- Adoption of a seventy percent information threshold for rapid decision making
- Reframing of business objections as the adversary rather than the person
- Integration of flow states from sparring into sales presentations
- Necessity of uncomfortable environments for preventing professional stagnation
- Importance of adjusting strategy immediately based on real time feedback
- Role of physical conditioning in creating a psychological safety buffer

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Key Insights:

The core argument presented is that physical resilience serves as a foundational element for dynamic leadership. By conditioning the nervous system to tolerate acute stress, the leader reduces the latency between observing a problem and committing to a solution. This process transforms the abstract concept of resilience into a tangible physiological capability that allows for decisive action amidst uncertainty. The interview suggests that effective sensing and seizing of opportunities depends less on intellectual analysis and more on the embodied capacity to suppress the urge to freeze under pressure.

Interview #11 - Darin

Executive Summary:

Darin serves as a senior executive in the non-profit sector overseeing more than two hundred people while simultaneously chairing a university board. He utilizes his background in Muay Thai and mixed martial arts to navigate the volatile and ambiguous nature of high-level leadership. He argues that the primary value of combat sports for executives lies in the cultivation of equanimity and the regulation of physiological arousal. By voluntarily subjecting himself to the acute physical stress of sparring he creates a buffer against the cognitive stress of the workplace. This conditioning allows him to keep stability during crises and ensures that he does not transmit anxiety to subordinates during high-pressure situations.

The interviewee employs distinct metaphors to illustrate how physical training enhances decision making capabilities. He likens strategic awareness to the peripheral vision required in the ring where fixating on a specific threat leaves a fighter vulnerable to others. He describes the leadership process as a series of evidence-based bets where one must commit to a course of action without the guarantee of success. Darin emphasizes that the ability to pivot when a plan fails is a trained reflex rather than an intellectual concept. He asserts that the habit of recovering quickly from physical setbacks conditions a leader to view business failures as learning opportunities rather than existential threats.

Darin distinguishes between the internal discipline built through pad work and the interpersonal intelligence developed during sparring. He notes that pad work builds grit and the will to push past exhaustion while sparring teaches pattern recognition and non-verbal communication. However, he identifies potential downsides to this transfer of mindset. He warns that the ritualistic hierarchy of traditional martial arts can clash with the egalitarian nature of American business culture. He also observes that for some practitioners the confidence gained from physical dominance can manifest as arrogance or a lack of empathy which undermines collaborative leadership.

Key Topics:

- Regulation of physiological stress responses during professional conflict
- Concept of peripheral vision as a metaphor for strategic sensing
- Necessity of making evidence-based bets under uncertain conditions
- Role of sparring in developing interpersonal pattern recognition
- Distinction between defeating an opponent and collaborative learning
- Pad work as a method for developing grit and self-dominance
- Potential for negative transfer regarding hierarchy and arrogance
- Humility derived from regular exposure to physical failure
- Importance of decoupling personal identity from professional outcomes

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Key Insights:

The core argument presented by Darin is that effective leadership in volatile environments depends on the biological capacity to manage the fight or flight response. Darin suggests that physical resilience functions as the hardware that enables the software of managerial decision making to run effectively. By normalizing high-stress environments through combat training he reduces the cognitive cost of uncertainty. This allows for a sensing and seizing capability that is driven by strategic interest rather than emotional reactivity. Ultimately the data indicates that embodied stress inoculation helps leaders bridge the gap between recognizing a threat and taking decisive action by removing the paralysis often caused by fear of failure.

Interview #12 - Helen

Executive Summary:

Helen is a senior executive in the banking sector who utilizes Muay Thai to enhance her professional agility and presence. She distinguishes this combat practice from solitary exercises like running or yoga by emphasizing the need for interactive responsiveness and immediate consequence. Her approach centers on the concept of grounding where physical balance serves as a prerequisite for mental stability during chaotic business cycles. She argues that the ability to stabilize one's footing while coordinating complex movements transfers directly to maintaining leadership composure during crisis management.

She employs specific physical metaphors to describe decision making processes. A central concept is the danger of defensive retreat. Helen explains that instinctively backing away from a strike often increases vulnerability. She applies this to the corporate environment by noting that leaders often close down or enter a defensive survival mode when threatened. To counteract this she advocates for leaning into the friction and overriding the impulse to retreat. Once a course of action is chosen she believes a leader must flood themselves with confidence to generate momentum and guide the team effectively despite incomplete information.

The interviewee also identifies potential downsides to a high intensity mindset. She warns that relying solely on brute force or constant effort leads to inevitable burnout. She emphasizes that professional longevity requires finding a flow state rather than maintaining maximum stress levels. She further notes that without a clear internal filter or focus individuals risk spreading themselves too thin by reacting to every external stimulus. This necessitates a disciplined approach to energy management where one consciously chooses which information to process and which battles to fight.

Key Topics:

- Physiological regulation as a foundation for executive presence
- Overriding defensive instincts to maintain forward momentum
- Interpreting nonverbal cues and intent through somatic awareness
- The necessity of recovery and flow states to prevent burnout
- Decisiveness and commitment in environments with incomplete data
- Reframing professional stress through physical confrontation
- The role of disciplined preparation in achieving mental clarity

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Key Insights:

The central argument posits that physical resilience cultivated in the ring functions as a rehearsal for professional adaptation. By exposing the nervous system to controlled physical stress leaders can raise their threshold for psychological pressure in the workplace. This process allows them to bypass the paralysis of analysis and commit to strategic actions with conviction. Ultimately the ability to manage physiological arousal determines whether a leader freezes in survival mode or seizes opportunities with clarity.

Interview #13 - Eric

Executive Summary:

Eric is a digital marketing agency owner who began Muay Thai at age fifty-one to counteract a sedentary lifestyle and build discipline. His narrative centers on the transformation from physical stagnation to high functioning resilience through consistent exposure to combat stress. He argues that the primary value of martial arts in a professional context is the regulation of emotional arousal. Eric posits that business crises often trigger reactive bodily responses that cloud judgment and lead to poor leadership decisions. By subjecting himself to the physical threat of sparring he trains his nervous system to maintain composure. He explains that emotional regulation allows a leader to create mental distance during conflict rather than reacting impulsively to provocation or feeling overwhelmed by external pressure.

The interviewee utilizes distinct metaphors to describe the transfer of skills from the gym to the office. He contrasts modern expectations of instant success with the slow and painful progression of combat sports. He notes that society expects microwave speed results while mastery requires years of patience and handling embarrassment. Eric emphasizes that sparring is the specific training modality that translates to leadership because it simulates unpredictable confrontation. Unlike pad work which he views as a controlled learning environment sparring forces the practitioner to manage energy and make decisions while under immediate threat. He relates this to business adaptability where one must act decisively with limited information and accept that setbacks are temporary.

While the benefits of confidence and stress management are substantial Eric identifies specific physiological trade offs. He candidly notes that the physical demands of high intensity training can lead to significant fatigue that impedes professional energy levels during the workday. He admits that training too hard leaves him exhausted and forces him to strictly manage his energy output. Additionally he acknowledges that physical flexibility developed in the gym does not have a direct cognitive parallel in business. Despite these physical tolls he maintains that the mental resilience gained outweighs the fatigue provided that the individual manages their schedule to accommodate recovery.

Key Topics:

- Stress inoculation through daily exposure to physical discomfort
- Distinction between reactive behavior and controlled strategic response
- Transfer of sparring dynamics to high pressure decision making
- Management of energy levels and recovery cycles across domains
- Development of patience against the cultural expectation of instant gratification
- Impact of physical confidence on negotiation and conflict resolution
- Reframing professional failure through the lens of physical resilience
- Necessity of humility and ego suppression for continuous learning

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Key Insights:

The central argument presented by Eric is that physical resilience serves as a foundational hardware for effective leadership software. By voluntarily enduring the stress of combat he raises his threshold for panic which allows him to navigate business volatility with reduced anxiety. The interview suggests that the ability to seize opportunities is not merely an intellectual skill but a physiological capacity cultivated through the repeated cycle of struggle and recovery. Ultimately the data indicates that training the body to endure calculated risks creates a psychological buffer that enhances professional composure and decision speed.

Appendix E: Quantitative Results

Appendix E.1 Supplementary Statistical Output for Hypothesis 1

This appendix provides detailed statistical output supporting the MANCOVA reported in Section 4.2.4. The analysis compared self-reported Sensing and Seizing microfoundations between Muay Thai practitioners with sparring experience (n = 46) and active non-combat sport controls (n = 63), controlling for age, management tenure, meditation frequency, and weekly physical activity.

MANCOVA Assumption Tests

Table E1.1: Box's Test of Equality of Covariance Matrices

Statistic	Value
Box's M	6.470
F	2.111
df1	3
df2	895357.799
p	.096

Interpretation: p>.05 indicates equality of covariance matrices across groups. Assumption met.

Table E1.2: Levene's Test of Equality of Error Variances

Dependent Variable	F	df1	df2	p	Interpretation
Sensing	2.244	1	107	.137	Assumption met
Seizing	1.786	1	107	.184	Assumption met

Note: Non-significant results (p > .05) indicate equal error variances across groups.

Table E1.3: Multivariate Tests

Effect	Test	Value	F	Hypothesis df	Error df	p	η^2p
GROUP	Pillai's Trace	.399	33.894	2	102	<.001	.399
GROUP	Wilks' Lambda	.601	33.894	2	102	<.001	.399
GROUP	Hotelling's Trace	.665	33.894	2	102	<.001	.399
GROUP	Roy's Largest Root	.665	33.894	2	102	<.001	.399

Note: All four multivariate tests yield identical results, indicating robust group differences.

Parameter Estimates

Table E1.4: Sensing Microfoundation

Parameter	B	SE	t	p	95% CI Lower	95% CI Upper	η^2p
Intercept	4.681	0.811	5.773	<.001	3.073	6.289	.244
Age	0.008	0.024	0.345	.731	-0.040	0.056	.001
Mgmt_Tenure	0.039	0.034	1.152	.252	-0.028	0.107	.013
Meditation	0.175	0.080	2.191	.031	0.017	0.333	.045
Phys_Activity	-0.008	0.034	-0.218	.828	-0.076	0.061	.000
Control Group	-1.907	0.233	-8.199	<.001	-2.368	-1.446	.395
Treatment Group	0 (ref)	-	-	-	-	-	-

Table E1.5: Seizing Microfoundation

Parameter	B	SE	t	p	95% CI Lower	95% CI Upper	η^2p
Intercept	4.032	0.827	4.875	<.001	2.392	5.672	.188
Age	0.022	0.025	0.891	.375	-0.027	0.071	.008
Mgmt_Tenure	0.017	0.035	0.484	.630	-0.052	0.086	.002
Meditation	0.120	0.081	1.480	.142	-0.041	0.281	.021
Phys_Activity	0.038	0.035	1.077	.284	-0.032	0.108	.011
Control Group	-1.644	0.237	-6.929	<.001	-2.114	-1.173	.318
Treatment group	0 (ref)	-	-	-	-	-	-

Note: Treatment Group is the reference category. The B coefficient for Control Group represents the mean difference from Treatment after adjusting for covariates.

Table E1.6: Non-Parametric Robustness Check (Mann-Whitney U)

Variable	Mann-Whitney U	Wilcoxon W	Z	p (2-tailed)
Sensing	355.000	2371.000	-6.732	<.001
Seizing	410.500	2426.500	-6.393	<.001

Note: Non-parametric test to confirm results hold without distributional assumptions. Negative Z values indicate Control group had lower ranks (scores) than Treatment group.

Table E1.8: Reliability Statistics (Cronbach's Alpha) by Group

Scale	N Items	Control Group α	Practitioner Group α
Sensing Microfoundation	4	.745	.787
Seizing Microfoundation	3	.653	.764
Individual Resilience	8	.754	.756
Transforming (Exploratory)*	2	.226	-.002

**Note: The Transforming subscale was excluded from hypothesis testing due to unacceptable internal consistency.*

Appendix E.2 Supplementary Statistical Output for Hypothesis 2

This section presents the Analysis of Covariance (ANCOVA) results for Hypothesis 2, examining the effect of Muay Thai practice on Resilience while controlling for Age, Management Tenure, Meditation Frequency, and Weekly Physical Activity.

Table E2.1: Tests of Between-Subjects Effects (Resilience)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	32.734	5	6.547	27.176	<.001	.569
Intercept	20.895	1	20.895	86.739	<.001	.457
Age	.100	1	.100	.414	.522	.004
Management Tenure	1.426	1	1.426	5.921	.017	.054
Meditation Freq.	.726	1	.726	3.013	.086	.028
Physical Activity	.129	1	.129	.536	.466	.005
GROUP	20.417	1	20.417	**84.754**	**<.001**	**.451**
Error	24.813	103	.241			
Total	1508.969	109				
Corrected Total	57.546	108				

Note: R Squared = .569 (Adjusted R Squared = .548). Dependent Variable: Individual Stress Resilience Score.

Appendix E.3 Supplementary Statistical Output for Hypothesis 3

This appendix provides detailed statistical output supporting the hierarchical regressions reported in Section 4.2.6. The analyses tested whether sparring intensity predicts self-reported microfoundational capabilities (Sensing, Seizing) and Resilience beyond training volume and demographics within Muay Thai practitioners (n = 46). Variables were entered in three steps: (1) controls - age, management tenure, meditation frequency; (2) training volume - years and hours/week; (3) intensity - Moderate and Hard, with Technical/Light as reference.

Model Summary: Hierarchical Regression Across All Outcomes

Table E3.1: Sensing

Model	R	R^2	Adjusted R^2	SE	ΔR^2	F Change	df1	df2	p (ΔR^2)
1	.386	.149	.088	.961	.149	2.451	3	42	.077
2	.545	.297	.209	.896	.148	4.197	2	40	.022
3	.633	.401	.290	.848	.104	3.299	2	38	.048

Table E3.2: Seizing

Model	R	R^2	Adjusted R^2	SE	ΔR^2	F Change	df1	df2	p (ΔR^2)
1	.306	.094	.029	1.046	.094	1.446	3	42	.243
2	.538	.290	.201	.949	.196	5.521	2	40	.008
3	.654	.428	.322	.874	.138	4.578	2	38	.017

Table E3.3: Resilience

Model	R	R^2	Adjusted R^2	SE	ΔR^2	F Change	df1	df2	p (ΔR^2)
1	.435	.190	.132	.449	.190	3.275	3	42	.030
2	.618	.382	.305	.402	.192	6.218	2	40	.004
3	.696	.485	.390	.377	.103	3.790	2	38	.032

Note: Model 1 = Age, Mgmt_Tenure, Meditation. Model 2 adds Training_Hrs_Week, Training_Years. Model 3 adds D_Moderate, D_Hard.

Table E3.4: Final Model Coefficients (Step 3): Sensing Microfoundations

Predictor	B	SE	β	t	p	VIF
(Constant)	4.060	1.121	-	3.623	<.001	-
Age	-.012	.042	-.099	-0.281	.780	7.794
Mgmt_Tenure	.041	.071	.214	0.573	.570	8.882
Meditation	.230	.131	.249	1.755	.087	1.276
Training_Hrs_Week	.033	.062	.085	0.531	.598	1.625
Training_Years	.057	.032	.259	1.795	.081	1.315
D_Moderate	.854	.333	.429	2.568	.014	1.767
D_Hard	.716	.476	.258	1.506	.140	1.868

Note: Dependent Variable = Sensing. Reference category for intensity = Technical/Light.

Table E3.5: Final Model Coefficients (Step 3): Seizing Microfoundations

Predictor	B	SE	β	t	p	VIF
(Constant)	2.972	1.155	-	2.573	.014	-
Age	.027	.043	.210	0.613	.544	7.794
Mgmt_Tenure	-.007	.073	-.037	-0.101	.920	8.882
Meditation	.139	.135	.142	1.028	.311	1.276

Training_Hrs_Week	.041	.064	.100	0.638	.527	1.625
Training_Years	.073	.033	.317	2.251	.030	1.315
D_Moderate	1.036	.343	.493	3.020	.004	1.767
D_Hard	.761	.490	.260	1.552	.129	1.868

Note: Dependent Variable = Seizing. Reference category for intensity = Technical/Light.

Table E3.6: Final Model Coefficients (Step 3): Resilience

Predictor	B	SE	β	t	p	VIF
(Constant)	3.092	.498	-	6.214	<.001	-
Age	.005	.019	.091	0.279	.782	7.794
Mgmt_Tenure	.005	.032	.051	0.146	.885	8.882
Meditation	.122	.058	.275	2.093	.043	1.276
Training_Hrs_Week	.008	.028	.045	0.302	.764	1.625
Training_Years	.038	.014	.359	2.686	.011	1.315
D_Moderate	.400	.148	.419	2.706	.010	1.767
D_Hard	.411	.211	.310	1.945	.059	1.868

Note: Dependent Variable = Resilience. Reference category for intensity = Technical/Light.

Table E3.7: Collinearity Summary (Final Model)

Predictor	VIF	Tolerance	Interpretation
Age	7.794	.128	Elevated (collinear with Tenure)
Mgmt_Tenure	8.882	.113	Elevated (collinear with Age)
Meditation	1.276	.784	Acceptable
Training_Hrs_Week	1.625	.616	Acceptable
Training_Years	1.315	.760	Acceptable
D_Moderate	1.767	.566	Acceptable
D_Hard	1.868	.535	Acceptable

Note: VIF > 5 indicates potential collinearity concern. Age and Management Tenure show elevated collinearity as expected (older managers tend to have longer tenure). Training and intensity predictors show acceptable VIFs (< 2), supporting interpretability of H3 findings.

Table E3.8: ANOVA Summary (Final Models)

Outcome	SS Regression	SS Residual	df	F	p
Sensing	18.271	27.332	7, 38	3.629	.004
Seizing	21.687	29.030	7, 38	4.055	.002
Resilience	5.067	5.389	7, 38	5.104	<.001

Note: All final models (Step 3) were statistically significant.