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THE NEXUS OF MINDSET, COMMUNICATION, DATA LITERACY, AND CHANGE: A SOCIAL-SCIENTIFIC APPLICATION

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Abstract

This research essay reconceptualizes a practitioner-oriented story about organizational change by framing it within established social-scientific theories and translating analytically grounded mechanisms into insights for practice. At its core, this essay presents the findings from a design-based case study that employed nexus analysis and other interventionist research methodologies. Findings supported the notion that mindset change is a necessary precursor to behavioral and organizational transformation. Drawing on cognitive and social psychology, this perspective underscores that openness to new information, evidence, and reframing is the cognitive gateway to altering behavior at the individual, team, and organizational levels.

The discussion links mindset to organizational sensemaking, where data gains meaning through socially constructed narratives. Coordinated sensemaking aligns mental models across organizational units, forming the basis for informed decision-making and shared action. Communication serves as the social mechanism through which evidence is transformed into collective meaning, having evolved from simple transmission to interpretation and into shared understanding. The narratives presented during the facilitated nexus events (cross-disciplinary, facilitated meetings to formalize deep understanding and integration, where data were collected for analysis) were designed to interpret data shaped by interdiscursive processes.

Managers are pivotal actors in the roles of sensemaker, boundary spanner, and message translator. Their mindset determines how they interpret data, anticipate consequences, and enact changes in alignment with strategic intent. Booz Allen Hamilton (2105) reports that many data projects fail due to a lack of imagination for something new and different.

Findings support the value of applying Schwarz's (2017) mutual learning model as a practical tool that connects evidence, mindset, and behavior. Its eight defined practices provide a procedural guide for developing a shared mindset and fostering a collective sense of understanding. This communication approach helped coordinate data with commitment. This applied research demonstrates the effectiveness of mutual learning towards improving decision quality, collaboration, and behavioral alignment, supporting Young (2021) and Bushe-Marshak Institute (2018).

The findings suggest that the successful implementation of evidence-based practices for data literacy requires alignment within the nexus of empirical evidence, mindset, and dialogic communication. It calls on both practitioners and scholars to explore mechanisms such as the use of triangulated data, manager engagement, and mutual learning dialogues as key strategies for effective and sustainable change.

Keywords

Interpersonal Communications; Evidence-Based Management; Data Literacy; Organizational Change

Introduction

Organizational change is fundamentally a socio-cognitive process, not merely a logistical one. From a social-scientific standpoint, the assertion that "before behaviors change, mindsets must be open to accepting new information" aligns with well-established theories, including mindsets (or mental models), sensemaking, and change management. In social psychology, a mindset refers to the lens through which a person shapes their perception, interpretation, and behavioral change. It functions as a filter that influences both how individuals perceive new information and whether they are willing to act upon it.

Within organizations, this principle stands: collective mindsets, expressed through shared norms, stories, systems, and symbols, influence whether strategic evidence is seen as credible and persuasive (supporting Murphy & Reeves, 2019; Young, 2022). Leaders aiming to change organizational behavior must therefore first shift core mindsets, fostering openness to new frameworks and information, rather than simply distributing data or rules.

Evidence-based change management highlights that successful change incorporates four types of evidence: scientific, organizational, stakeholder, and expert practitioner experience. The scenario in this case study exemplifies a strong application of this principle: the organization's strategy was based on triangulated inputs, including external research, proprietary records, and leadership perspectives, which resulted in both strategic clarity and organization-wide adoption. However, moving from evidence to behavior requires translating data into meaningful action, which happens through human sensemaking and communication.

Social scientists emphasize sensemaking as a social process by which people construct shared meanings from information, stories, and symbols. Achieving success requires going beyond raw data to weave coherent narratives that people can relate to and act upon. Without such interpretation, evidence remains inert; with it, evidence catalyzes belief and behavior change.

This introduction sets the stage for exploring how people interpret data, how strategic narratives are crafted, and how interpersonal communication, especially when framed by structured processes such as mutual learning, becomes the key mechanism for transforming evidence into shared mindsets and enabling change through behaviors.

From Individual Mindset to Collective Change: Theoretical Roots

Mental Models and Behavioral Intentions

Social scientists use the term mindset and related constructs (mental model, attitude, beliefs) to capture the internal cognitive and affective orientations that shape how people perceive, interpret, and behave in the world. In organizational studies and systems thinking, mental models are internal personal representations of how the world works, influencing what we perceive and how we behave (Young, 2022; Senge, 1992).

Making those mental models explicit is a core step in creating learning organizations. From a behavioral science perspective, the pathway from mindset to behavior is often modeled as attitude → intention → action. Ajzen's (1991) Theory of Planned Behavior (TPB) organizes this pathway by specifying that behavioral intention is shaped by (1) attitudes toward the behavior, (2) subjective norms (what essential others think), and (3) perceived behavioral control (self-efficacy and perceived ability). TPB helps explain why new policies or facts do not automatically trigger new behavior: if attitudes are unchanged, normative pressure is weak, or perceived control is lacking, intentions and behaviors will not follow merely due to new evidence.

There are two practical implications. First, leaders, managers, and strategy designers should treat evidence as necessary but not singularly sufficient. Evidence can shift beliefs and attitudes, but it must be interpreted within the context of social norms, perceived constraints, and behaviors inside the organization's culture. Second, communications and social influence processes are the mechanisms that translate evidence into altered attitudes, norms, and perceived control. The very antecedents of intentional action.

Cognitive Dissonance and Reinterpretation

Classic social psychology offers another useful lens. Festinger's cognitive dissonance theory explains how people experience psychological discomfort when new information conflicts with valued beliefs (as described by Kretchman, 2021). To reduce dissonance, they may change beliefs, reinterpret the new information, or discount the source (Kretchmar, 2021). Presenting evidence that contradicts existing assumptions can sometimes lead to rejection rather than acceptance, unless the communication environment mitigates the threat and encourages reappraisal of the evidence. Social scientists, such as Mitcheltree (2021), therefore emphasize strategies that reduce defensiveness (e.g., acknowledging uncertainties, sharing reasons transparently, demonstrating trust) and that scaffold reinterpretation rather than an outright demand for immediate acceptance.

To achieve diffusion and adoption at scale throughout the organization, Everett Rogers' (1962) theory of diffusion of innovations (innovators, early adopters, early majority, late majority, laggards) reminds us that people differ in their readiness to accept novelty. In this case, even when organizational leaders collected excellent evidence and set clear strategic goals, the organization's composite adoption curve significantly impacted how quickly and how thoroughly change spread. As indicators surfaced, leaders were slow to assess heterogeneity in mindset readiness and respond wth differentiated engagement strategies that both supported early adopters and reduced barriers for those later in the adoption cycle.

Why Data Alone Does Not Achieve Change

Evidence-Based Management and the Limits of Data

Organizations are increasingly emphasizing their commitment to evidence-based decision-making. The evidence-based management movement maintains that decisions should incorporate the best available scientific evidence, organizational data, stakeholder values, and managerial expertise. Such a point is crucial, as decision inadequacy or failure most often result from a rush to judgment, imposing preferred solutions, ignoring uncertainties, or underplaying risk (Lathan, 2018). Evidence makes a decision credible and justifiable; however, it does not ensure its adoption. Data veracity, referring to the quality and correctness of data, is a constant challenge (Booz Allen Hamilton, 2015). Evidence must be translated into operational goals, incentives, and meaningful outcomes that are clear and actionable for those responsible for promoting change. Empirical literature highlights the significant impact on implementation fidelity and the emotional tone of change.

The Case Study Pattern: Gathering Diverse Inputs

A standard design in strategic change involves gathering multiple inputs, including internal proprietary records, external research, stakeholder interviews, and leadership perspectives. This triangulation produces richer, more credible interpretations than any single source. In this case study, the organization combined internal documents, external research, and broad stakeholder input to justify its strategic goals and unify its program offices through cross-disciplinary, integrated goals and measurements. Such an approach was consistent with methods in interventional research, produced triangulated evidence to strengthen the epistemic credibility of the proposed change, and provided multiple narratives tailored for different audiences (e.g., workforce, managers, senior leaders, stakeholders, intermural communities of practice). Nevertheless, the crucial analytic step is not only collecting data but also integrating it into narratives and metrics that users can understand and apply. The same data that informs a high-level strategy must be translated into objectives, key performance indicators (KPIs), and day-to-day routines if it is to shape behavior. Here again, the role of translation through sensemaking and communications was demonstrated to be central.

Sensemaking: From Data to Shared Meaning

Karl Weick's (1995) work on sensemaking explains how organizations create plausible accounts of events through social processes of interpretation and retrospective construction of meaning. Change initiatives fail when actors enact different sensemaking frames, as each group interprets the same evidence differently and therefore mobilizes distinct actions. Coordinated change, thus, requires processes that align sensemaking across the organization, creating shared narratives about why the change is necessary and how it will unfold. From the practitioner's perspective, identifying the cues that experts use to make their judgments, even if they involve tacit knowledge, is typically tricky for the expert to articulate (Young, 2021). With newer technical innovations now in play, sensemaking is being reimagined with tools that sift through massive amounts of data with great analytical power. However, first, users need to understand how data is recognized, integrated, and validated before they can grow their sensemaking capabilities. Booz Allen Hamilton (2025) recommends using holistic frameworks to comprehend, develop, and enhance sensemaking capabilities. As is the case when a manager applies a magical manifestation of intuition in decision-making, there is difficulty in supplying an explanation, as knowledge is not acquired through a rational process—this is the essence of intuition (Kahneman & Klein, 2009).

Communication as the Social Glue

Communication is the process through which sensemaking is negotiated and shared among individuals. In traditional change frameworks (e.g., Kotter's eight-step model), communication has clear roles — creating a sense of urgency, forming guiding coalitions, and articulating the vision — that support coordinated action. Research indicates that poorly planned communication increases uncertainty and resistance, whereas transparent, frequent, and two-way communication decreases resistance and enhances readiness to change (Kotter, 2012). Essentially, this suggests that organizations should approach communication as a two-way process — not just a series of top-down announcements. Safe communication channels that encourage questions, reveal assumptions, and create space for collaborative problem-solving are crucial for turning external evidence into internal commitment. The findings in this case highlight the need for improved formal and informal communication.

Managers as Sensemakers, Translators, and Behavioral Gatekeepers

Why Managers Matter

Managers are the connective tissue between strategy and execution. Evidence in this interventional study underscored the manager's role in translating strategic directives into operational routines, influencing employee perceptions, and often acting as the locus of sensemaking during periods of transition. For these reasons, the mindset of managers is particularly consequential, as it shapes how they communicate change downward, the

signals they send upward, and how they allocate attention and resources at the operational level (Balogun & Johnson, 2017).

Drawing from the literature and the lessons uncovered in this case, three sequential and interacting roles that middle managers play during a strategic change were identified:

1) Perception and appraisal: How do managers understand the proposed change? Do they see it as realistic, necessary, threatening, or opportunity-laden? Their appraisal was influenced by the data they received, their past experiences, and their integrative capacity—the individual's ability to perceive reality clearly, accept and process information, and see patterns, make connections, and integrate diverse information into a more sophisticated understanding (Pratch, 2014). Described as a *synthesizing mind* by Howard Gardner (2008).

2) Interpretation of consequences: What do managers believe the change will mean for their units, staff, and careers? These interpretations determine their willingness to sponsor, resist, or modify the change.

3) Communication and enactment: The mindset and interpretation set the tone for how middle managers communicate the change to frontline employees (messaging, emphasis, framing) and which practices they prioritize to make the strategy real (KPIs, resource allocation, process redesign).

Empirical studies show considerable variability in how middle managers perform these roles. Some become powerful champions of change, while others subvert or dilute it. That variability explains why identical central directives produce different results across units (Woodridge et al., 2008).

From Strategic Mindset to Conversational Practice: The Mutual Learning Approach

Origins and Core Ideas

The Mutual Learning approach (also called the Mutual Learning mindset and the eight behaviors for more innovative teams) translates a values-based orientation (e.g., transparency, curiosity, and compassion) into specific conversational practices that generate joint understanding and commitment. Developed and popularized by Roger Schwarz and Associates (2017), this approach synthesizes influences from Chris Argyris and Donald Schön, as well as action-oriented group process work. It has been applied in leadership development, team coaching, and cross-disciplinary science teams as a way to accelerate collaborative sensemaking and reduce destructive conflict (Schwarz, 2017). The organization in this case study utilized the mutual learning component, in part, as a measured indicator of effective interpersonal and interteam communication.

The Eight Behaviors as Practical Mechanisms

The Mutual Learning model (Schwarz, 2017) operationalizes the shift from mindset to behavior through eight interlocking practices:

1) State one's views and ask genuine questions — share reasoning and invite critique rather than making unilateral assertions.
2) Share all relevant information — make known the data and assumptions that shape personal judgment.
3) Use specific examples and agree on what important words mean — reduce ambiguity by grounding talk in concrete instances and shared definitions.
4) Explain reasoning and intent — surface how conclusions were derived and what outcome was hoped to be accomplished.
5) Focus on interests rather than positions — explore underlying needs and constraints instead of fixed demands.
6) Test assumptions and inferences — make inferred links explicit and solicit tests or counterevidence.
7) Work jointly to design next steps — co-create actionable, shared plans rather than dictating solutions.
8) Discuss the undiscussable — create safe ways to raise emotionally charged but strategically important topics.

These practices serve as micro-mechanisms for building shared meaning and procedural safeguards against the oppositional social dynamics (e.g., defensiveness, secrecy, positionality) that hinder change. Importantly, applying a subset of behaviors can yield benefits, but the whole set is synergistic, with each behavior supporting the others. The organization in this case study provided the Mutual Learning training (a three-day classroom session) for its senior leaders approximately three months prior to the launch of this interventional research, aiming to apply evidence-based practices while developing a three-year strategic plan. Findings emerged at various points throughout the 14-month project, prompting the decision to send more than 100 middle and senior managers to attend a one-day classroom program.

Evidence of Effectiveness

Recent applied research (e.g., team science literature) and systematic measurement of practitioner behavior indicate teams using mutual learning practices achieve better decision quality, faster implementation, and improved well-being through acceptance. The organization in this case study did as well. The Team Effectiveness Model for Science (TEMS), for instance, places a mutual learning mindset at the center of cross-disciplinary team functioning, showing improvements in integration and productivity when these conversational norms are present. It has been said that academics assume scholars are familiar with the subject matter when producing scholarly literature, and "since scholars are their target audience, they practically talk in code to practitioners" (Cohen, 2007, p. 1017).

How Data, Mindset, and Mutual Learning Fit Together

A Mechanistic Account

This research proposed a step-by-step framework that linked data collection and analysis to inform changes to organizational behaviors. Translating and operationalizing the theory was achieved by following the sequential mechanisms. The first stage, data collection and synthesis, involved leaders and researchers gathering diverse sources, including internal documents, external research, focus groups, and interviews with leaders and stakeholders to create a solid evidence base. This evidence then supported strategic decisions and the development of KPIs. Building on this, the sensemaking and narrative creation phase had leadership teams interpreting the gathered data to develop clear strategic stories that explained the reason for change and how to implement it. Importantly, this stage also required attention to potential counter-stories or alternative interpretations that arose among managers and stakeholders, aligning with theories of organizational sensemaking, where narrative feasibility was key to fostering a shared understanding.

The second stage shifted focus to the role of manager appraisal and reframing. Managers receive and interpret strategic narratives through the lens of attitudes and realities within the organization's culture, updating or resisting their mental models accordingly. Their openness to new information determined whether they internalize**d** and adapted the broader narrative for their teams or reshaped it in light of operational constraints. Such alignment with the literature on sensemaking processes in organizational change underscores the dual role of managers as both interpreters and communicators of strategy (Blakcori & Psychogios, 2021).

The next stage, involving the application of mutual learning practices, included facilitated dialogues at the nexus workshops and problem-solving sessions. Doing so created spaces for managers and employees to test assumptions, exchange relevant data, and co-design KPIs as a core component of the three-year strategic plan. These practices promoted collaborative ownership of the change process and surfaced hidden concerns that might otherwise undermine momentum, consistent with research by Schwartz (2017) and Reagans (2022).

Finally, the framework culminated in behavioral enactment and feedback loops. With shared understanding and agreed-upon KPIs in place, teams instituted new practices. Concurrent, ongoing data collection and transparent sharing generated feedback loops that reinforced learning and facilitated course corrections when needed. Mindset is not a static attribute but rather a dynamic variable continually reshaped by evidence, discourse, and lived experience. The lesson learned was that mutual learning practices accelerate the transformation of evidence into shared mindsets and coordinated behaviors, enabling sustainable organizational change.

The Effects of Intentionally Designed Communications

Drawing on the combination of management literature and the mechanisms discovered from this case study, organizations can take practical steps to design communication and sensemaking processes that advance mindset change and behavior adoption.

Triangulate Evidence and Make it Recognizable. Combining high-quality external research with internal data and stakeholder input creates a mosaic of evidence. Evidence that includes local examples and case narratives is more easily integrated into the mental models of middle managers. This approach is consistent with evidence-based management, which advocates for blending multiple sources of the best available evidence (Rousseau & Barrands, 2018; Young, 2022).

Engage Managers Early and Intentionally. Rather than merely informing managers of final decisions, management teams participated in sensemaking workshops where they could surface concerns and contribute to crafting KPIs that were practical and understandable for their respective units. This research revealed that managers' involvement increased the uptake of implementation and reduced unintended resistance.

Use Mutual Learning Practices to Challenge Assumptions. Convened and facilitated nexus sessions that explicitly leveraged the eight mutual learning behaviors: stating views and asking genuine questions, requiring the sharing of

relevant data, and collaboratively working to design next steps as examples. These practices reduced defensive reactions and produced jointly owned plans, as predicted by Schwarz (2017). Goal interdependence was achieved.

Translate strategic goals into clear KPIs and Build Short-term Wins. Strategic goals must be operationalized into measurable objectives that frontline workers can influence. Kotter (2012) emphasizes the importance of achieving short-term wins to build momentum. Aligning KPIs with these short-term wins makes progress visible and supports a positive feedback cycle.

Build data literacy and tools for interpretation. Data alone does not provide meaning. Organizations need data-literate employees who can interpret and use data in context. Achieving this state requires investments in training, dashboards that convert numbers into narratives, and interpretive forums where data is jointly reviewed. Scholars and practitioners now consider data literacy a core organizational competency for evidence-based change (Somers, 2024).

Frequent, honest, and two-way communication. Not only did it reduce uncertainty, but it also helped prevent the spread of unsubstantiated assumptions and gossip. Communications should not be limited to top-down messaging; they should cultivate forums where frontline staff can ask questions, provide counterevidence, and co-design solutions (Elving, 2005). Research on communication during change reiterates the benefits of two-way, dialogic processes in reducing resistance and enabling group sensemaking.

Common Obstacles were Found and Fixed

In high-stakes organizational environments, people frequently resort to defensive reasoning and secrecy, defaulting to positional bargaining rather than transparent discourse. The mutual learning model offers a proven countermeasure. Institutionalizing the sharing of reasoning and norms for testing inferences and assumptions counteracts defensiveness and fosters an atmosphere of collaborative inquiry. However, for mutual learning to succeed, the environment must support psychological safety. Devil's Advocacy can be effective when accompanied by respect and applied through mutual learning practices. An atmosphere in which individuals can engage without fear of judgment or retaliation, thereby enabling open engagement and genuine reflection. Leaders needed to monitor the manager's engagements with their team to ensure mutual learning fundamentals were being applied.

Organizations face risks of data overload and misinterpretation when relying too heavily on data visualization tools, like dashboards, beyond their capacity for nuanced interpretation. In this case, the organization's leadership learned firsthand that information overload hampers the quality of decision-making by overwhelming individuals' ability to synthesize information. Leaders often turn to dashboards for efficiency, but without supporting narrative context and relevant explanations, dashboards can be misleading. Reports showing exaggerated individual or team performance illustrated how metric surrogation can distort strategic intent, while inconsistencies in understanding data can skew performance evaluations. Reducing these risks involves creating interpretive nexus events where narratives are co-created and local knowledge is valued and respected.

The organization's leaders, in this case, learned that misalignment between KPIs and daily work can exacerbate effectiveness when managers are excluded from the KPI design process. Without their input, KPIs may lack relevance or even demotivate a workforce. Co-designing KPIs with mutual learning practices improved both their legitimacy and practical applicability. Additionally, readiness to adopt change varied across organizational units, corresponding to Rogers's diffusion of innovation adopter categories, as cited by Mohammadi et al. (2018), ranging from innovators to laggards. Organizations can address this heterogeneity through targeted engagement strategies, such as piloting initiatives with early adopters and building credibility with the early majority by achieving visible, short-term wins.

Further Research for Social and Management Scientists.

Addressing these questions would refine both theory and practice on how evidence translates into action within organizations. The integrative framework suggested raises empirically tractable questions: How exactly do mutual learning conversations alter mental models at the management level? What are the cognitive and discursive markers of successful reframing (mechanics of translation of interest to social researchers)? Organizational scientists might explore the boundary condition, asking what organizational structures (e.g., highly bureaucratic vs. matrixed vs. hybrid) are most effective? Management scientists could inquire into longitudinal pathways to assess how durable mindset changes are produced through mutual learning and the triangulation of evidence. Is there behavioral persistence after leadership changes? Lastly, what would be the best metrics to capture and bring clarity to the nexus of mindset, communication quality, and behavioral changes?

Conclusion

The case in this interventional research describes an organization that utilized evidence, unified units through joint planning, and enhanced communication. Ultimately, a useful archetype was created. The social-scientific explanation suggests that the key link between evidence and behavior lies in human interpretation and communication. Mindsets matter because they influence how people evaluate evidence, interpret results, and share their findings. However, mindsets are not fixed, and social processes can change them. Mutual learning provides practical conversational practices that turn evidence into a shared understanding, encouraging coordinated behavioral and organizational change.

For practitioners, the prescriptions are practical and effective. Invest in the best available, triangulated evidence. Involve managers early. Use outside expertise to support the intervention. Develop data literacy and transparent communication channels. Employ mutual learning practices to improve the effectiveness of communications. Plan for heterogeneity in adoption. For researchers, examine the micro-processes of conversational change, the role of managerial sensemaking, and the organizational factors that support evidence-based transformation.

Change will always be messy. However, by focusing on mindset shifts and communicative design — and by providing organizations with accurate data and effective ways to manage it — leaders can transform theories into tangible action for better organizational outcomes.

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