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Research Statement

What if organizations diversify by selecting for sameness? Organizations increasingly build diverse teams because they expect demographic differences to generate cognitive differences: new perspectives, new expertise, new problem frames, and ultimately better innovation. This expectation has shaped not only managerial practice but also core theories of teams, networks, and organizational learning. The underlying promise is simple: bring different people into the room, and different ideas will follow.

My research shows why that promise can break down. I develop the concept of the **diversity paradox:** teams can become more demographically diverse while remaining cognitively homogeneous. More provocatively, I argue that efforts to increase observable diversity can sometimes intensify selection for less visible forms of sameness. When decision-makers face uncertainty about collaboration across differences, they may manage that uncertainty by choosing diverse collaborators who are familiar in other ways: people with similar training, similar expertise, similar professional networks, or similar ways of framing problems.

I call this mechanism **compensatory cognitive homophily.** It explains how organizations can expand representation while narrowing the range of knowledge that enters collaboration. The people who gain access may be those who best match existing norms, while those who bring unfamiliar perspectives, expertise, or problem definitions remain less likely to be invited in, heard, or retained. The diversity paradox is therefore not only an innovation problem. It is an equity problem about which kinds of differences organizations are willing to value.

This argument anchors my broader research agenda on teams, networks, and innovation. I study organizations as systems of social and cognitive sorting: structures that determine not only who is connected to whom, but what kinds of knowledge can move, combine, and become consequential. Using large-scale data from medicine and patenting, natural language processing, network analysis, formal modeling, and agent-based modeling, I examine when diversity and connectivity generate novelty and when they instead reproduce intellectual closure.

Across this work, I ask a question at the heart of organizational and management theory: **when do organizations actually allow differences to make a difference?**

The Diversity Paradox: How Pursuing Observable Diversity in Teams Can Undermine Cognitive Diversity

My first major project empirically tests the diversity paradox in innovation teams. I examine whether demographically diverse teams also bring together cognitively diverse collaborators, or whether team formation can reproduce intellectual similarity beneath observable differences.

I test this argument using data on more than 4.1 million United States patent teams from 1976 to 2019, representing over 3.1 million inventors. Patenting is an ideal setting because invention is collaborative, knowledge-intensive, and central to theories of innovation. I focus on gender as a

salient marker of demographic diversity in team formation. To measure cognitive diversity, I use natural language processing on millions of patent abstracts to map inventors into a knowledge space based on their prior work. This allows me to estimate the cognitive distance among collaborators and examine whether gender-diverse teams also combine distinct expertise and problem frames.

The findings show that demographic diversity can coexist with cognitive homogeneity. Teams that appear more diverse are not necessarily teams that bring together more varied knowledge. In some cases, demographic inclusion is associated with narrower cognitive distance among collaborators, consistent with compensatory cognitive homophily: decision-makers may manage the uncertainty of observable differences by selecting collaborators who are familiar in less visible ways.

This project contributes to diversity, teams, and innovation research by showing that the benefits of diverse teams depend not only on who is included, but on how inclusion occurs. Demographic diversity remains essential, but it is not self-executing. If organizations select diverse collaborators through narrow filters of familiarity, they may expand representation while limiting the very intellectual variation that makes diversity consequential.

Social Distance Versus Knowledge Distance: Rethinking a Foundational Assumption in Network Theory

A second stream of my research examines a foundational assumption in organizational theory and network analysis: that social distance reflects knowledge distance. Scholars often treat social proximity as a proxy for knowledge proximity. Actors who are close in a network are assumed to know similar things; actors who bridge distant communities are assumed to access novel knowledge. This assumption underlies theories of brokerage, structural holes, team assembly, knowledge transfer, and idea diffusion.

My research shows that this assumption is only partially justified. Social and knowledge spaces are related, but they are not interchangeable. Treating them as equivalent can distort how we understand expertise, innovation, and organizational learning.

I study this problem in medicine, where physicians are connected through referral, co-treatment, specialization, and institutional affiliation, but expertise is highly differentiated. Using medical claims data on billions of healthcare encounters for more than 220 million insured patients from 2016 to 2024, I construct measures of both social distance and knowledge distance. I then examine whether network maps accurately represent the intellectual landscape of medicine and whether traversing social distance actually provides access to novel knowledge.

The findings show that social ties correlate with knowledge similarity, but imperfectly and unevenly. In some cases, actors must traverse substantial social distance to access new knowledge. In others, socially distant actors occupy surprisingly similar cognitive positions. These results challenge the assumption that bridging social communities necessarily means bridging knowledge domains. A broker may connect disconnected actors without connecting meaningfully different expertise; conversely, distant actors may already know similar things.

This project contributes theoretically by separating relational structure from cognitive structure and methodologically by developing tools for measuring knowledge distance directly rather than inferring it from social ties. More broadly, it shows that networks are not neutral channels through which ideas flow. They are sorting systems that shape which expertise is reachable, which knowledge appears legitimate, and which intellectual combinations become possible.

Diffusion, Contagion, and the Alignment of Social and Cognitive Structure

My third stream of research examines how the alignment between social and knowledge spaces affects the diffusion of ideas, behaviors, and innovations. Much of the diffusion literature focuses on network topology: whether networks are clustered, centralized, hierarchical, or rich in long-range ties. My work adds a second dimension: whether social proximity corresponds to knowledge proximity.

Using agent-based modeling, I examine how different alignments between social and knowledge spaces shape diffusion outcomes. I model networks with varying topologies, including random, small-world, and hierarchical structures, and simulate both simple and complex contagions. I then vary the correlation between social closeness and knowledge similarity to examine how social-cognitive alignment affects the speed, reach, and diversity of diffusion.

The results show that the same network structure can produce different diffusion patterns depending on how social and knowledge spaces are aligned. When social closeness and knowledge similarity are highly correlated, diffusion may be fast but intellectually concentrated: ideas travel quickly among people who already understand one another but fail to reach cognitively distant domains. When social and knowledge spaces are less correlated, diffusion can become less predictable but more generative, allowing ideas to move across intellectual boundaries. The type of contagion also matters: simple contagions benefit from long-range ties, while complex contagions often require clustered reinforcement.

This project contributes to theories of organizational change and innovation by showing that diffusion depends on the joint configuration of social and cognitive systems. A network optimized for speed may not be optimized for novelty; a network optimized for reinforcement may not be optimized for intellectual diversity. Effective organizational design requires understanding not only the structure of ties, but the knowledge those ties connect.

Future Research: Designing Organizations That Let Differences Matter

My future research will develop a broader theory of how organizations design teams, networks, and institutions that allow differences to matter. Across my current work, I show that diversity, connectivity, and expertise are not automatically generative. Their effects depend on how organizations evaluate differences, manage uncertainty, and structure access to knowledge.

First, I will examine the micro-mechanisms that produce compensatory cognitive homophily. The patent-team project identifies a large-scale pattern: demographic diversity can coexist with cognitive similarity. My next step is to study how this pattern emerges in real-time selection. Using field experiments, survey experiments, and organizational partnerships, I will examine how decision-makers evaluate potential collaborators under uncertainty and when they use familiar credentials, networks, or work styles to manage the perceived risks of difference.

Second, I will continue to study physician networks as systems of expertise diffusion and knowledge evolution. Using medical claims data, I will examine how physician networks shape the adoption of new practices, the spread of diagnostic and treatment expertise, and the emergence of new knowledge domains. I am particularly interested in whether divergence between social and knowledge spaces predicts moments of innovation, fragmentation, or paradigm change. If mismatches between who collaborates and what they know increase before the emergence of new specialties or practices, social-cognitive divergence may provide an early signal of knowledge evolution.

Third, I will develop interventions that help organizations explicitly value cognitive diversity rather than assume it follows from demographic diversity. This includes studying how teams recruit, how evaluators define "fit," how leaders manage uncertainty and conflict, and how organizations create psychological safety for genuinely different viewpoints. The goal is not to replace demographic diversity with cognitive diversity. It is to understand how organizations can pursue both: expanding access while protecting the forms of knowledge, perspective, and problem-framing that make diversity consequential.

Finally, I will extend this research beyond medicine and patenting to other knowledge-intensive domains, including entrepreneurship, academia, scientific collaboration, and creative industries. Comparing these settings will allow me to build a more general theory of when organizations convert social differences into intellectual possibilities and when they domesticate differences into familiar forms.

Conclusion

My research asks why organizations that are designed to broaden participation sometimes reproduce intellectual closure. Across projects on patent teams, physician networks, and diffusion dynamics, I show that social structures do more than connect people. They sort knowledge. They determine whose expertise is visible, whose ideas are credible, and which combinations of people and perspectives become possible.

My broader contribution is to organizational and management theory: I develop a framework for understanding innovation as a social and cognitive sorting process. This framework pushes beyond surface-level measures of diversity and connectivity to examine the deeper mechanisms through which organizations include, filter, and mobilize knowledge.

At its core, my research is about access and opportunity. But access is not only about who enters the room. It is about whether organizations are prepared to value what people bring with them. The promise of diversity is not fulfilled when different people are included only on familiar terms. It is fulfilled when organizations create the conditions under which different people can bring different ideas, expertise, and problem frames into collective work.

That is the question my research will continue to pursue: **when do organizations actually allow differences to make a difference?**