

## **The Complexity of Diversity: Rethinking Gaps and Leveraging Differences**

### **SUMMARY OF PRESENTATIONS**

November 10-11, 2005  
University of Michigan, Palmer Commons

Note: The following notes were compiled by designated scribes at the conference and pulled together afterwards by editors at the NCID. Although this document endeavors to capture the essence of each expert's presentation, researchers should contact speakers and review their related publications to access these studies more fully.

Consider the following scenarios:

- One city erupts into riots, plagued by violence once again. Another city, just as ethnically diverse, manages to maintain peace.
- The achievement gap between black and white students alarms educators yet stubbornly resists interventions.
- Housing segregation persists despite an increased value placed on integration and rising incomes for blacks.
- College administrators work to attract students of color for the diverse perspectives needed for better learning and a better democratic society. But what happens once students arrive? Is there sharing and integration or confrontation and separation?
- A company needs to convene a team to develop a new product. What perspectives and skills should be represented on that team? And will team members actually work together and put the group ahead of themselves?

Issues such as these have caught the attention of educators, business leaders, policymakers, and scholars who wrestle with the complex nature of cities, schools, societies, and industries--and the role of diversity in each of these institutions.

“Diversity is not only a value and a policy and a commitment but also a line of inquiry,” explains Michael Cohen, William D. Hamilton Collegiate Professor of Complex Systems, Information, and Public Policy at the University of Michigan. For two days in November 2005, scholars and leaders gathered at the University of Michigan to open that line of inquiry.

Sponsored by the National Center for Institutional Diversity, the Complexity of Diversity Colloquium centered on understanding what diversity is, how diversity comes about, and what the consequences of diversity are for individuals and institutions. Participants additionally examined how diversity might be prevented from wreaking havoc on a society and instead harnessed to benefit humankind.

As the colloquium demonstrated, scholars, policymakers, and business executives are moving away from the simple conception that diversity is good towards a deeper understanding of *when* and *how* diversity is good. However, the complex systems—cities, schools, societies, cultures, ecosystems—in which diversity is a factor complicate efforts to understand diversity.

To complete the link from diversity to better outcomes, we need to distinguish among types of diversity and explore the connections between these various types and the outcomes they produce. For example, it is vital to discover *when* and *how* diverse perspectives lead to better outcomes.

This gathering applied a new science of complexity to several key questions: What is diversity? How do diverse individuals interact and respond? And how does diversity function? Namely, when is it useful? When is it wasteful? And when do differences lead to conflict?

The conference had four main sessions.

### **Diversity Within a Complex System**

It began with an explanation of the science of complex adaptive systems, the role of diversity in the systems, and how benefits emerge from the interactions of diverse parts.

The complex systems framework brings a focus on the interactions of individual parts or “agents” to view what interactions over time lead to what outcomes. It helps scholars consider connections among individual actions, processes, and outcomes.

### **The Nature of Our Differences—Who We Are**

The next session looked at difference—why and how we differ, why

those differences are important to us, and where people's differences originate.

This session revealed that identity is itself complex and that people have multiple identities to draw upon, with certain ones more important depending on the situation. It is interactions among our genes, environment, and culture that lead to people's identities.

Identity is a central concept in diversity, but identity has confounding effects. It creates cognitive differences, which can drive progress while at the same time producing boundaries that can hinder efforts to benefit from that diversity.

### **Gaps in the System**

The third session focused on causes and implications of segregation and the potential for conflict created by that segregation. Presenters asked not only why we see such extreme segregation by both identity group and income class, but also how we might change those dynamics and prevent conflict.

### **Interacting Our Differences**

In the final session, presenters recounted efforts to understand how to manage diversity to achieve the benefits of diverse perspectives applied to creative problem solving.

## Part 1

### Diversity Within a Complex Adaptive System

Atoms interact to become cells, diverse cells become people, and diverse people become societies. The new sciences of complexity give us a way to understand these interactions.

Complex adaptive systems consist of “agents” that differ from one another and interact in space over time. The diverse parts may interact to produce “emergent phenomena”— higher order structures, patterns, and functions than might not have been predicted just by considering the parts that comprise them.

Agents learn various strategies to adapt to their local and global environments. Population pressures and the system filter out the less successful strategies. In a system that is robust, enough variety remains to withstand “shocks” to the system, allowing for continuing functioning or adaptation to new conditions.

Scholars of complex adaptive systems agree on the necessity of diversity for complexity. Complexity arises from accumulating, interacting, and adapting differences. For this reason, complex systems scholars see diversity as something to be encouraged and nurtured. They recognize, too, that they themselves are diverse agents, bringing different ways of framing questions and discipline-specific tools to understandings of diversity.

### Complex Systems: An Introduction

Michael Cohen, University of Michigan

We can't control complexity, but we can work with it and potentially steer it in the general direction we want to go. We also can't eliminate complexity.

While there is no theory of complex systems, it does provide a framework to generate several fruitful questions about diversity:

- In a given context, what is the right balance between variety and uniformity?
- What should interact with what, and when?
- Which agents or strategies should be copied or destroyed (selected)?

Variation, interaction, and selection are key concepts in understanding complex systems. For the colloquium's exploration of diversity, variation is the most relevant concept, but interaction and selection are also important because those concepts lead to considerations of what

one does with variety.

In a complex system, a population of agents and their strategies interact. The things that are of interest to researchers of complexity are the processes that create variation in types of agents and strategies, the patterns of interaction among agents, and processes of selection that influence which agents and strategies will become more frequent.

"Complexity" in a system is evident in feedback loops and difficulty in predicting outcomes. The relationships among the parts can be nonlinear—no simple one-to-one relationship, constantly increasing or decreasing over time. Here is an example of feedback: VHS gains a foothold in the market, which makes it advantageous for a new consumer to buy a VHS recorder, which makes VHS more popular.

Human tampering with complex ecosystems has led to notable failures to predict outcomes. For example, when 24 rabbits were released onto Australian estate for hunting in 1859, no one predicted there would be 600 million rabbits in 1950.

Looking in more detail at the three important questions, the first focus is on variety. What is the right balance between variety and homogeneity? Diversity is not always beneficial; sometimes variety makes things worse.

Variety may have complex outcomes. Consider the composition of districts in the House of Representatives. In the 1950s there were many districts with a 50/50 voting split between Democrats and Republicans. Now, the distribution is bimodal; many districts are solidly Democratic or solidly Republican. This has two effects:

1. The House is more diverse, but the districts are more homogenous. This moves discourse from within districts, to within the house.
2. Large swings in public opinion used to have a large effect on the composition of the House because many districts would swing one way or the other. Now, large swings seldom have a large effect on the composition of the house. There is a dampening of the amplification of public opinion to the representative body.

Another example where variety is employed is in open source software, such as the Linux operating system, where the code is available to all and anyone can change it. Using an army of 10,000 volunteers who don't necessarily know each other might seem to be a bad way to design something as complex as an operating system. But the "many eyeballs" approach to solving a problem is one that has

been successful in producing a very stable system.

It is precisely this kind of problem—a complex one—that yields best to bottom-up solutions involving many diverse individuals.

The success of bottom-up approaches depends on a good selection system, and it highlights a related issue in problem solving. When is it best to explore, or try radically new and innovative solutions? And when is it best to exploit, or build off of previously successful solutions in small increments?

It is best to explore under the following conditions:

1. The problem is long-term or widespread.
2. There is fast feedback on variations tried. Problems like education and monetary policy are poor choices for exploration because there is an extraordinarily long lag between implementing a trial solution and seeing the outcome.
3. There is a low risk of catastrophe or looming disaster; you've got nothing to lose.

The second major concept for a complex system is interaction. Who should be interacting with whom and when? What is the right kind of interaction, and how much is too much interaction? For example, in efforts to model the spread of a disease, it matters who interacts with whom and how often. If you assume random interactions, you may get a radically different result than if you model interactions more realistically.

A third area of inquiry is selection. Which types of agents and strategies should be copied or encouraged? The game of chess is a helpful example. You can't see to the end of the game, so you use appropriate indicators instead. You learn over time what strategies work well, select those, and let others fall by the wayside.

A pitfall in selection is misattributing group success to the individual. One player's extraordinary success may have more to do with the group composition than his individual attributes.

A complex systems framework suggests new questions for organizational designers, such as how to manage variation as in “exploration versus exploitation,” how to find high-leverage points of intervention in interaction patterns, and how to thoughtfully orchestrate selection of both the agents in the organization and strategies they use in interactions.

The harder it is to predict the outcomes, the more useful the complex system framework becomes.

### **Diversity in Complex Systems**

Scott Page, University of Michigan

Diversity offers the promise of different perspectives or ways of thinking about how things work. This is important because some problems that are easy to solve in one way may be difficult or impossible to solve when approached another way. As a rule, diverse perspectives create more ways of looking at the problem and therefore more solutions.

#### *Diversity vs. Ability: A Test*

Suppose you set up some artificial problem-solving agents, with different sets of tools, and rank their ability to solve a particular problem. You might think of this as their “IQ.” Now suppose you create two groups: one group with only those who rated high on the IQ scale, and one group with some morons in it. You have them solve problems. On some problems, the diverse group performs better than the high-ability group.

This phenomenon can be explained by diversity. People who are good at solving a particular problem (or set of problems) will often have the same tools. The moron in this example happened to have some different tools, which were helpful when combined with those of his group members. Although a diverse group is not always better, under certain conditions it is.

A toolbox analogy helps address the question of why some disciplines in the academy seem to value diversity more than other disciplines do. Think of people as a collection of tools, rather than an IQ value. This approach makes ranking difficult. Suppose we consider person A to be more highly ranked than person B if B's tools are a subset of A's. If tools are randomly possessed, then the chance of such a subset occurring is extremely small.

However, when tools are ordered, that is, on a ladder of increasing difficulty (first you learn to speak your language, then read a second language, then speak it brokenly, then speak it fluently, etc;), then the chance of one set of tools being a subset of another is 1. If we suppose multiple ladders — a math ladder, an intuition ladder, a verbal communication ladder, and so forth— then the probability is somewhere **in between**.

We segregate ourselves within the academy. In those disciplines where there is really only one ladder (math, physics, economics), people have a tendency to believe that individuals can be easily ranked. But in disciplines with many ladders (English, history, philosophy), there is a tendency to believe that people can't be ranked. Those in the many-ladder disciplines tend to value diversity more than those in the single-ladder disciplines. Interdisciplinary see all of the ladders, so they are also more likely to value diversity.

### **Diversity: A Weapon of Mass Construction**

Norman Johnson, Los Alamos National Labs

Self-organizing collectives can achieve higher performance and robustness than systems structured by “rule books” of optimal procedures. Collective synergy among a diverse group of agents is what is important. People may start out in different places, with different goals, but they join together temporarily in order to advance all of their causes. As each person independently pursues his or her goals, the paths to achieving those goals overlap, and the synergy of their work provides the solution.

Ants solve difficult problems, such as finding the shortest distance between their nest and food, collectively. No one ant takes the “best” path, but in aggregate they do. This collective solution only works if there is a diverse group of ants. There is no one agent that was “fittest.” Unlike natural selection, it is not a competition. Success depends upon the synergy of the group.

This collective synergy contrasts with Cohen's perspectives on the role of diversity in a complex system. There, individual performance benefits the whole through the process of selection, which enables diverse collectives to perform better and avoid being misled by misinformation. Performance from synergistic diversity has a “sweet spot.” In the case of such synergy, a collective may function in three ways: 1) A collective may select a strategy at the individual level. 2) A few members may be selected but the others are eliminated. 3) It may achieve performance but at the expense of some members of the collective.

Finally, a system may use optimization where all operate from the same “rule book.” Optimization sacrifices robustness for performance. When there is a change in conditions, the “rule book” may no longer work, and there may be no agents using alternative strategies that work under the new conditions. An “optimized system,” in which every

agent uses the same rules, can be less robust. It may also be less efficient. If all ants take the same shortest path, then they may slow the entire system down. If the system is perturbed, the old way of doing things may no longer be optimal. If methods are institutionalized, and there are no individuals exploring deviations from the institutionalized path, over time, with many perturbations, you may end up with an archaic system that is no longer optimal at all.

Diversity in a collective is bounded by individual performance and diversity. Competition, optimization, and stress can all reduce diversity and performance. Under stress, individuals in a collective may copy each other's strategies, leading to a reduction in diversity and performance. Cooperation is a form of exclusion. There is a trade-off between cooperation and diversity.

Diversity can lead to synergy when collectives have:

- Common goals

- Common identity

- Common worldview (agreement on options), but with different preferences or goals

Otherwise, diversity can lead to competition and conflict.

Identity is an emergent property of the collective due to a common environment with problems in common. Identity can be defined as “If someone does something to someone in your group, it is as if they did it to you.” Once the identity is formed, the commonality is no longer needed, and the identity of the group may survive despite changing circumstances.

In a more complex world, it is more likely that individuals will belong to multiple groups, and which group they identify with will depend on the situation. Conflict may be reduced by appealing to a secondary identity—for example, bringing Palestinian and Israeli women together to reduce conflict between the groups, appealing to their common identities as women rather than their differing political identities.

Emergent collective problem solving is missing in evolutionary theories, as well as social theories.

## **Biodiversity**

John Vandermeer and Ivette Perfecto, University of Michigan

In the 1970s, ecologists helped popularize the idea of diversity as a positive thing—“the more diverse, the more stable the ecosystem.”

However, a more complex picture of the role of diversity has emerged over the decades of research since. This presentation centers on biodiversity, drawing upon ecosystems research. It does not imply any conclusions for human diversity.

Ecologists divide ecosystems into niches occupied by individual species adapted to those conditions. Fundamental niches are those where a species is able to live. Realized niches are where they live once all inter-species interactions are worked out. The concept of “competitive exclusion” holds that no two species may occupy the same niche. More precisely: if competition is too extreme, then one species must be eliminated.

Selection against those who live in a place where individuals compete for resources leads to the narrowing of niches to eliminate competition. But then another species can come in and take advantage of the niche opened by the narrowed distributions of the other species. However, there is a mathematical limit to how many species can be packed into a system.

Following the “spider web hypothesis”—more connections makes a web more stable—biologists used to think that having more species leads to greater ecosystem stability. But that is contrary to species packing. In fact, as more species are added, there is more overlap between niches, which leads to greater instability. All other things being equal, more species leads to greater instability.

Ecologists have revised their concept of stability. It used to be thought of as a fixed point, either stable or unstable. Now ecologists recognize that it can also be limit cycles—stable patterns of population fluctuations.

Diversity, rather than just emerging from the bottom up, may also be controlled from above. In a mowed field, there is greater diversity than in an unmowed field because the mowing cuts down the fastest-growing plants that would otherwise overrun the area and gives more species a chance to grow.

Likewise, it is possible for a predator to control diversity from above. The predators usually prey on one species. The rise and fall of the predator and prey populations are linked. Occasionally predators prey on another species. Think of the ecosystems as large collections of linked population changes. This leads to extremely complex behavior that you wouldn't see if you looked at each species in isolation.

For example, consider three species with overlapping niches, and

three predators that occasionally prey on the wrong species. The population dynamics of species 1 and 3 (the ones that don't share a niche) track each other very closely. Species 2, which competes with both other species for resources, would have normally been driven out. It remains because it takes advantage of the times when species 1 and 3 have low population density because of predation.

So why do we want biodiversity? Diversity seems desirable. Ants offered bundles of twigs will choose the bundle made up of a variety of types of twigs over bundles composed of only one tree type.

But what good is biodiversity? Why do we want to maintain it? There are many functions of ecosystems — productivity, decomposition, nutrient cycling, pest control and others —so measuring how well an ecosystem "functions" can be difficult to define, which is why most studies focus on agricultural systems where measuring function is measuring productivity.

The question is usually framed as the following: does increased biodiversity lead to increased productivity? Most studies indicate that an ecosystem's loss of diversity leads to reduced productivity, but the debate is in separating out the sampling effects. Diverse communities may just have larger plants, and thus productivity may not be a result of diversity per se. In managed ecosystems, such as coffee plantations or rice paddies, researchers show benefits to species diversity.

Researchers convinced farmers in China to use both disease-resistant and non-disease-resistant varieties of rice in their paddies. There were significant declines in disease in plots planted with more than one variety compared to monocultures.

Perfecto's research on coffee plantations also points to benefits from diversity. Take two types of coffee plantations: ones with low diversity of shade plants and ones with high diversity of shade plants. There is a higher diversity of bird species in the high diversity systems. Birds prey on herbivore insect pupae. Researchers simulated a pest outbreak by netting some trees to prevent the birds from reaching the insects. They wanted to see whether the birds in diverse plantations have more of an effect on the insects than those in the less diverse plantations. In the low-diversity plantations, birds have no effect on pest levels. In high-diversity plantations, birds had a significant effect on insect populations.

In managed ecosystems, then, there are measurable benefits to greater diversity.

## **Part 2: The Nature of Our Differences —Who We Are**

Our identities are products of place, time, and heredity. Not only do these identities have political meaning, but they also provide us with comfort and guidance to the extent that they stabilize our self-perceptions. Depending on the situations in which we find ourselves, we draw upon different identities or aspects of our identities. Identities also allow others to put us into categories.

This session takes up several questions about identity:

- In what ways do our individual differences reflect genetics, environments, and cultures?
- Why do people form social and cultural identities?
- What historical, political, and economic factors foster the formation and maintenance of such identities?
- How important are our identities to our personal well-being?
- In what ways do well-defined identities help us to benefit from diversity?
- How might identity construction and maintenance hinder our attempts to learn from and leverage our differences?

### **Identity and Action**

#### **The Empirical Analysis of "Acting White "**

Roland Fryer, Harvard University

The huge and persistent educational disparities among Blacks and Whites in this country motivate this research on “acting white.” These unsettling gaps stimulate a wide range of explanations. The appropriate public policy choice to address the achievement gap may depend on the underlying source.

Cultural difference is one explanation given for Black underachievement. Famous men, such as Will Smith and Kareem Abdul-Jabbar, have openly discussed how they were ridiculed for and accused of “acting white.” Similarly, Black children who achieve academically may fear being shunned by their peers for “acting white.”

“Acting white” is reflected in the racial differences between popularity and academic achievement—illustrated in data from the National Longitudinal Study of Adolescent Health and the National Educational Longitudinal Study.

“Acting white” is a matter of opportunity costs. If students pursue the

sort of activities that will lead to academic and future job success, then they don't have time for activities that will nurture their friendships with others of their own race.

There is a significant trade-off between being accepted by peers of one's own race and academic achievement. Fryer's model predicts that racial differences in the relationship between peer group acceptance and academic achievement will exist, and these differences will be greater in schools that provide more interracial contact. In fact, he finds that "acting white" is more prominent in public schools and schools in which there are fewer than 20 percent Black students. It is non-existent among Blacks in predominantly Black schools.

Rather than relying on students' self-reports of popularity, Fryer's study measures students' popularity based on friendship network data. In short, students name their five best male/female friends. The responses are compiled across all students so that networks of friends can be identified. In general, the following rule holds true: the more popular your friends are—the more connected you are to popular people—the more popular you are.

A comparison of same-race popularity with grades reveals that as grades go up, popularity increases as well. For black students, this trend begins to go down once the grades go higher than 3.5. For Hispanic students, the trend goes downward when the grades are higher than 2.5. There is a bigger downturn for boys than for girls.

As grades go up, there is a loss of friends of one's own race, but an increase in friends of other races. This trend occurs for students who participate in athletics and cheerleading, but not for students who participate in student government.

This study includes high- versus low-segregation schools. The effect is much larger in schools that are less than 20% Black, while schools that are more than 80% Black are very low in "acting white." Also included are public and private schools. In private schools, as White students' grades go up, their popularity goes down.

Other models have been suggested for "acting white." One is self-sabotage among Black youth. Another is the presence of an "oppositional culture" wherein opposition to longstanding White privilege leads Blacks to refuse to participate in White activities, such as academic work. However, these theories are contradicted by the finding that "acting white" is not seen in predominantly Black schools.

To understand how “acting white” likely affects the achievement gap, one must consider that higher achieving Blacks tend not to go to racially diverse schools.

### **Situated Knowledge**

Elizabeth S. Anderson, University of Michigan

Think of people sitting in a theater. The view from each seat differs. Someone sitting in a center row will see more than someone sitting to the side, behind a pillar where her vision is blocked.

In society, people have different opportunities and different access to resources. This puts each person “in a different place.” People in these different social locations based on race, class, gender, and so forth may view the environment differently, just as people in the theater may have different views. Certain things may seem more “visible” to one person than another.

This creates “situated knowledge”— what you know or can see depends on your location. Thus, race, class, gender, and so forth create social locations that alter what knowledge one brings to an interaction. For example, class differences may “block” knowledge about why a particular financial policy would not work for someone with less money. An example would be company managers who are surprised when employees don’t choose tax-free flexible spending accounts.

Racial differences may show different assessments of what sort of environment counts as successful integration versus tokenism. The challenge to society is to find ways to remove these blocks to shared knowledge. How do we pool situated knowledge for more effective policy?

When considering multi-ethnic, multi-racial environments, one must think about politics, philosophy, and democracy in ways that recognize that people have different views of the environment, depending on where they are situated by social category, not just physically located.

Democracy is a device for pooling situated knowledge—bringing diverse views to a problem —by fostering face-to-face interaction to develop solutions through discussion.

Consider democracy as government by discussion among equals. This idea of democracy is significantly different from the “majority rules” democracy. In “majority” democracy, issues are decided upon

by those in power. But citizens need to determine what the "issues" are going to be. The pooling of resources can make it possible for changes that are relevant to respective groups, and decisions on "issues" can be determined by "equal" citizens.

Individuals have plural identities. As a member of a democracy, an individual has an identity as part of the "we." "We" are a "we" for a specified context. A "we" can split up into another "we" as necessary. Even in this "we" state, we are acting as individuals, but a common goal provides a basis for pooling our information.

How do we bring together multiple-identity persons to form a "we"? A cosmopolitan model, where individuals are members across groups, provides some answers. In this conception, individuals have multiple, intersecting identities, each of which allows situated knowledge. The more salient the information, the more a particular identity will be drawn from it. Forming a "we" also requires promotion of discussion across group lines, or integration, as an instrument for pooling information. This requires more than tokenistic in-group discussion, which merely reinforces stereotypes and doesn't recognize the intersections of our individual knowledge.

There are three other political models that do not enable the pooling of knowledge:

Assimilation forces people to give up their identities (or parts of them) as well as valuable prior knowledge. In an assimilation model, multi-ethnic identities are detrimental to the society.

Segregation divides.

The interactive model would have each group make up different pillars of the same building, all under the same roof. However, the roof holding everything together is actually the elites who speak for their own needs and not for the interest of their representative groups. There is a lower degree of successful integration for immigrants, and there is not a lot of interaction between groups. Intersection of identities never occurs.

The challenge for the future is promoting integration. It is a prerequisite for plural identification, democratic dialogue, and the pooling of information for more effective policymaking. It requires more than tokenism to overcome group stereotypes, make individuating information salient, and empower marginalized voices.

## **African-American Racial Identity**

Robert Sellers, University of Michigan

Racial identity matters. African-Americans vary in their racial identities, based on the significance they place on race and how they define what it means to be Black. For some, race is #1. For others, it is not as important. This presentation looks at “significance versus meaning” within individuals’ attitudes about racial identity—and suggests that efforts to increase diversity may have unintended as well as the intended consequences.

The Multidimensional Model of Racial Identity (MMRI), developed by Sellers to explore the role of racial identity in the well-being of Blacks, represents one conceptualization of the variability in racial identity attitudes. There are two key dimensions of the MMRI:

- Racial Centrality refers to the extent to which a person defines her/himself with respect to race. It is a measure of relative importance of race to the self-concept.
- Racial Regard refers to a person's affective and evaluative judgments of his/her race.
  - Public regard is the extent to which the individual feels that others view African-Americans positively or negatively.
  - Private regard is the extent to which the individual feels positively or negatively towards African-Americans and his/her membership in that group.

Sellers’ study asked adolescents to report how frequently over the past year they experienced “racist hassles.” The hassles included being treated rudely or disrespectfully, being accused of something or treated suspiciously, being presumed to do inferior work, and fifteen other items.

Adolescents’ responses illuminated a relationship between “public regard” and perceived racial hassles. Specifically, those who perceived more hassles had lower public regard beliefs; they thought the public viewed African-Americans negatively. For those with low public regard beliefs, ambiguous experiences were reported as being discriminatory.

Individuals with increased perceptions of discrimination also had an increase in depressive symptoms. Where there was an increase in how highly they regarded African-Americans (private regard), there was a decrease in depressive symptoms.

Girls reported higher levels of stress and discrimination. Racial hassles were not directly related to well-being, but the increase in private regard was. High public regard both raised risks and offered some protection. It was a risk factor for perceiving stress and reduced well-being from experiencing discrimination, yet it was a buffer against perceived discrimination.

Pertinent is research done with college students, who were asked about their perceptions of the racial climate at their colleges. The measures included the following: the extent to which intergroup association was viewed as “the norm” at their school, the equal status of groups, and interdependence of groups—whether they needed each other. In the college data, identity was not related to perception of interdependence or equal status.

In the end, the people with whom African-Americans choose to interact proves important. The level of contact with whites is a predictor of depressive symptoms. The higher the private regard scores, the lower depressive symptoms.

These studies leave us with several issues to consider:

What are some of the potential unintended consequences of promoting more diverse settings for some African-Americans?

Which African-Americans are most likely to be negatively affected?

What can be done to minimize the potential adverse impact for these individuals?

Does diversity mean the same for those in the minority as it does for those in the majority?

## **The Nature of Our Differences—How Do Our Differences Come to Be?**

### **Genes and Environments**

David Moore, Yeshiva University

According to traditional genetic determinism, human traits emerge as a result of the unfolding of a “developmental program” controlled by the genes. These “evolved” traits—be they “biological” or “psychological”—are uninfluenced by experience. They are innate and immutable. Supposedly, scientists can explain how much of our identity is

determined by our “nature” and how much by “nurture.”

In fact, biology long ago rejected this dichotomy though it remains in the popular press. Our genes can't determine any of our characteristics independently of developmental environments. The scientific data underlying our (mis)perception that some traits are more “in the genes” than others are those that come from heritability studies. Heritability tells us about what causes variation in a trait. It tells us nothing about what causes traits, and it tells us nothing about how much (or how easily) a trait can be influenced by environmental factors.

Heritability, taken alone, cannot tell us how likely it is that parental traits will be inherited by their offspring. In fact, all traits are caused 100% by genes and 100% by environments.

As studies of biological mechanisms reveal, “biological” does not equal “immutable.” For example, PKU (phenylketonuria) is widely considered by physicians to be a “genetic” disease, but its development is profoundly influenced by diet.

Time and again, behaviors we have initially thought were “innate” have proven to have interesting developmental courses. If the development of a trait seems uninfluenced by environmental or experiential factors, you probably haven't yet looked hard enough.

Knowing what genes actually do can help us understand what genes could not possibly do. DNA contributes to the production of protein. It does this only with help from non-genetic components in the cell (many of which are not dependent on nuclear DNA for their construction). By itself, DNA is inert.

To more accurately understand human differences, one must draw upon “systems thinking.” In reality, all of the factors in the system—environmental, genetic, and non-genetic-biological—work together to construct our characteristics.

A relatively simple example is hair color. Hair color is determined by the presence of melanin, which is formed during the breakdown of the amino acid tyrosine. Environmental factors that influence the breakdown of tyrosine affect coloration. Melanin accumulation depends, in part, on copper concentrations in hair-producing cells. Non-genetic factors like diet can also affect hair color; hair comes in lighter, for instance, when you're malnourished.

The system does work from the bottom up, as Watson and Crick figured: DNA is used to create proteins; proteins do contribute to the

shapes of organs; organs do contribute to the functioning of bodies; and the structure and chemistry of the brain do contribute to our psychological characteristics.

But the direction of causation can also go the other way. Proteins—that is, hormones—can turn genes on and off. Stress can activate genes used in an earlier stage of development. Furthermore, evolution doesn't require that genes determine our characteristics, independent of our experiences. Adaptive traits require non-genetic input for their development, and then that non-genetic input must be “inherited” by offspring.

Other evidence for the lack of genetic determinism comes from cloning. Cloned calves—who have identical DNA— will develop different markings and distinct personalities, too.

The boundary between “nature” and “nurture” is porous, if it exists at all. Human characteristics, be they biological or psychological, can be best understood via analysis of their development. Development is a unitary process that utilizes both genetic and non-genetic resources.

What it all means for diverse people is that individuals—regardless of their racial, ethnic, or national backgrounds—develop their traits because of how their genes interact with their environment. Certainly, that environment includes culture.

### **Culture, Personality, and Well-Being: Some Unresolved Questions** Shinobu Kitayama, University of Michigan

How do people arrive at a sense of well-being, including an appropriate sense of self and high-quality social ties? Some say culture leads to this outcome, while others suggest it is personality. Are both culture and personality important, or is one more important than the other? Most research has been done in Western societies and particularly the United States, but this study contrasts North American and Japanese cultures.

Culture provides the “blueprints” for what it is that people are expected to do, in what ways they are expected to do it, and how well or poorly they actually do it. North American cultures are organized around the model of self as independent. The central cultural mandate is personal control and mastery. In contrast, Japanese culture is organized around the model of interdependence, and the central cultural mandate is relational harmony.

Personality traits systematically related to well-being include agreeableness, extraversion, neuroticism, conscientiousness, and openness to experience. From national surveys of mid-life in the U.S. and Japan, Kitayama's research group looked at measures of independence, interdependence and well-being.

For the effect of personality on well-being, Kitayama's team found that extraversion was strongly positive, especially in Japan. Neuroticism was negative in both cultures. Agreeableness was weakly negative in the U.S. and weakly positive in Japan. Conscientiousness was weakly positive only in the U.S. Openness to experience was inconsistent.

The research group also looked at the relationship of culturally sanctioned emotions to happiness. Socially disengaging emotions highlight the individual—such as pride, self-confidence, and feelings of superiority. Socially engaging emotions are friendly feelings, feelings of closeness, and feelings of respect.

Looking at the effect of cultural mandates on well-being, the researchers found that culturally-sanctioned positive emotions and episodes associated with them — social engagement for Asians and disengagement for Americans— are among the most significant correlates of happiness and subjective well-being.

Kitayama's theory is that independence arises in cultures established by persons voluntarily moving away to seek better economic circumstances. He tested this idea by looking at the Japanese who live in Japan's northern island of Hokkaido, which was settled, mostly during the first half of the 20th century, by peasants and jobless ex-samurais from the rest of Japan.

Kitayama found that socially engaging emotions were the main factor in happiness among residents of the main island of Japan. For non-native Hokkaido residents, socially engaging emotions were more important than disengaging emotions. However, for Hokkaido-born residents, both contributed to happiness about equally. For Americans, happiness was predicted more by socially disengaging emotions.

Culture plays a crucial role in well-being. Personality dispositions are also important, but no more so than culture. Kitayama cautions that theory grounded in only one culture is incomplete at best and, in all likelihood, misleading.

New questions for scholars of cultural diversity include:

How malleable is it?

What are the consequences of globalization and the biculturalism, cultural change, Westernization of other cultures that come with it?

Scholars also need to consider regional and subgroup differences and similarities, in particular based on social class and gender.

## Part 3: Gaps in the System

### *Self-Reinforcing Gaps: The Challenge of Interaction*

Large gaps exist between racial groups around the world in economic success, educational attainment, exposure to environmental hazards, and access to power. A cause of those gaps is segregation—not only residential segregation, but vocational and social segregation as well.

One of the lessons of complexity theory is that segregation can be self-reinforcing. Systems can tip into segregated configurations that are remarkably stable, even if the people in those segregated communities desire greater integration. The dynamics of segregation, by both identity group and income, are also complex. Solutions to these gaps may require changes in the very structure of our legal, educational, and political systems.

Among the questions that merit further exploration are:

How do incentives at the level of the individual create social dynamics that make segregation self-reinforcing?

How does segregation unfold when people care about both the identity and the economic status of their neighbors?

How does the process of segregation change when the number of identity groups increases?

As we become more diverse, does this reduce or exacerbate the problem of segregation?

Can greater integration across diverse groups prevent conflict?

What are the dynamics of a social uprising, and can uprisings be predicted?

### **Inequality and Segregation**

Ravij Sethi, Barnard College

Despite the rapid expansion of the Black middle class in the United States, major urban centers with significant Black populations continue to show extreme levels of racial separation. Modeling experiments can help explain why racial segregation continues to characterize the urban landscape in the United States even though survey evidence suggests that all groups favor more integration than they did in the past.

Sethi and collaborators used simulations to look at neighborhood sorting based on income as well as race.

Imagine a world with no discrimination, no racial income disparities, tolerant preferences over racial composition, and individual uncoordinated decisions about where to locate. How much segregation would we observe? First, consider the extreme case in which the two income distributions are identical, and the Black minority is substantial. Under complete segregation, you can choose to live in either an all-Black or all-White neighborhood. Even if all households prefer some integration, segregation will be stable as long as individuals prefer racially homogeneous neighborhoods populated by their own group to racially homogeneous neighborhoods populated by other groups.

As income disparities between groups widen, so do mean neighborhood incomes under segregation, and at some point affluent Blacks will outbid the less affluent Whites to live in a higher-income, predominantly White neighborhood. At this point, segregation becomes unstable, and mixing of neighborhoods will result.

At the other extreme, when income disparities are large, segregation by race is almost equivalent to stratification by income, and segregated neighborhoods again persist.

With small income disparities, the way that households sort themselves purely by income will be stable as long as preferences for integration are strong enough. However, segregation is also stable under these conditions. Households belonging to the lower income group will end up with neighbors with lower incomes relative to otherwise identical White households.

Integration becomes viable as income disparities lessen, but historical patterns of segregating may trap a city in segregation with all of its attendant educational and employment disadvantages for future generations. Even though income distributions converge, there is not necessarily more integration. If the overall share of Black households is sufficiently high, segregation persists. The implication for college admissions and other institutions is that you need interaction across groups. Aggregate diversity is not sufficient. Rather, campuses need smaller sub-groups that are diverse.

### **Multidimensional Residential Sorting**

Elizabeth Bruch, UCLA

Studies of segregation typically look at “snapshots” of neighborhood compositions and not the underlying processes that drive changes.

Bruch's goal is to link movement by individuals among neighborhoods to patterns of change and better understand the interdependence of racial and economic factors in racial segregation. Namely, how does residential sorting on income worsen segregation by race? Or can it offset racial segregation?

By using agent-based modeling to study neighborhood dynamics, the researcher can create, analyze and experiment with artificial worlds populated by interacting agents. It captures relationships at the micro-level—individual decisions about where to live— and the macro-level outcome—the race and income composition of the neighborhood.

There is usually not a simple, obvious, or direct relationship between individual behavior and macro-level outcomes because human behavior is interdependent. Instead, there are domino and spiral effects.

Bruch's work studies the interactions of income and race in Los Angeles, California, a city that is 40% white, 40% Hispanic, 10% Black, and 10% Asian. Black-white segregation is decreasing, but still high. Hispanic-white segregation is increasing, and Asian-white segregation is stable. Income segregation in Los Angeles has been increasing since the 1970s. Sixty-five percent of the people in poor neighborhoods are Hispanic.

Several assumptions underlie her work:

Minorities are poorer on average than Whites in income and wealth.

Minorities have lower rates of homeownership than whites.

Segregation of owned and rental housing is not trivial.

Economic differences among race groups limit minorities' abilities to purchase housing.

Historical ownership patterns may mean that Black renters are living in different parts of the city than White owners.

She created agents using 1990 census data to estimate probabilities that an individual would move into a neighborhood based on race and income. She gave the "agents" starting conditions and "rules" for changing neighborhoods and then ran three simulations:

Residential mobility based on racial composition

Residential mobility based on economic composition

Residential mobility based on racial and economic composition

Her results show that even with an increase in income, it was unlikely that Black renters would move; that Whites tend to avoid Hispanic and Black areas; and that Blacks tend to live with Blacks and Whites.

When sorted on the basis of race, there was an overall increase in segregation. When sorted on the basis of income, there was a decreased likelihood of segregation. When sorted on race and income, the two factors had off-setting effects.

**Self-Reinforcing Gaps and the Law**

Daria Roithmayr, University of Illinois

Racial inequality reinforces itself. Despite changes in law and society that allow for more integration, Whites have a monopoly on higher status because an early White advantage in better housing, education, and jobs reinforces that White advantage. Racial inequality is “locked in.”

An example of how an early slight competitive advantage can lead to a monopoly is seen in the case of Microsoft’s Windows operating system. With each new consumer who uses the Microsoft operating system, there is more ability for Microsoft to control the market. The more users, the more Microsoft is in a position to continue to monopolize the operating system market. The barrier to introducing an alternative operating systems grows insurmountable.

Structural feedback loops reinforce the White competitive advantage, locking in racial discrimination.

Locations: "Jim Crow segregation" concentrated disadvantage with respect to Blacks who owned less in terms of real and personal property, with less wealth. It was a relative advantage for Whites. A current example is public school funding. Even small differences in public school funding will produce sorting on wealth and income.

Social networks reinforce inequality. A member of a network refers other members for jobs. Those with higher wage employment make it more likely that their acquaintances will receive higher wage employment. Minorities are disproportionately reproducing this structural inequality.

Coordination and compatibility mean that whatever group captures the market first, usually locks it in.

Roithmayr calls it “lock-in” because competitors cannot overcome the “switching cost” — the cost for a community or institution to switch from racially exclusive to racially inclusive policy. For example, diversity within the workplace can be a source of racial conflict or enrichment that can fuel exploration and innovation. Employers must decide whether to fund and manage diversity. If the workplace is not innovation-focused, employers will often choose to keep a homogeneous workplace, not because of racial stereotypes, but simply because they believe there will be more compatibility in the workplace and it will function better.

To remedy “lock in” segregation, it is necessary to change the way the law and other institutions view and respond to discrimination. Instead of treating it as intentional and affecting an individual, we need to consider its institutional nature. One remedy is to dismantle the current system for funding public schools. We could regionalize or centralize public school funding so that the level of funding is not longer tied to wealth concentration in neighborhoods or communities.

Bearing the “switching costs” needs to be seen as a necessity by businesses and communities. Our legal system needs to rethink the notion of equal protection. It should be expanded to include structural inequality and not just discrimination against an individual.

### **Memory in the System: How do Injustice, Unfairness, and Inequality Persist over Time?**

Michael Chwe, UCLA

Even if there is no present unfairness, injustice can persist. Consider income and class mobility:

Seventeen percent of Whites born into the lowest income decile end up there as adults.

Forty-two percent of Blacks born into the lowest income decile end up there as adults

What explains this?

#### 1. Family wealth

Wealth allows upfront investment in education, houses, and small businesses, for example. It insures against risk. Wealth allows the encouragement and development of patience, which can be necessary for sustaining the education needed for higher paying jobs.

People with no wealth get hammered financially and developmentally by shocks such as unemployment, illness, crime, family problems, or natural disasters such as Katrina.

#### 2. Individual aspects fixed early in life

For example, early malnourishment has permanent consequences.

#### 3. Peer interaction and group membership

#### Job referrals

Persons tend to marry persons with similar levels of education

Ethnic entrepreneurship (Korean dry cleaners, Greek pizza owners, Indian motel owners)

“Peer pressure” and educational decisions

#### 4. Institutions—political systems

In comparisons of different countries, the greater the size of ethnic minorities, the less likely that income will be redistributed across society.

An institution can persist even when the underlying rationale has changed. For example, the tenure system in academia developed assuming the traditional male-headed family. We are stuck with institutions that are not explicitly sexist but embody previous sexist assumptions.

#### 5. Expectations

People in a minority group decide not to invest in their own education because they believe that no one employs members of their minority group. And prospective employers may not employ people from that minority group because they believe that group members do not invest in education. In short, expectations matter.

Because there is “memory” in the system, one must think about how injustice is perpetuated over generations. Among the remedies for fixing persistent poverty are reparations, such as symbolic payments to Japanese Americans put into concentration camps or West German payments to Holocaust victims. However, this tort law-based perspective places very strict requirements on redistribution and raises conceptual problems: Who gets compensated? Who pays? Who exactly are the injured?

Remedies assume injuries are a deviation from the norm. Yet very large injustices —slavery or patriarchy, for example — are not deviations but integral to the existing world.

We can look to the past and other social traditions for other ideas on remedying injustice. Of all the factors in persistent poverty, the easiest to correct in the complexity context is wealth distribution. The world has a huge amount of wealth, much of it transferable if you use money. Land is harder to redistribute. The nation-state provides a mechanism for redistributing wealth.

We also have demonstrated capacity for large economic growth, an

example being the East Asian economies. The scale of wealth transfers necessary to change the persistence disparities is not really that large. The great creation of wealth is a huge advantage that we can exploit.

A "public policy" perspective is more flexible than a tort-based perspective. Ideally, this perspective involves avoiding "presentist" bias in the remedy; paying it over time and using the redistribution to smooth over risks; and providing health insurance, unconditional public services, and subsidies at the earliest ages, with a focus on youngest children where there is a 5 to 1 payback ratio for early childhood programs.

### **Diversity: the History of an Idea**

Richard Thompson Ford, Stanford University

As Ford demonstrates in *Racial Cultures*, Supreme Court rulings on the use of race in college admissions have shaped our concept of diversity and bear significant implications for race relations. Diversity has come to mean selection for cultural difference rather than recognizing other reasons for race consciousness in affirmative action.

The Supreme Court rulings in affirmative action cases— *Bakke vs. Stanford Medical School* and *Grutter vs. Bollinger*— have made racial and cultural identity the sole rationale for affirmative action. Racial and cultural identity is benign when understood as one of many dimensions for affirmative action, but it is dangerous when enshrined as the only and primary reason for affirmative action. The decisions give racial diversity a centrality that it does not merit.

In 1969, the University of California-Davis Medical School, in an effort to remedy societal discrimination and increase the number of black physicians practicing in underserved communities, had an admissions policy that sought to increase the number of underrepresented students admitted. Alan Bakke, a white male, was rejected and sued the Medical School on the basis of discrimination.

The U.S. Supreme Court, in a majority decision written by Justice Powell, determined that:

1. rigid numerical quotas cannot survive constitutional scrutiny
2. the institutional purpose of reparation of discrimination was not sufficiently compelling, unless the university could identify specific instances of discrimination perpetrated by the institution

3. A non-quota based system might survive constitutional scrutiny if it was designed to promote diversity

Twenty-five years after the Bakke decision, Justice O'Connor endorsed Powell's decision and upheld the University of Michigan Law School's race-conscious admissions policy. The Grutter decision installs diversity—and only diversity—as a rationale for affirmative action.

The decisions reject other grounds for affirmative action, such as remedying the effects of societal discrimination—for example, Stanford's desire to train physicians more likely to practice in underserved communities.

There is a real cost imposed by these opinions: they constrain the range or dimensions of the issue. Differences need to be underscored. This is well understood as evidenced by industries that help students write university admissions essays. Highlighting one's racial identity is a strategic design to improve an applicant's chance of admission. Emphasizing this narrow definition of oneself in effect makes the student body less diverse, if the students all have to conform to this self-perception as it maps onto ethnic diversity.

In the post-Bakke world, admission committees want to know everything about the racial/ethnic background of an applicant's ancestry but do not address the applicant's current experiences of discrimination. For example, they cannot take into account poor schooling or discrimination a student may have received from a teacher. The result is to “finesse and obscure the salience of contemporary racism.”

This focus on cultural identity has ramifications on college campuses. Research by Claude Steele shows that Blacks underperform when at risk of confirming the stereotype that Blacks are less capable of academic work. Students may learn to care less about performance, and that can lead to lack of motivation, ultimately resulting in a group norm.

Steele found that it is possible to counteract this underperformance by real integration in “living and learning” communities comprised of all races where students come to see what they have in common and share concerns about academic work that makes academic performance seem less racialized.

Removing the other rationales from the law comes with a great and unfortunate cost—an important trade-off for U-M victory, which is better

than outlawing affirmative action, but a cost nonetheless. The explicit emphasis on cultural difference cannot be good for race relations on college campuses.

## Big Ideas

### **Ethnic Violence**

Ashutosh Varshney, University of Michigan

Integration across multiethnic lines is a method of peace and segregation a method of violence. There is a link between the structure of a multiethnic society and the existence of ethnic violence. Conflict may be inevitable in a multiethnic society, but violence is not. Ethnic peace is not an absence of conflict, but an absence of violence.

A puzzle to scholars of ethnic violence has been why, despite ethnic diversity, some places manage to remain peaceful while others regularly flare up in violence. Conversely, some long-term peaceful communities can suddenly explode.

To understand this puzzle, it is necessary to look not only at possible factors in societies that break out into riots but also for factors in those that manage to maintain peace. How do we account for the variation? Suppose in a society with a history of violence we look for inequalities and interethnic rivalry, but we don't look for these factors in peaceful societies. Then how can we make theories about the causal role of these factors?

Civil society is that space in our lives that exists between our family and the state. It makes it possible to have interactions between individuals and families, and it is independent of the state.

There are both interethnic and intraethnic civil ties in a society. Bonding and bridging play different roles in conflict, but if communities have little communication across ethnic lines, then when the society has a spark of conflict—a rumor, the defeat of a candidate, or more seriously, the desecration of a shrine—it can lead to a flare-up of violence.

A society has different possible forms of association across ethnic lines. There are everyday forms of engagement, such as children playing together in the neighborhood and visiting each other's families. Such interactions can create warm feelings across groups, but alone, they are not enough to contain serious shocks to the community.

There are the organized associations, such as political parties, sports clubs, and associations with deeper economic ties, such as trade unions or societies of lawyers, doctors and other professionals.

At what level must we analyze the societies? Using a 46-year

database of Hindu-Muslim riots in Indian cities, Varshney found that riots are an urban phenomenon. Violence appeared in fewer than 4 percent of villages. Even within the urban population, only a few cities were riot-prone. Six percent of the population of India accounts for the riots.

What are the mechanisms that allow the spark or cause the spark to become a fire—an outbreak of violence? City-specific factors were important in determining which cities would flare into violence and which could tolerate conflict. If and only if there is interethnic civic engagement, then tension can be eliminated or managed to avoid riots. Associational ties are more important than everyday ties because political reasons and criminals can tear the everyday ties apart without the institutional safeguards. When trade unions and associations of doctors, lawyers, and so forth are integrated, then the intercommunity ties are strong.

The argument is not law-like but rather points to the probability of violent outbreaks when a spark occurs. The level of conflict that can be tolerated is like the ability of a community to withstand an earthquake. If the civic connection is associational, then it can withstand a Richter 7. If the interactions are just those of everyday life, then Richter 4 is tolerable. If there are no associations across ethnic lines, then even a 1.5 shock can break things apart.

It is also possible for self-policing among intraethnic communities to lead to peace: for example, when elders in an ethnic association or leaders of civic organizations counsel against violence.

Studies of racial violence in the U.S. are particularly interesting. In the U.S. in the 1960s, riot violence was concentrated in three cities. There are no known explanations for why this was so. But suppose that segregation was really high in those cities with little opportunity for interracial associations in labor unions, churches and so forth. That could be an explanation for the violence, but only if there wasn't equal segregation elsewhere. Much remains to be learned.

### **Ethnic Diversity and Interethnic Violence**

Ravi Bhavnani, Michigan State University

Focusing on Africa, Bhavnani approaches diversity, ethnicity, and violence as a complex adaptive system.

Ethnic groups are constantly in flux. The groups grow, shrink, emerge, and disappear. Violence may emerge in groups dominated by tolerant voices, and some groups dominated by extremists may remain non-violent.

Rebellion is less likely in highly diverse societies than homogenous ones. There must be the correct political environment to foster violence. Diversity is a poor proxy for the salience of ethnic identity because it fails to capture the depth of cleavages in a multiethnic society.

The most commonly used measure of ethnic conflict (ELF) fails to distinguish between ethnic difference and ethnic fragmentation. For example, the ELF scores for Switzerland and Sri Lanka are essentially the same, yet there is a huge difference in violence in the two countries.

Ethnic salience is relative. It can vary depending on whether groups are concentrated or dispersed. There is variation all the way down to neighborhood level. Salience of ethnicity also varies within groups. Salience of ethnicity within countries also changes through time. For example, within a year of an election, ethnic identification increases by 30%.

The Rwandan uprising of 1994 is an example of the complex puzzle facing scholars. What explains the mass participation by *reluctant* or *unwilling* Hutu in Tutsi-directed violence, given the common culture, language, and religion; intermarriage; mixed communities; and peaceful relations from 1965-1990 dubbed the “good years”? What explains the scale and duration, and thus the *intensity* of violence, which was simply unprecedented? Why were previous episodes of violence localized and contained?

Bhavnani’s research seeks explanations in the development of behavioral norms that reinforce group behavior and may either prevent or promote violence. Ethnic “behavioral” norm may be defined as:

A set of rules instituted and enforced *within* an ethnic group to

shape the behavior its members toward rivals. It delineates what “wrong” actions are in “right” times, and what “right” actions are in “wrong” times. It includes punishment for deviation from the norm.

Norms make it possible to promote or prevent violence by increasing cohesiveness among members of an ethnic group or by enlarging the set of participants in group actions.

To look for the conditions under which norms developed that promoted or prevented violence, the study used many diverse agents, and varied initial conditions for groups for animosity, tolerance, and presence of influential members. Animosity was the disposition to engage in violence. Tolerance was the propensity to punish co-ethnics. Influence was the opportunity to interact with others.

Strength of punishment was also varied across groups. A random agent A would select an agent B through the group network for an interaction to either engage in violence or oppose violence. If A punished B, B updates her animosity and tolerance using an update rule that is either individual, neighborhood based, or “global” common expectations for the group.

Groups with high animosity and high tolerance could be expected to develop a norm that promoted violence in ethnic group clashes. A group with low animosity and low tolerance would be expected to develop a norm that prevented violence.

Results of the model show:

- Formation of ethnic norms to promote or prevent violence was not a low probability event.
- Ethnic norms were *not* equally likely to form in groups with similar aggregate preferences.
- Violence promoting norms can emerge in groups dominated by moderates and violence preventing norms can emerge in those dominated by extremists.
- Strong punishments are a prerequisite for the emergence of norms related to violence.
- Neighborhoods affect norm formation. Instances of unexpected norm creation occurred with interactions were unrestricted.
- The type of norm that emerges depends on updating rules.
- Entrepreneurs effectively promote and prevent violence, especially when punishment is weak

Conclusions:

Ethnic groups are heterogeneous social entities. There is:

- Variation in levels of group identification across members
- Individual variation in commitment to “collective” ideals, goals, behavior

These differences result in collective action problems in the transition from conflict to violence

Diversity is a poor proxy for the salience of ethnicity.

We need to need to understand how political conflicts are newly framed in ethnic terms. The move from conflict to violence is a phase shift

Episodes of violence vary in their scale, duration, and spatial distribution, and they involve different mechanisms and dynamics of organization, recruitment, and participation.

Group segregation may serve to both exacerbate and dampen violence, and its effect is context-dependent

## Part 4: Interacting with Differences

### *Interaction Across Our Differences*

When people with diverse identities, experiences, and disciplinary training interact, they must overcome many obstacles. They must look past stereotypes and balance the desire to express themselves and to uphold their identities with the goals of the collective—be it a small team or an entire society. And they must listen. In this final section, we consider:

- What allows diverse groups of people to be productive?
- When is identity diversity relevant? When isn't it?
- What prevents diverse collections of people from being successful?

Business is on the vanguard of diversity. It is not altruistic, but is based on the fact that there is good business in diversity. Businesses have developed institutional methods for dealing with diversity—strategies that we might be able to use in other contexts.

### **Innovation and an Expanded View of Diversity: Connecting the Dots for Business**

Cynthia Rabe, Intel

In the future, it won't be knowledge that determines the success of a country or company. It will be the ability to bring new products to market. Emerging economies such as China and India are bringing innovative ideas to market faster than economically advanced countries.

Innovation comes in many forms. It is not just a new product but also the application of an idea that results in a valuable improvement. Diversity earns traction when it is in the best interest of those in power. Because diversity plays a role in innovation, and because innovation is essential to business, diversity is in a business's self-interest.

It is taking more people to invent new products, and companies are assigning larger, more diverse groups to work on innovation. Diversity needs to include not only race, gender, and functional background. Businesses need to expand their definition of diversity to include people with varying levels of expertise in a particular field—that is, smart non-experts. Smart non-experts, particularly ones who already understand the problem and its language, can be useful because they sometimes see things that experts don't see. Here are some examples:

- The housewife who patented her invention of disposable diapers. She was turned away by corporations because she was not an expert. The introduction of disposable diapers to the market was delayed by 10 years until Pampers licensed her invention.
- The man from the sewing machine industry who brought the idea of interchangeable parts to Ford Motor company, paving the way for assembly line production.
- The team that designed the Gossamer Condor, which won a prize in human-powered aviation. Other teams had larger budgets, larger teams, and better resources. Paul McCready attributed his team's success to the fact that they had no specialists. This encouraged innovation (in Michael Cohen's terms, "exploration") rather than building off of previously successful structures (exploitation). Naiveté can be an asset, because without preconceived ideas of how things work, one is free to consider new options.

Some corporations have embraced the idea of adding a smart "non-expert" to their teams. Intel calls them "embedded aliens": people who can speak the basic language of the problem, but with a much different perspective. IDEO hires people who are "T-shaped"— deep in one area, but with some knowledge of many areas.

To tap into the power of differing perspectives, businesses need their design teams to work in one large group on complicated problems. In contrast, what often occurs is that a company brings together persons from manufacturing, finance, marketing, and purchasing, but then the teams split up, with individuals working only in their areas of expertise, undercutting the contribution of diversity.

It can be difficult to convince a corporation that this approach is good. In fact, it can appear to be an exercise in contradiction. "Expert think" is "group think" on steroids. It contradicts the speed of business. It takes time. It conflicts with the way value is generally attributed to individuals rather than groups.

The lack of power of the non-expert amid experts may hinder the usefulness of the non-expert to the group. To successfully incorporate non-experts in design teams, you need complete buy-in from the group leader, and the leader has to emphasize what role the non-experts will serve. Also, the group can't see it as a punishment, but rather as an opportunity to optimize their own creativity.

## **Effective Diversity in Groups**

Jeff Polzer, Harvard Business School

Diversity has many dimensions, including race, sex, age, and organizational membership. One struggle now is to capture those many dimensions on one team.

Given that each person has multiple identities, and given that one identity may be more important than others in particular contexts, how does a business productively assemble teams for solving problems? In general, increased diversity leads to increased problems as intergroup relationships become more complex. We can put people in a group, but will they actually work together and put the group ahead of themselves?

Polzer has done research on small groups where team members know each other and interpersonal relationships are important. For example, what happens in the first year of a program, when business school students are forced to work in groups? Are there conflicts in ideas and arguments? Or do they self-censor—just not discuss issues because of a diverse group? What happens to the desired outcomes of creativity and productivity? Polzer measures to what extent groups share information, cooperate and make decisions jointly.

This field of research relies on self-categorization theory: in a group setting, how a person defines himself relative to the group, or which social categories become salient.

Each person comes in with a self-concept—that is, a view of themselves and what they can do for the team. Other people also evaluate their teammates and make their appraisal of what their teammates bring to the group. Congruence proves to be especially key here: our opinions of ourselves must match what others think of us. Namely, team members will work together if the opinions of their fellow team members match the team member's own assessment of what he or she brings to the group.

People don't need to be the same, but their opinions of their colleagues need to match their colleagues' self-concepts. With low levels of congruence, diversity hurts, and with high levels of congruence, diversity helps. This is especially true of creative tasks as opposed to computational ones.

Teams members seem to assess congruence or a lack of congruence early. Polzer found that team members' appraisals of each other made

after only 15 minutes predict the success of the group four months later.

Another crucial question is how group members get to know each other, which helps determine whether first impressions are important. This could be a critical line of inquiry for "living and learning groups" on campus, such as communities formed by students who live together in a particular residence hall and all have an interest in a field such as science.

How should the first meeting be handled so that they can tap into their diverse abilities?

What kind of information needs to be placed upfront? What is it important to establish immediately to maximize future congruence? (For example, establishing social norms, such as a tendency towards self exposure and vulnerability.)

Other areas for future study:

- Fault lines: When there are many dimensions in a group, how do the possible subgroups align?
- Effects of technology and distance on team functioning. Organizations are now using "virtual teams" —people who are geographically and culturally distant, connected via an electronic medium and rarely if ever meeting face-to-face. How does diversity on other dimensions interact with the diversity of physical locations?
- Effects of status or power: When do differences in status or power on teams cause conflict or reduce effectiveness?

### **Value in Diversity?: The Joint Impact of Surface-and Deep-level Diversity**

Katherine W. Phillips

Kellogg School of Management, Northwestern University

Diversity is a complicated matter because it comes in many different forms. In any given group there may be several sources of diversity that interact to affect group functioning.

Williams-Phillips' research has focused on one key assumption that is often made by diversity researchers: namely, that diversity is beneficial because people who are "different" will bring different perspectives to the table.

Deep-level diversity is the diversity of perspectives and ideas. This is the diversity that really affects the bottom line by allowing for better group problem solving. Surface level diversity is what you immediately notice about someone —race, gender, department, office location, and so forth.

There is tendency to use surface diversity as a proxy for deep diversity. When we concentrate on surface diversity we assume: these are different people who will offer different perspectives, which will lead to better outcomes. However, new people in a group are often quiet and have little power, so perhaps they may not be able to share.

This focus on surface diversity assumes that those who look different are the only ones who bring a new perspective and the only ones who cause conflict. We also assume that those in the majority— based on appearance— also share a single perspective. But in fact, surface-level diversity does not always confer deep-level diversity, and deep-level diversity may not come from the expected source.

When people walk into a group, they have expectations and assumptions about where they will find agreement with their own opinions. When those expectations are refuted, the task is affected.

We assume that people who are like us are more likely to share opinions with us. This is somewhat self-fulfilling because we prefer information that reinforces our expectations and reject information that is not consistent with expectations. We see what we expect to see. We also tend to alter our preferences to maintain a balance with those who are like us: “You like that thing, and I’m like you, so I should like that thing, too.”

Phillips set up a laboratory experiment using three different groups to investigate the role of surface- versus deep-diversity:

- a congruent group where views aligned with in-group and out-group members akin to situations where the surface differences match deep-level differences
- incongruent groups where the views did not match in-group or out-group membership
- and a group that was homogeneous on the surface, but heterogeneous in actual views.

She found that congruent groups function better than incongruent, and incongruent function better than homogenous.

It seems that the surface diversity frees people up to express their true views. In homogeneous groups, you feel that everyone is like you, but

they don't think like you, so you must be wrong. Surface level diversity legitimizes deep-level diversity for the individuals involved. Surface-level diversity legitimizes the expression of deep-level differences and makes it more likely that everyone—even those in the majority— will share their unique perspectives.

## **Summary**

In bringing a complexity framework to the exploration of diversity, the Complexity of Diversity Conference aimed to:

- highlight the potential for diversity to create productivity and robustness in a complex system
- explore where human diversity comes from and what identity means in different contexts
- identify conditions under which that potential can be realized
- use complexity theory to show how some gaps among different groups may be self-reinforcing and therefore require structural changes to overcome
- contemplate the extent and sway of the past and
- begin to understand the complexity of the task before the University of Michigan's Center for Institutional Diversity.