

Who's asking?



Who owns science and what is the role of diversity within it?

Arguments for researcher diversity

1. Equality of access and opportunity. Current picture shows systematic under-representation
2. Need for scientists—can't ignore the 42% of the under age 18 USA population who are minorities

Key: Factors intrinsic to science itself

Thesis

Diversity in science will produce better science

Specifically the question, “Who’s asking?”
may affect the answers that are produced.

Researcher diversity needs to be placed in a broader
context of other forms of diversity

Overview-key factors linked to diversity



1. Study population diversity.
2. Methodological/paradigmatic and contextual diversity.
3. Researcher diversity.
4. The larger system in which these forms of diversity are encouraged or undermined (e.g., grants, publication practices, promotion and tenure, etc.).

Study population diversity-in principle



1. Study population diversity (currently extremely limited) is important to the extent that it is associated with variability.
2. For processes that are universal and uniform, study population is less important (But you don't get to say "I only want to study what is universal.").
3. The language of description (e.g. "young children", "people") represents a claim about generality. When not backed by data, it is imperialistic.

Overview



Consider some models or ways of conceptualizing the practice(s) of science

Describe costs and limitations of non-diverse science

Turn to examples where diverse perspectives have proven essential

Consider implications and stop

Models for science

Model 1: Science as pure pursuit of knowledge

Objective

Value Neutral—save for truth and accuracy

Open mind to the truth

Independent of personal, social and cultural values

Implications of Model 1



- No role for culture, unless one thinks of science as one.
- No special call on diversity, though diversity of ideas seems like a good thing

Models of Science

Model 2 (slightly more realistic): Science as truth + error + systematic biases

.....But error cancels out and systematic bias is ultimately eradicated by the sociology of science (replication, competition of ideas, better theories, etc)

S. Gould

Mismeasure of Man, pp21-22

“..I criticize the myth that science itself is an objective enterprise, done properly only when scientists can shuck the constraints of their culture and view the world as it truly is.....”

“Science, since people must do it, is a socially embedded activity...much of its change through time does not record closer approaches to absolute truth, but alteration of cultural contexts that influence it so strongly.”

Problem

When science is dominated by a select group (WWMCM's) there may be cultural bias and a power bias that resists change

Consider colonialism in psychology and anthropology...not a good history

When did these kinds of biases stop? (Answer: they haven't.....e.g. Heidi Keller's work on parenting and attachment theory)

Models of Science



Model 3: Science = truth + error + idiosyncratic bias
+ power bias + cultural bias

Argument: Cultural diversity and associated changes
in power relationships are needed so that these
two sources of bias are eliminated by the sociology
of a diverse science



AKA: A “watchdog” role for diversity

- Goal: help us get culture out of science; culture is just a source of biases

Central claim

The social and cultural embeddedness of science and scientific practices cannot be decomposed into a bias part and a truth finding part.

Doing science without values is like trying to paint a scene without taking a perspective

Values implicit in practices



What gets studied and how it gets studied

Epistemologies and framework theories

Analogy with maps: science as a representation of aspects of reality (Constrained by how things are but allowing many representations that may be useful for different purposes and goals)

The Case for a More Diverse Science

In a nutshell: **Fundamental to all empirical science is a search for systematic, patterned variation. For the social, behavioral, and educational sciences the aim is to identify and understand the range of human potential.**

(We assess particular models and theories by their ability to explain this variability.)

Study population diversity-in practice



1. WEIRD samples may be particularly unrepresentative of the world at large (Henrich, Heine & Norenzayan, 2010).
2. The fact of relevant variation across populations makes the overwhelming emphasis on default populations unethical in the same way that medical research focused on a privileged subgroup would be.*
3. The very construct of “universal” is embedded in theory and may well require systematic variation across groups to test the theory.

*footnote: Sometimes the public good may dictate a focus on a specific group for some purpose but this is an exception.

Some Problems with Non-diverse Science

- Perspective taking (including judging the new in terms of the old)
- Homefield disadvantage
- Distancing, units of analysis and dispositional attributions
- The larger system in which nondiversity thrives

Perspective Taking

Example: diversity principle among USA undergraduates and Itza' Maya

Suppose that we know that some new disease A affects river birch and paper birch trees and that some new disease B affects white pines and weeping willows. Which disease is more likely to affect all trees?

Given-new orientation



Why do the Itza' *fail* to show diversity?



Lots of possible explanations but a big hint came when USA tree experts also “failed” to show diversity.

Instead they engage in causal/ecological reasoning

Tilting the playing field

Why do USA college students ***show deficits*** in reasoning ecologically?

Home field disadvantage

1. The curse of good intuitions.
2. Selection processes operating over biased (homefield) samples and methods.
3. Critical in choice of what to study and notions of what it relevant and important.
4. Often leads to deficit models.

Psychological Distance



Power + Distance = Dispositional attributions

For tons of data on distance, see Construal Level Theory (Trope and Liberman, 2003)

Distancing and Units of Analysis

Example: Work by Michael Chandler and his associates analyzing suicide rates among first nations people in British Columbia

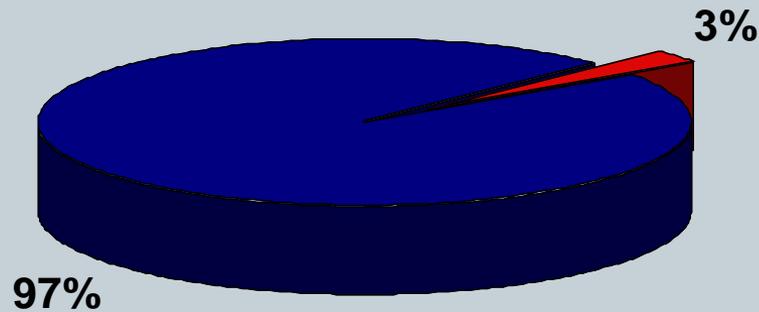
Aboriginal Suicide in Canada

Aboriginals in Canada have the highest rate of suicide of any culturally identifiable group in the world.



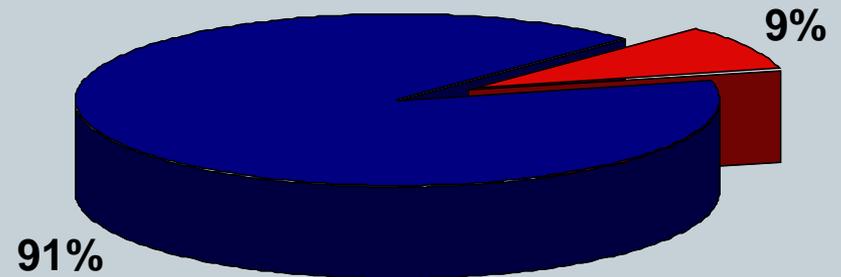
British Columbia (BC) Statistics

■ Aboriginal ■ Non-Aboriginal



Aboriginal persons represent less than 3% of the total population in BC.

■ Aboriginal ■ Non-Aboriginal

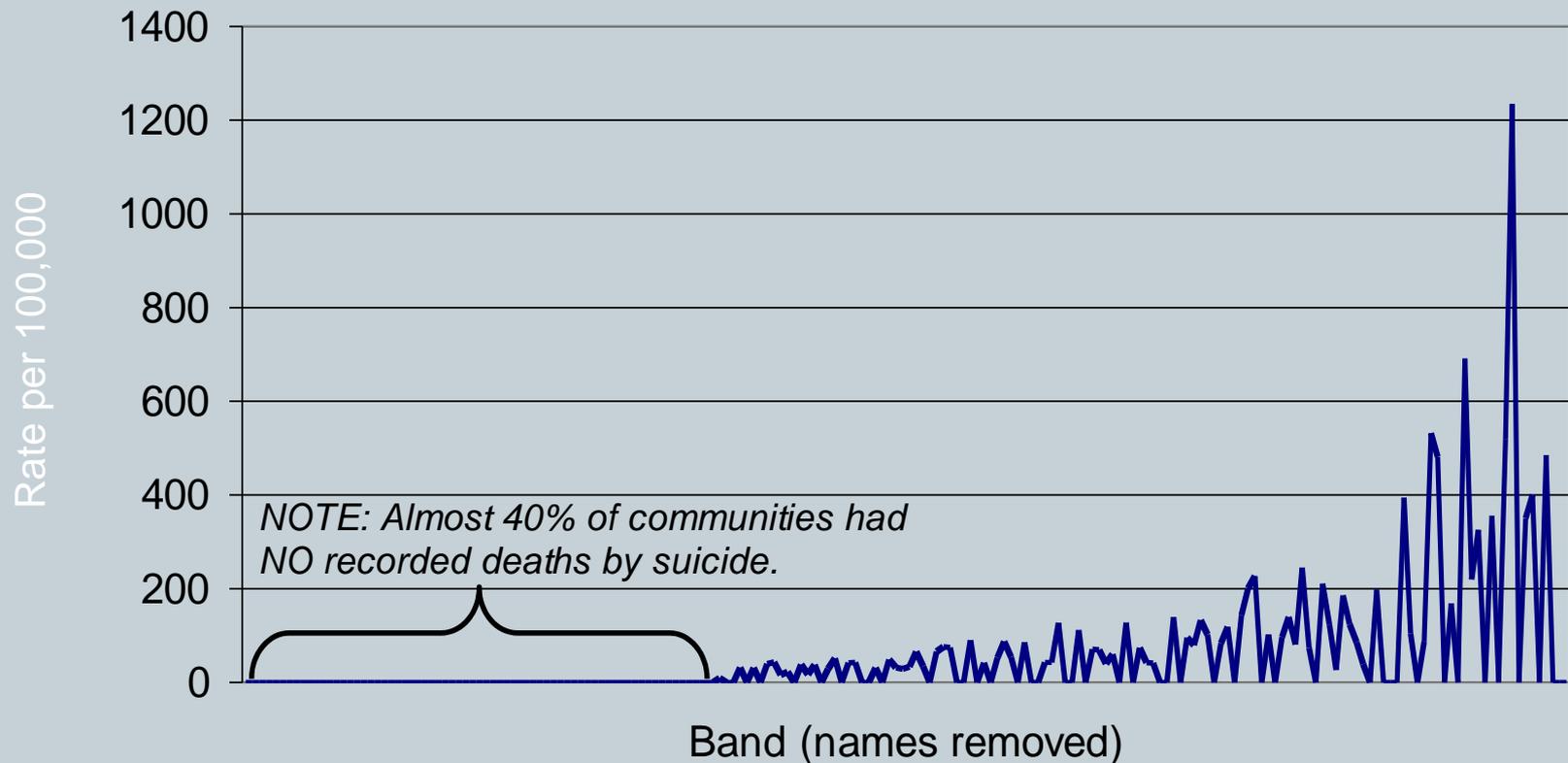


Aboriginal people account for more than 9% of all suicides in BC.

Previous work

- Took the suicides rates as a given
- Designed prevention programs at an aggregate level
- Assumed that individual psychological states were the appropriate variable

BC Youth Suicide Rate by Band (1987-2000)





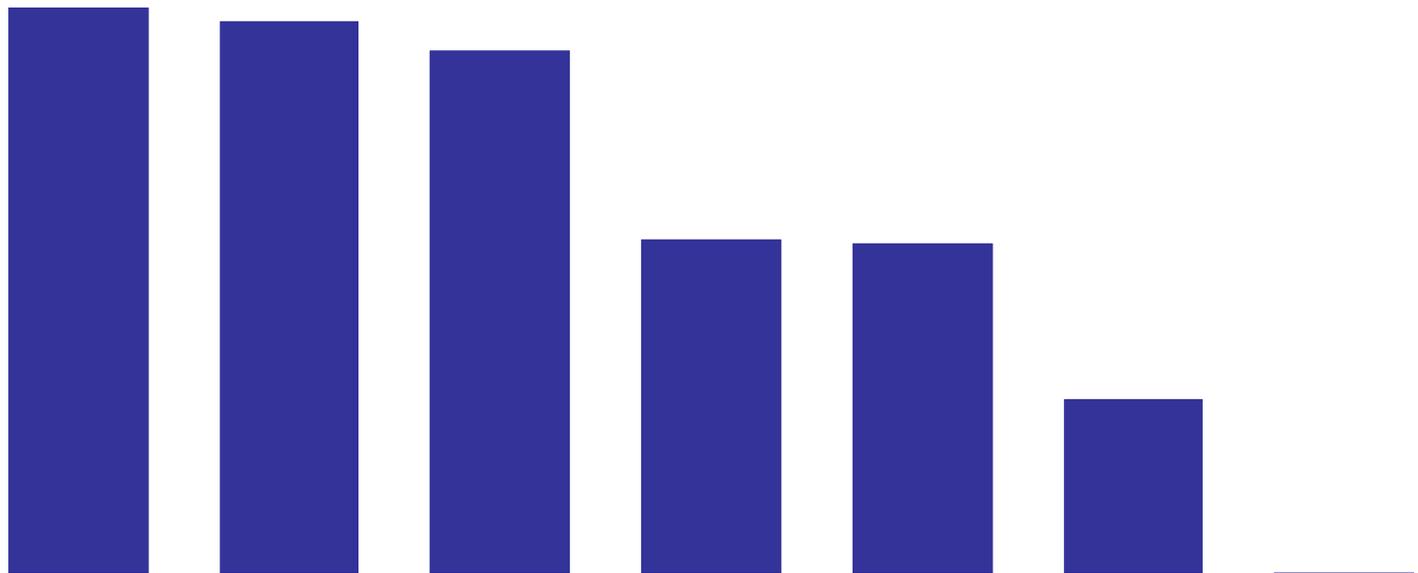
What Doesn't Work: Trawling aimlessly through Statistics Canada data

- Urban/Rural/Remote location
- Population density
- Income
- Unemployment
- Labor force skill levels

Cultural Reconstruction— What Works: Theory Driven Measures

- Self-government
- Land claims
- Education
- Health services
- Police/Fire services
- Cultural facilities
- *Knowledge of Aboriginal languages
- *Women in government
- *Child protection services

BC Youth Suicide Rate by Number of Factors Present in Community



Summary

By moving from the broad category of First Nations (aboriginal) to specific bands and their struggles for sovereignty, one begins to identify factors associated with resiliency. Note the shift in perspective associated with the shift in units of analysis.

Other distancing problems



1. One size fits all—BMI leads to misclassifications of about half a billion obese people (Dan Hruschka)
2. The “word gap,” single measures and opportunity costs.
3. College admissions—analytic skills; but may ignore creative and practical intelligence that may be more salient in under-represented groups (Sternberg).

Model of Science



Model 4: Different epistemologies, values and associated practices provide different perspectives and different insights bearing on a diversity of goals.

Implications

- Not about good versus bad science with the goal in mind of producing value-free science...there is no value free science
- The structure of the scientific community affects which values are honored (and perhaps which biases are corrected, but it is a mistake to focus on potential bias and ignore the values)

Native Science (e.g. Cajete, 1999)



More like a framework theory or epistemological orientation... *ways of looking at the world*

Relational/Systems level orientation

Distance: Close and contextual vs. far and abstract

March for Science April 22nd, 2017



**LET US
MARCH NOT
JUST FOR SCIENCE**



- BUT FOR SCIENCES!





Radio discussion



I read through the whole statement...what do they mean by Indigenous Science ...I don't like the fact that they talk about quote-unquote "Western Science" – that's problematic.

It's tough, right, of course we need to be sensitive to the fact that science is done by people, that there is a rich and not so savory history of science ignoring certain types of people and not thinking of their, their perspectives when science is done....there's a fine line.

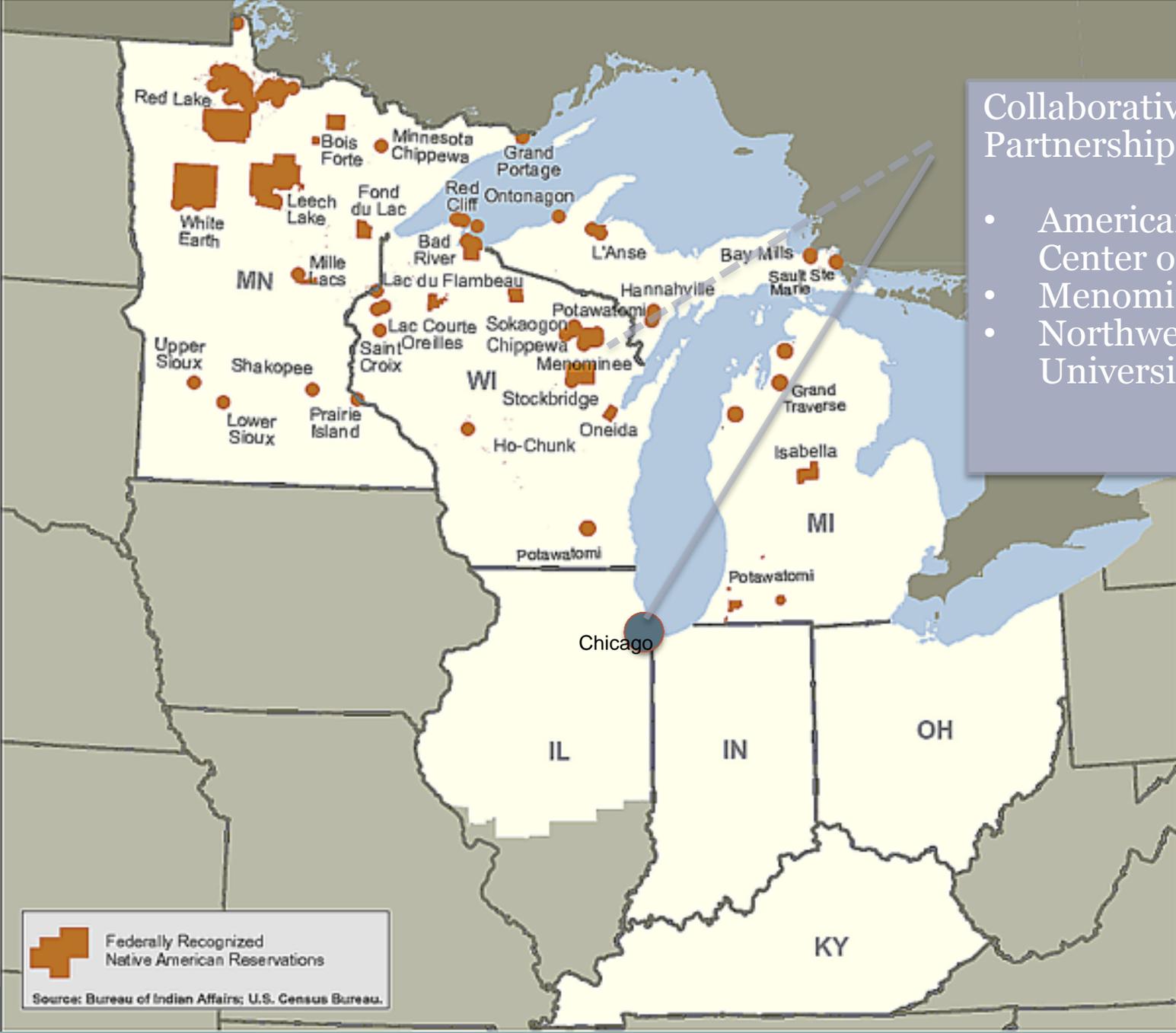
One observation



Note: We have a National Academy of Sciences,
(And not National Academy of Science)

Collaborative Research Partnership

- American Indian Center of Chicago
- Menominee Nation
- Northwestern University



 Federally Recognized Native American Reservations

Source: Bureau of Indian Affairs; U.S. Census Bureau.

Converging Observations-Input



- Apart from versus a part of nature
- Narrative style and context
- Perspective taking—gesture & imitation
- Cultural artifacts- Children's books-- multiple perspectives and what is worthy of attention as well as depictions of ecosystems (see Google images)

Converging observations—Cognitive studies



- 1. Taxonomy and goals versus habitat/ecology
- 2. Knowledge organization
- 3. Children's ecological knowledge and reasoning
- 4. Patterns of causal reasoning

Some examples of Diverse Perspectives



- Creation of the forest diorama
- Summer culturally-based science program and what should be measured
- Ownership of science, the BIA and attention to context.

Summary



- Native science is, in part, a way to decolonialize science
- It represents a different way of looking at the world with important implications (e.g. “light footprint” and agency without patiency versus having healthy relationships).
- Project outcomes: 3 PhDs, 2 MAs, 1 J. D., 4 BAs

Distance and science



- Is science supposed to be value-neutral and detached/distanced?
- Or is distance conflated with objectivity and “detached” a particular cultural model?

Researcher diversity, distance and bias



When scholars of color study research participants of color they may be accused of “getting too close” and perhaps subject to advocacy/biased research.

Describing the world versus exploring what is possible



1. Example: “I want to use technology to improve children’s learning.”
2. Example: “I want to work to identify and support assets and forms of resilience in my community.”
3. Example: (From Pat Gurins’ work) Student diversity on campus is a potential resource and can be beneficial.

Ongoing project with colleagues**

Analyzing forms of potential researcher bias in terms of whether they are likely to be less likely, more likely, or equally likely for a distanced versus engaged (close) relation to study population.

e.g. under-powered studies (more likely for engaged) vs. in-group bias in comparative studies (more likely for distanced, reflecting the WEIRD historical development of our fields)

**David Rapp, Kalonji Nzinga, Chris Leatherwood, Matt Easterday, Onnie Rogers, Natalie Gallagher

Our tentative conclusions



- We need engaged, skeptical science. Engagement and knowing who you're working with, what sorts of task and contexts are appropriate is just good science.

Conclusions



Different ways of looking at the world, both at the level of the researched and the researcher, are crucial to identifying and understanding patterned variation.

Psychological distance is (just) one component of this variation.

Engaged science is just good science.

Systems-level factors in which diversity operates



1. Building relationships with communities takes time. “Service” demands are often expanded.
2. IRBs can be imperialistic (versus community-based IRBs).
3. Publication practices may reflect multiple commitments that favor default population researchers. (e.g. JAIE, Journal of Black Studies versus “mainstream” journals).



Sample, methodological and researcher non-diversity interact as a system and non-diversity in one area encourages non-diversity in others.

The same holds for diversity.

A healthy science requires concentrated and sustained attention to systemic factors.

Summary of today's discussion



1. Ways of conceptualizing the world appear to be culturally variable. (Study population diversity matters)
2. “Science” doesn’t correspond to a single way of looking at the world. (Researcher diversity matters)
3. Both forms of diversity interact to facilitate understanding patterned variation.

Thanks!



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