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November 13, 2016

An Agenda for Diversity and Inclusion-related Research within OR/MS/Analytics

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Available at: https://works.bepress.com/michael_johnson/77/

AN AGENDA FOR DIVERSITY AND INCLUSION-RELATED RESEARCH WITHIN OR/MS/ANALYTICS

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2016 INFORMS National Conference, Nashville, TN
November 13, 2016

Presentation summary

- **Presentation goal:** Discuss new conceptions of OR/MS/analytics to generate novel insights regarding a difficult and contentious social problem
- **Primary challenges:** In the face of controversies regarding problem definition, evidence of positive impacts from social interventions and institutional barriers, how can our profession address diversity and inclusion to beyond incremental and possibly unsustainable impacts?
- **Key recommendations:** Judiciously adapt methods associated with OR traditions not commonly taught or practiced in the US

Acknowledgements

- Thought leaders:
 - Christian Weller, University of Massachusetts Boston
 - Gerald Midgley, University of Hull
 - David Hunt, Oliver Wyman
- Funding:
 - National Science Foundation, “Collaborative Proposal: Decision Models for Foreclosed Housing Acquisition and Redevelopment”, grant #1024968, September 15, 2010 – August 31, 2012
 - National Science Foundation Faculty Early Career Development (CAREER) Program, “CAREER: Public-Sector Decision Modeling for Facility Location and Service Delivery,” August 2002 – July 2007
 - U.S. Department of Housing and Urban Development Urban Scholars Postdoctoral Fellowship Program, “Spatial Decision Support for Housing Mobility Counseling,” August 2001 – April 2003

Some definitions

- **Diversity** – the quality of being different or unique at the individual or group level. This includes age; ethnicity; gender; gender identity; language differences; nationality; parental status; physical and mental and developmental abilities; race; religion; sexual orientation; skin color; social-economic status; [and many more]. Diversity can be broadly understood to encompass externally-identifiable individual measures that are often viewed or treated as markers of difference, as well as internal individual measures that may reflect personal understandings of the world, often referred to as cognitive diversity (INFORMS Ad-Hoc Committee on Diversity 2016)
- **Inclusion** – a strategy to leverage diversity. Diversity always exists in social systems. Inclusion, on the other hand, must be created. In order to leverage diversity, an environment must be created where people feel safe, supported, listened to, valued and able to do their personal best. (INFORMS Ad-Hoc Committee on Diversity 2016)

Some more definitions

- **Social justice:** Descriptive and normative perspectives on the distribution of good (advantages) and bad (disadvantages) in society, as well as the ways that resources are allocated to people by social institutions. Advantages: money, property, jobs, education, medical care, child care, care for the elderly, honors and prizes, personal security, housing, transportation, and opportunities for leisure. Disadvantages: military service, dangerous work, and other hardships (Miller 2003)
- **Public policy:** a system of laws, regulatory measures, courses of action, and funding priorities concerning a given topic promulgated by a governmental entity or its representatives. It is shaped by education, advocacy and mobilization and implemented through public management and public administration. (Adapted from National Violence Against Women Prevention Research Center 2000)

Justifications for diversity and inclusion

- They serve to remedy past and current discrimination and structural barriers to opportunity
- They enable organizations to better meet the needs and reflect the interests of employees, clients, customers and other stakeholders whose socio-demographic characteristics are increasingly distinct from those that leadership has traditionally drawn from
- They enable organizations to deliver products and services in ways that make best use of available resources and expertise.

Diversity and inclusion can be viewed as a way to foster social justice through public policy initiatives

Contrasting disciplinary perspectives relevant to diversity and inclusion

- **Social sciences:**

- Identify causal relationships associated with diversity and inclusion
- Evaluate specific diversity and inclusion initiatives.

- **Decision sciences:**

- Develop models and methods to produce guidelines, prescriptions or strategies that to enable individuals and organizations to deliver products and services that optimize multiple goals
- Account for a variety of process-related constraints and limitations
- Rely on commonly-accepted assumptions regarding the efficacy of policies which serve as a rationale for modeling; efficiency is usually a primary measure of impact or utility

Contrasting conceptions and worldviews make diversity & inclusion modeling challenging

- Positivist vs. interpretivist conception of data and modeling
- Client-consultant relationship vs. community partner-engaged researcher relationship
- Quantitative data and analytic methods vs. mixed-methods
- Technocratic/managerial vs. democratic/community-focused in organization design

Who are we developing diversity and inclusion-focused decision models for (and with)?

To what purpose will (should) these models be put?

There are many diversity 'best practices'

Organizations implement:

- affirmative action plans
- diversity committees and taskforces
- diversity managers
- diversity training
- diversity evaluations for managers
- networking programs
- mentoring programs

Etc.



"The local business journal wants to do an article on the 10 most powerful women in our company. Quick, go hire 7 more women!"

Impacts of diversity and inclusion initiatives vary widely

- Traditional empirical studies suffer from severe data constraints
- Difficult to get data on most employer programs
- Nominally identical programs are implemented differently in different organizations
- Workplace discrimination can be measured, but difficult to establish a causal chain between the implementation of various programs and increased/reduced discrimination
- Findings are contradictory and inconclusive

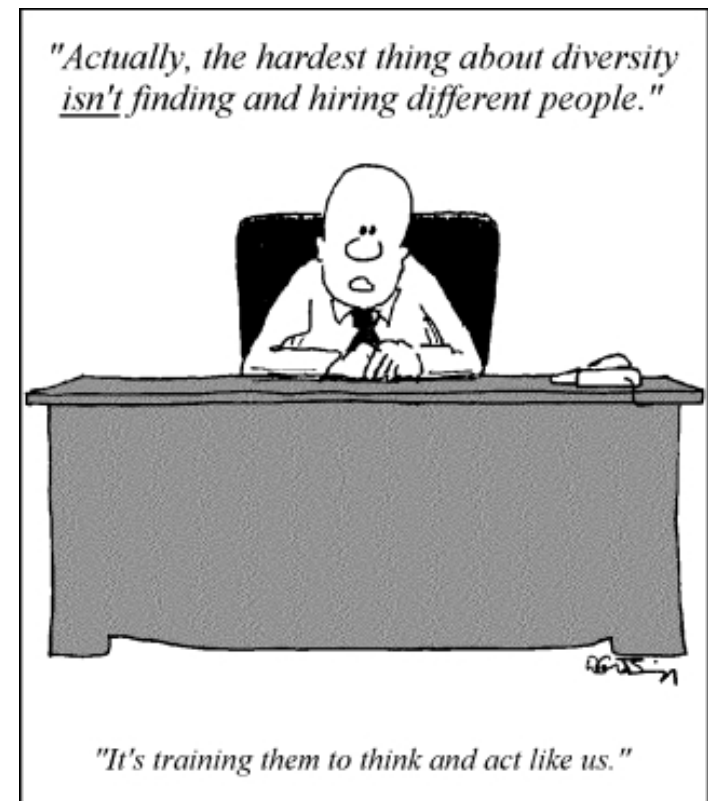
(Baron et al. 1991; Holzer and Neumark 2000; Konrad and Linnehan 1995; Naff and Kellough 2003; Kalev 2006)

Typical problems in diversity and inclusion amenable to traditional decision sciences

- Public school assignment: maximize equity of access, proximity to home, predictability, community cohesion. The Boston school system implemented a multinomial logit discrete choice model with school and program-type fixed effects (Shi, 2015).
- College admissions: quantitative analysis of different strategies and mechanisms. Chinese scholars seek to achieve Pareto efficiency in college choice for students nationwide (Chen and Kesten 2016)
- Job interviews: Design applicant pools to ensure increased diversity in candidates and (it is hoped) new hires. Recent work casts doubt on the 'if we can only get one' approach (Johnson, Heckman and Chan 2016)

Some problems in diversity and inclusion do not accommodate traditional approaches

1. Senior management decide to increase the percentage of employees who are women and minorities
2. Huge diversity recruiting campaign initiated
3. A number of women/minority candidates join the company
4. But over the next few years, they leave and the demographic make-up returns to the original numbers



Sometimes the diversity and inclusion problem is a 'mess'!

Is this a problem in diversity and inclusion?



*Sioux clashing with police at Standing Rock, November 2016
(Copyright CBC; public domain image)*

“The integration of the inherent trade-offs between sociopolitical, environmental, ecological, and economic factors is one major source of complexity in the decision-making processes of mining projects. Typical challenges include condensing multiple criteria into monetary value, and dealing with the inevitable difficulty in addressing conflicting stakeholder preferences.” (Pimentel et al. 2015, p. 23).

Handling the messes: Critical perspectives

- What are the power relationships that characterize the institution or phenomenon of interest?
- Who is defining the problem to be solved?
- Is the primary goal of the engagement to develop solutions that preserve the current organizational structure or mission?
- Is diversity and inclusion primarily intended to support organizational efficiency, or to engender social justice?

Community engagement

- What is the *community*?
 - Residents in a geographical locale
 - Members of a self-help group
 - Sub-category of the population with particular needs or requirements
 - On-line or on-ground?
- What is *engagement*?
 - Includes, but is not limited to, consultation
 - Prevent co-option, manipulation, tokenism
 - Allow a substantial input into framing both the issues to be discussed and potential actions to address them
- What communities are of special interest?
 - Disadvantaged, under-served or under-resourced, marginalized

Systems thinking

- Systems analysis seeks insights into nature and evolution of phenomena of widely varying scales, geographies and constituents using models and processes
- Problems exhibiting complexity, multiple perspectives and power relationships are especially amenable to systems analysis thinking
- Key insights from systems thinking:
 - Boundaries of inclusion and exclusion (time, issues, participants)
 - Focus of analysis need not be limited to the long term, or to stable organizations

The Soft OR approach

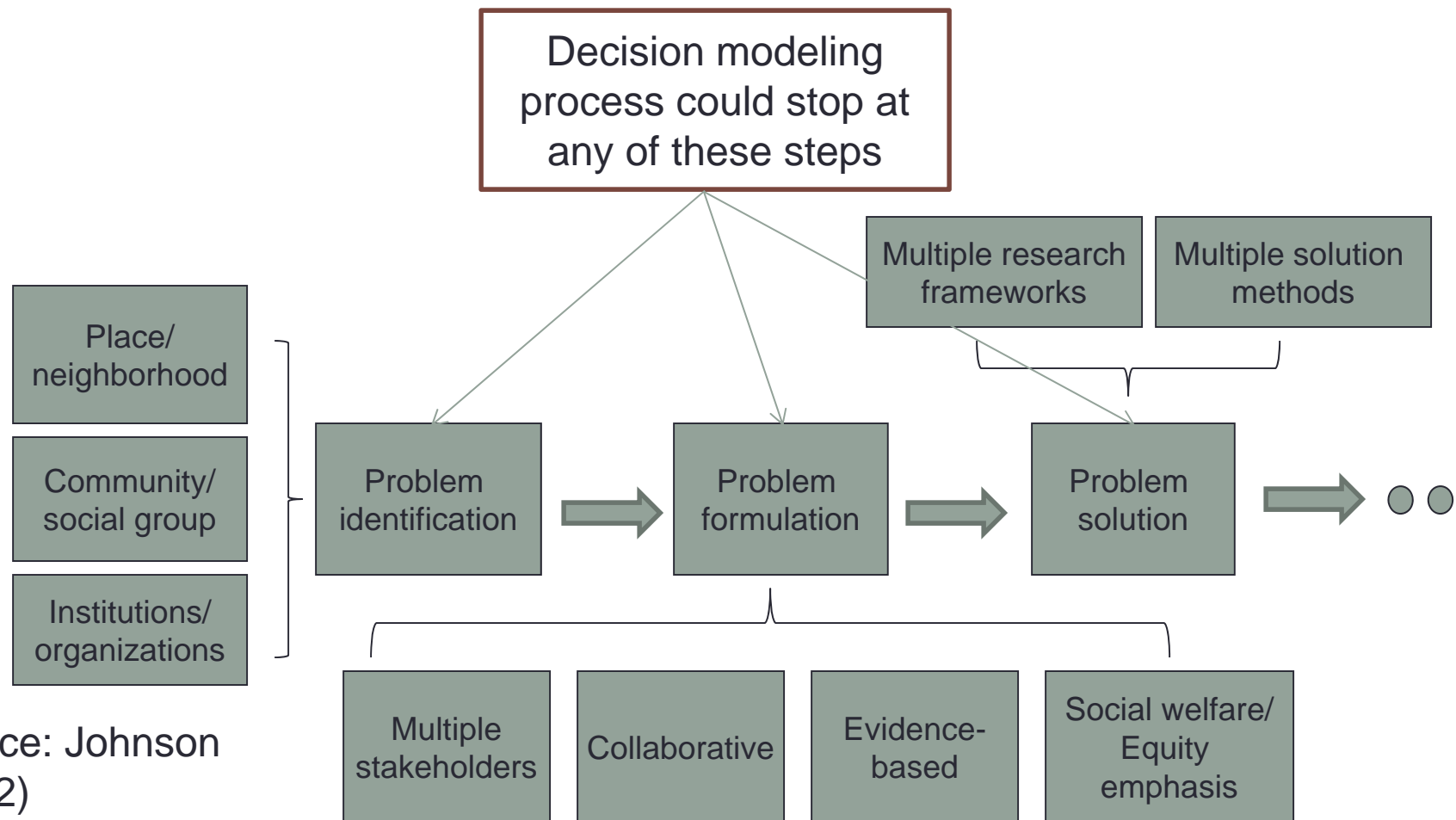
- The Critical Systems Practitioner is a “holistic doctor” (Jackson 2010, p. 137)
- The ideal practitioner is committed to:
 1. Critical awareness of the strengths and weaknesses of different systems approaches;
 2. Methodological pluralism
 3. Improvement

The Soft OR approach, continued

1. What is the nature of the problem?
2. How should the problem be conceptualized?
3. Which actors are relevant?
4. How do the actors and the problem co-evolve?
5. What models are adequate for problem diagnosis and handling?

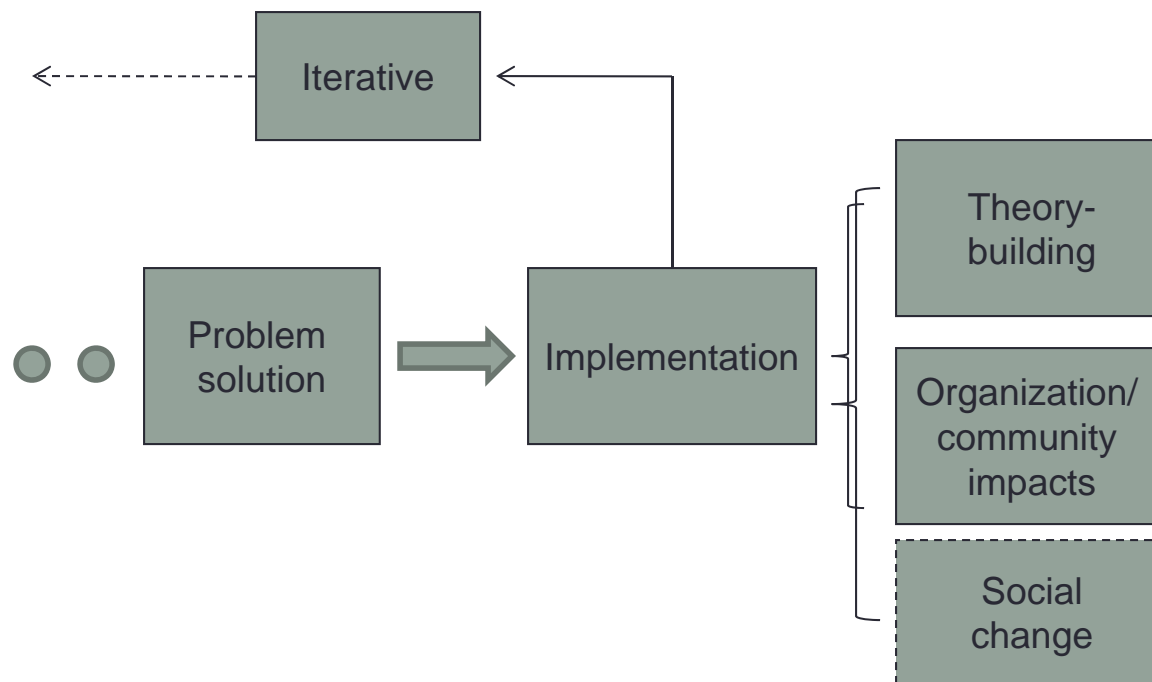
Soft OR approaches often emphasize problem structuring and values assessment (Rosenhead and Mingers 2001; Keeney 1992); US-style OR emphasizes prescriptions based on quantitative models. How to reconcile the two?

Soft OR can be linked to more familiar approaches: Community-based OR



Source: Johnson (2012)

Community-based OR, continued



Source: Johnson
(2012)

Alternative modeling approaches and impacts

- **Multiple levels:**
 - *First-level* (compatible with top-down, technocratic organizations): **Who is not at the table? What are the social concerns not obvious in the model?**
 - *Second-level* (multi-user, cross-disciplinary): **Who builds, vets and implements the model?**
 - *Third-level* (worldview): What analytic and methodological framework should matter most for a particular case study?
- **Multiple impacts:**
 - A deep understanding of the overarching analytical framework may enable solutions to diversity and inclusion problems to become of an organization's DNA
 - The third-level approach can go beyond organizational change to support social justice and social change

Decision models for diversity and inclusion can address more ambitious approaches

- Gender diversity quotas (Germany)
- Jobs guarantees (Derrick Hamilton and Sandy Darrity)
- Universal basic incomes (Canada, Switzerland, Finland)
- ‘Scaled up’ and comprehensive approaches to poverty alleviation
- Black Lives Matter policy platform (<https://policy.m4bl.org/platform/>)

There are multiple resources for social science-based rationales for diversity and inclusion decision modeling

- Center for American Progress/PolicyLink: All in Nation
- Insight Center for Community Economic Development (racial wealth gap)
- Center for Global Policy Solutions (wealth and inequality)
- Joint Center for Politics and Economics (economic aspects of diversity)
- Institutes on Assets and Social Policy
- Institute on Women's Policy Research
- Washington Center for Economic Growth

Current INFORMS initiatives and resources related to diversity and inclusion

- Doing Good with Good OR student competition (<https://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/Doing-Good-with-Good-OR-Student-Paper-Competition>)
- Pro Bono Analytics (<http://connect.informs.org/probonoanalytics/home>)
- INFORMS ad-hoc committee on diversity
- INFORMS subdivisions: MIF, WORMS, JFIG

Thank you very much!

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