Mixed Methods and Wicked Problems

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As my 5-year tenure as editor of the Journal of Mixed Methods Research comes to an end, I want to use this editorial space to present some challenges for our community of mixed methods researchers. The challenges emanate from the concept of wicked problems and the promises associated with mixed methods to understand complexity through diverse approaches. I borrow the term wicked problems from urban planners Rittel and Webber (1973), who described wicked problems as those that involve multiple interacting systems, are replete with social and institutional uncertainties, and for which only imperfect knowledge about their nature and solutions exist. Hence, they argue that there are no completely right solutions to this type of problem; only better and worse solutions that are in part determined by how the problem is understood. Levin, Cashore, Bernstein, and Auld (2012) added the concept of super wicked problems distinguished by these additional characteristics: problems for which time is running out, there is no central authority, the persons trying to solve the problem are also causing it, and policies to address them discount the future. Methodologically, Camillus (2008) claims that wicked problems cannot be resolved by traditional processes of analyzing vast amounts of data or more sophisticated statistical analyses. Examples of wicked problems include climate change, terrorism and conflict, social inequities, health care, educational access, and poverty.

Identification of wicked problems and approaches to the use of research as a tool to inform decisions for action related to them have progressed since Rittel and Webber (1973) first published on this concept. For example, a special issue of the Journal of Mixed Methods Research focused on mixed methods strategies that were used to study social inequities experienced by marginalized populations to address wicked problems such as access to education for Roma populations in Europe (Flecha, 2014), creating safe places for internally displaced gay and bisexual men and transwomen in Colombia (Zea, Aguilar-Pardo, Betancourt, Reisen, & Gonzales, 2014), and building research capacity in the spinal cord injury community in New Zealand (Sullivan, Derrett, Paul, Beaver, & Stace, 2014). Gomez (2014) claims that mixed methods approaches are particularly germane for approaches to address these wicked problems because they allow researchers from diverse groups to have a common language to guide their inquiry, participants from vulnerable groups to be included in culturally appropriate and supportive ways, and policy makers to be part of the process of problem and solution identification and documentation.

Another example of the use of mixed methods to address wicked problems comes from the work of the Educational Resilience Approaches section of the World Bank; they have a project to address wicked problems such as lack of access to education and reduction of gender violence in conflict zones and in contexts of adversity by adopting a resilience-focused transformative approach.

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mixed methods approach (Reyes, Kelcey, & Diaz Varela, 2014; Reyes, Liebenberg, & Kelcey, 2014). The goal of the work is to build the capacity of local researchers in Guatemala, Nepal, Afghanistan, Bhutan, India, and Syria to develop approaches to addressing the wicked problems of access to education for people in these contexts of adversity in a way that allows members of the communities to contribute to the understanding of the problems themselves; involves stakeholders from the policy, program, and community levels; and works toward solutions rather than only problem identification.

Climate change and environmental degradation are other examples of wicked problems (or super wicked problems) that have defied solution by traditional methods. The wickedness of the problem of attempting to find and implement effective solutions stems from the complexity of the problem, the multiple constituencies that are responsible for both generating the problem and solving it, and conflicting value systems. An excerpt from the UN Intergovernmental Panel on Climate Change (IPCC) about the effects of climate change in Asia illustrates this complexity at the intersection of the economic, environmental, and social systems:

**Multiple stresses caused by rapid urbanization, industrialization and economic development will be compounded by climate change.** . . . Climate change is expected to adversely affect the sustainable development capabilities of most Asian developing countries by aggravating pressures on natural resources and the environment. Development of sustainable cities in Asia with fewer fossil fuel driven vehicles and with more trees and greenery would have a number of co-benefits, including improved public health.

**Extreme climate events will have an increasing impact on human health, security, livelihoods, and poverty, with the type and magnitude of impact varying across Asia.** . . . More frequent and intense heat-waves in Asia will increase mortality and morbidity in vulnerable groups. Increases in heavy rain and temperature will increase the risk of diarrheal diseases, dengue fever and malaria. Increases in floods and droughts will exacerbate rural poverty in parts of Asia due to negative impacts on the rice crop and resulting increases in food prices and the cost of living. (IPCC, 2014, p. 24.4)

Although this part of the IPCC report references climate change in Asia, the effects of climate change are not limited to that part of the world. The questions researchers need to ask include: How can we understand the context and experiences of diverse communities in culturally appropriate ways, especially those who are displaced and from low-income households? How can strategies be developed and implemented that address the human and environmental implications of this wicked problem? How can mixed methods be used to capture the complexities inherent in moving forward a shift to a more resilient and healthy path of growth and development?

Researchers interested in the intersection of economic development, environmental justice, and human rights need to select methods that identify the different constituencies, their social and cultural positions, and ways to counteract negative or distrustful relationships (Mertens, 2014, 2015). For example, there is a community in New York that is suffering from pollution that comes from trucks that travel from Canada across the Peace Bridge (Zremski, 2014). In the west side of Buffalo New York, the community is made up of mostly poor and racial/ethnic minorities who live near the Peace Bridge, a bridge that carries heavy traffic from Canada to the United States. Several independent studies have confirmed the high level of pollutants and their negative health consequences in the form of an epidemic of asthma and elevated rates of cancer, stroke, and neurological disorders. However, the New York and U.S. governments rejected these report findings and conducted their own studies that led them to the conclusion, according to Madeline C. Caliendo, associate administrator in the Office of Civil Rights at the U.S. General Services Administration, the government’s property management agency, that any
efforts to address “environmental justice” issues at the Peace Bridge were premature. The government based this conclusion on the collection of two types of pollutants; however, they had not measured the types of pollutants most commonly associated with asthma and cancer. The government is now sponsoring another year-long study that will add these pollutants to the measurements.

However, such an approach provides little hope of effectively intervening to address this wicked problem. The community residents are hostile and distrustful. The government thinks that by involving the community in the measurement of the pollutants that they will achieve credibility in their findings. What is wrong with this picture and how can mixed methods improve the credibility of findings? First, the researchers need to expand their methods to include qualitative relationship building that gives voice to those who are less powerful in this context. There needs to be data collected on the life experiences of those who live near the Peace Bridge in order to demonstrate that the research is taking the quality of living into account, especially for those who suffer the most negative effects of the pollution. There also needs to be consideration given to the provision of services to counteract the negative health effects present in the community and to the international relationship between Canada and the United States, the environmental agencies and the health and human rights agencies, and the business community and the policy makers. Without the use of mixed methods, decisions have been and may continue to be made that blame the victims and do not create the harmony and symbiosis that is desirable.

Chomitz (2014) discusses the challenges and advantages of evaluating demonstrations and pilot projects to inform decisions about interventions:

> It is not as if there were a pre-existing, clear, roadmap for economic development and poverty reduction. Now the way forward is further obscured by the need for pervasive changes in the way that we produce energy, grow food, use water, and prepare for droughts, floods, and storms. There are lots of good ideas, but not all of them will pan out as expected. What’s needed, at every level from the community to the planet, is the acuity to recognize both dead ends and promising pathways as rapidly as possible. . . Demonstration and pilot projects—which prove to be technically feasible, work out regulatory issues, and reduce perceived investment risks—can have far-reaching impacts, but are successful only when they specify what is being demonstrated to whom, why, and how. The CIF [Climate Investment Funds] evaluation found that some would-be transformative energy interventions were likely to be stymied by unfavorable national energy policies.

Business as usual will not lead to effective use of research to address wicked problems, problems for which time for solutions is running out. Will the mixed methods research community accept this challenge? How would this change the nature of our research and our interactions with the diverse constituencies affected by wicked problems? How will the preparation of researchers be changed to accommodate to this need to have a fuller understanding that is interdisciplinary and transdisciplinary? The future of the world depends on how we respond to these questions.

References


