Emerging trends and new frontiers in community operational research

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\textbf{A B S T R A C T}

Community Operational Research (Community OR), and its disciplinary relation, Community-Based Operations Research, has an increasingly high profile within multiple domains that benefit from empirical and analytical approaches to problem solving. These domains are primarily concentrated within non-profit services and local development. However, there are many other disciplines and application areas for which novel applications and extensions of Community OR could generate valuable insights. This paper identifies a number of these, distinguishing between ‘emerging trends’ (mostly in well-studied areas of operational research, management science and analytics) and ‘new frontiers’, which can be found in traditions not commonly oriented towards empirical and analytical methods for problem solving, where community-engaged decision modeling represents new ways of generating knowledge, policies and prescriptions. This paper will show how the exploration of emerging trends and new frontiers in Community OR can provide a basis for the development of innovative research agendas that can broaden the scope and impact of the decision sciences.

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1. Introduction

Community Operational Research (Community OR), and its disciplinary relation, Community-Based Operations Research (CBOR), has an increasingly high profile within multiple domains that benefit from empirical and analytical approaches to problem solving. Many of these areas are concentrated in human services, community and economic development, education and other non-profit services, and the nature of inquiry tends to be influenced by action research and systems thinking as much as traditional decision modeling. However, there are many other areas of inquiry in which Community OR has had only a modest presence to date.

The goal of this paper is to explain how Community OR can help identify problem opportunities, novel analytical methods, theory-building and contributions to practice in a variety of domains, some closely identified with operational research, management science and analytics (henceforth referred to generally as the ‘decision sciences’), and others more firmly rooted in disciplinary traditions not conventionally associated with decision science. By doing so, we hope to provide encouragement and resources for researchers and practitioners who seek new applications for Community OR that support frequently-pursued Community OR values, such as community engagement, equity and social justice.

We start by providing a short introduction to Community OR, and in so doing we clarify distinctions between this and other areas of decision science. Elsewhere (Midgley, Johnson, & Chichirau, 2018), we argue that the definitive feature of Community OR is “the meaningful engagement of communities”, which leaves open questions about what counts as ‘meaningful’ (see Ufua, Papadopoulos, & Midgley, 2018, for a discussion of this) and what constitutes a ‘community’ (e.g., Midgley & Ochoa-Arias, 1999). Importantly, defining Community OR in this way draws out a principle of practice (meaningful community engagement) that is present in all previously published examples of Community OR, so this is not an imposition on our discipline. However, it also proposes a normative standard for future practice and publications, to limit the possibility of ‘drift’ into less community-engaged forms of OR.

Note that a consequence of this definition is that there are overlaps between Community OR and other well established traditions, such as public sector OR and even OR in the private sec-

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Community OR also usually has a concern for disadvantaged, underrepresented and underserved populations. This is about social justice, which involves efforts to promote “...a just society by challenging injustice and valuing diversity” (National Federation for Catholic Youth Ministry 2008) or ensuring “equal access to liberties, rights, and opportunities, as well as taking care of the least advantaged members of society” (Robinson, 2016). Social justice was a concern of those who first founded Community OR (e.g. Jackson, 1987; Rosenhead, 1986).

Community OR focuses on problem solving processes as well as outcomes (Midgley and Ochoa-Arias 2004b); in particular, designing interventions that are intended to improve the understanding of decision opportunities, data and solutions as much as to produce specific prescriptions or strategies (e.g. Ritchie, 2004). Johnson (2012b) argues that Community-Based Operations Research (CBOR), a domain closely aligned with Community OR, derives a great deal of value from

- Identifying problems which may not, at first glance, appear amenable to conventional OR methods;
- Formulating those problems in such a way as to prioritize diverse conceptions of values, evidence of beneficial social impacts and equity;
- Solving them (or addressing/managing them when no immediate resolution is possible) through multiple research frameworks and analytical methods that yield understanding as much as prescriptions; and
- Implementing solutions to enable capacity building and social change, with theory development being a possible outcome too.

Community OR embodies a critical approach and a concern for ethics. By 'critical approach', we mean a desire to

- Interrogate assumptions about whose conceptions of a problem count (e.g. Foote et al., 2007; Midgley & Pinzón, 2011; Ulrich, 1987, 1994, 1996);
- Explore the implications of power relationships between 'experts' who address problems, 'clients' who present problems to be solved, and communities who are the potential beneficiaries or victims of new policies or prescriptions (e.g. Córdoba & Midgley, 2006; Midgley & Milne, 1995);
- Understand the inevitably non-neutral role of the practitioner, and perceptions among stakeholders of his/her identity, which bring the need to link self-reflection with stakeholder dialogue, empirical-analytic inquiry and ideology critique (Gregory, 1992, 2000; Midgley, 1995); and
- Take seriously alternative research philosophies and methodologies, such as post-positivism, constructivism, transformative research, emancipatory inquiry and pragmatism (e.g. Creswell, 2014; Jackson, 1985; Metcalf, 2008; Midgley, 2004; Ormerod, 2006; Taket & White, 1993).

'Ethics' refers to

- Concerns about the probity of engagements by researchers (e.g. issues of independence and honesty when there is a fee paying client and other stakeholders may suffer);
- The integrity of relationships between researchers, clients and participants, so exploitation of various kinds is avoided; and

Moral inquiry can shed light on the possible rights and responsibilities of stakeholders, especially in problematic situations (Mingers, 2011a). Likewise, Midgley, Munlo, and Brown (1998) follow Ulrich (1987, 1994, 1996) in arguing that every boundary judgment made in a Community OR project (about whose views and what issues to include, exclude or marginalize) is also
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