Chapter 2
Benefits and Challenges of Transdisciplinary Research for Urban Health Researchers

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The previous chapter outlined how transdisciplinary (TD) research, namely research that integrates divergent perspectives, frameworks, epistemologies, methods, and theories, enables urban health researchers to gather a more comprehensive understanding of social phenomena. In this chapter, we highlight the strengths TD research provides for urban health researchers as well as some of the challenges they can face. To illustrate our discussion, we will draw upon the following TD case study.

Realist Review of Community-Based Services for Homeless Adults with Concurrent Mental Health and Substance Use Disorders

An example of TD research is a recent study from the Centre for Research on Inner City Health (CRICH) at St. Michael's Hospital in Toronto, Canada. This project was part of a Canadian Institutes of Health Research (CIHR)-funded training program–Strategic Training Initiative in Health Research (STIHR) (see Chapter 11 for more information on this type of funding) focused on training young researchers across various disciplines at the pre- and post-doctoral level in the health of marginalized populations. The goal of this particular study was to conduct a systematic review of academic and non-academic literature on existing community-based treatment services for homeless adults with concurrent mental health and substance use disorders. Unlike traditional systematic reviews that focus on whether or not a particular intervention works, the aim of this study was to understand not only which programs are successful but also *what* it is about these programs that worked and why (O'Campo, Kirst, Schaefer-McDaniel et al., 2009).

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The topic rose out of a stakeholder scan CRICH conducted with community-based health organizations in downtown Toronto to identify pressing service and policy needs. Lack of knowledge about services geared specifically for marginalized people experiencing concurrent mental health and substance use problems emerged as a recurring theme. When academic researchers met with community agencies to discuss these findings, it was the community that asked researchers for evidence to help meet their specific service needs. Thus, similar to other TD projects that are discussed throughout this book (e.g., see Chapter 3 and Chapter 6), it was the community that initiated this project and set the course of much of the research. For example, from the beginning, this project was concerned with an applied research question that sought to create knowledge that could be directly translated into action. While we originally focused on the issue of treatment programs for adults experiencing concurrent mental health and substance use problems more broadly, we narrowed our scope to the homeless population over the course of the project since this represented a population that was served by most of the community partners involved in the study.

In order to examine best practices in service provision, a TD research team was assembled consisting of representatives from five community agencies that provided frontline services for marginalized people in Toronto, graduate students, pre- and post-doctoral research fellows, and academic faculty with a wide range of expertise including social epidemiology, psychology, biostatistics, sociology, ethics, knowledge translation, community medicine, public health, and social work. Together, the team integrated the represented expertise and experiences and conducted a synthesis of academic publications, non-scholarly literature, and key informant interviews, as well as an appraisal of the quality of each piece of evidence. The transdisciplinarity of this project was further evidenced by the iterative and dynamic methodology that guided the research process, namely a realist review (Pawson, 2006; Pawson, Greenhalgh, Harvey, & Walshe, 2005) and narrative synthesis. In line with the action-oriented nature of TD research, academic team members worked together with community partners to translate findings into knowledge translation products useful for community agencies' advocacy and planning activities in the second stage of the project.

[Multiple] Heads are Better than One: Strengths and Benefits for TD Researchers

One of the most important benefits of taking a TD research approach is that it allows investigators to examine the issue of inquiry from many different perspectives and points of view. Such in-depth, day-to-day collaboration between individuals with different expertise allows for frequent collisions between disciplines, exposing assumptions, paradoxes, congruencies, and conflicts among them. While these confrontations can be frustrating and may slow the pace of research, they are also extremely beneficial to the research process and topic of inquiry as they often raise

important issues that would otherwise have been missed. Specifically, by exploring these paradoxes and conflicts as well as examining how information from diverse disciplines intersects, new understandings of the phenomenon can arise and new research directions can emerge (Ramadier, 2004).

Our case example, the 'Realist Review' of community-based services for homeless adults experiencing concurrent mental health and substance use problems, is a good example of the benefits of exploring paradoxes at the intersection of disciplines. The literature search yielded a group of 10 heterogeneous community treatment programs for homeless persons experiencing concurrent disorders. Each program contained many different treatment components in many different contexts with variable success on mental health symptoms and substance use behaviours. A recent quantitative systematic review of similar programs for people with concurrent disorders found conflicting results between studies suggesting that the "resulting heterogeneity limits comparability of studies, the potential for meta-analysis, and the strength of inferential validity" (Drake, O'Neal, & Wallach, 2008, pp. 133–134). While this particular review concluded that there was some evidence that three service approaches were "probably" effective (namely group counselling, long-term residential treatment, and contingency management), Drake and his colleagues (2008) were unable to state *why* some of these programs were effective and some were not.

In contrast, the TD Realist Review examining services for homeless adults experiencing concurrent disorders was able to make sense of such conflicting information by drawing on (a) epidemiological principles to appraise quantitative evidence, (b) realist review principles to highlight the importance of context, (c) experiential knowledge of service providers to ground the literature, and (d) a narrative synthesis approach to closely analyze the content and effectiveness of the programs. This TD study by O'Campo et al. (2009) found that six program components (e.g., the provision of housing, building quality relationships between provider and client) appear to contribute to success in reducing mental health symptoms among homeless persons with concurrent disorders.

Another benefit of TD research is that research teams have wider access to theory, research literature, data collection methods, and analysis techniques thus equipping them with more tools to study a particular phenomenon. This can assist team members in asking clearer and more appropriate research questions and utilizing more appropriate (and more creative) data collection and analysis techniques for the problem at hand. That is not to say that "more is always better" since the inclusion of more literature, theory, methods, and other research tools can also be conflicting and confusing. The challenge in TD research lies in finding the correct balance and determining when information (e.g., as it relates to the conceptual framework or topic of a study) has been satiated, a process that in our opinion can only successfully take place through (multiple) discussions with team members representing diverse areas of expertise.

In the Realist Review example, representation from different disciplines assisted greatly in building a comprehensive list of search terms for the literature search, identifying appropriate sources of non-academic literature, and in designing a

research question that was practical, viable, rigorous, and fulfilled a need of the community. We also utilized epidemiology's rigorous approach to quality appraisal to evaluate the quality of the quantitative studies and capitalized on the strengths of qualitative narrative synthesis to infer how and why certain programs worked.

Close collaboration among individuals with different areas of expertise can also act as an inherent "quality control" mechanism and provide a support system for team members. This is especially true when community members or service providers are included in the research team. For example, community partners in the Realist Review example were the first to point out to the academic team members that one of the reviewed service approaches as it was described in the US literature had little in comparison with how the same service program was being carried out in Toronto, Canada. This information shaped how that service approach was described in research bulletins and publications designed for Toronto policy makers to ensure there were no misunderstandings.

A TD research team may also be better equipped to point out design flaws, threats to feasibility or validity, and whether the work replicates a research agenda or finding from another field of inquiry. Furthermore, the multitude of expertise involved in TD collaboration helps team members anticipate practical, moral, and ethical problems that might arise in the course of the research and develop an appropriate course of action. This is particularly important for work with marginalized or vulnerable populations.

TD research also has the potential to increase resources for team members. For example, academic partners can access funding options outside their disciplines by partnering with experts from other areas. Similarly, partnering with academic members can increase community partners' resources by providing access to academic libraries, academic publications, and research expertise. In the Realist Review case study, the community partners were able to use results of the project and the expertise of the academic partners in various ways to meet their organizational needs. The team not only produced a community report that could be used for advocacy and to seek program funding but also developed two policy bulletins and a protocol for an internal evaluation for two of the community partner organizations to assess the effectiveness of their concurrent disorder programs.

Another substantial benefit of TD research that includes community members is that the community can influence the direction of the research project such that it fulfils their needs. This can ensure that the research that is produced is of practical use to the community and policy makers and thus has impact outside the academic community. The inclusion of policy makers, community members, and researchers with varying areas of expertise on the research team provides a natural vehicle for dissemination of the findings and can enhance the credibility of the research in the eyes of fellow policy makers and community members. Community members and policy makers have the expertise and the connections to produce knowledge translation events that can impact news media. In the Realist Review project, community members shaped the research question and gave continuous feedback as to the kind of information that would be useful for them. Furthermore, because of the partnership generated by the project, two community partners collaborated independently,

outside the joint Realist Review project, to launch a policy bulletin on "Women and Homelessness" (Street Health, 2008). They also organized a "speak-out" evening where homeless women could speak with provincial officials about their concerns and how poverty affects them. This event was videotaped and given to key public officials along with copies of the bulletin, and the campaign made an impact on news media (Monsebraaten, 2008). The ease with which the community organizations organized such a successful advocacy campaign impressed the partnering academic members and was another demonstration of how academics can benefit from community expertise.

Many Hands [Do Not] Make for Light Work: Challenges for TD Researchers

Despite the many benefits associated with TD research, it is also a very labour-intensive undertaking since it involves a great deal of negotiation and discussion in order to bring together team members, their disciplines, and areas of knowledge. This negotiation, if not handled carefully in an open and accepting environment, can result in tension and possibly conflict. As Stokols (2006) suggests, TD research "requires an ethic of resolute openness, tolerance, and respect toward perspectives different from one's own and a commitment to mutual learning and mediational processes in which contrasting values and conflicts of interest are negotiated and accepted, if not entirely resolved" (p. 68).

In this section, we discuss challenges associated with TD research in terms of team composition and group dynamics as well as in relation to academic realities.

Process Challenges

One of the first challenges associated with TD research deals with team composition and structure. At the onset of TD collaboration, investigators might find themselves pondering the following questions: How should team members come together? Who should be invited to join the collaborative team? Which areas of expertise and experience need to be represented? Clearly, there is no absolute answer to any of these questions as they are dependent upon a number of issues such as the topic of inquiry, the financial support for the project, the physical location of team members, and members' interests and availability.

Once a team has been assembled, additional challenges well known to team collaborations can quickly arise such as determining how decisions will be made, agreeing on a research and action plan, as well as deciding how the project will be managed and led. Bringing a diverse group of people together to work on the same research problem automatically raises concerns related to group and power dynamics. For example, team members might have varying priorities for researching the particular issue and consequently advocate for diverging starting points and

directions of inquiry. Power struggles can also emerge if team members do not recognize other types of knowledge as valid or do not respect others' worldviews and epistemological paradigms (see Gray, 2008; O'Cathain, Murphy, & Nicholl, 2008). Wallerstein (1999) recommends that in order to develop productive relationships in team research, it is crucial for team members to reflect on their own positions of power, privilege, background, and experience as these "characteristics inform our ability to speak and interpret the world" (p. 49). Furthermore, Wallerstein and Duran (2006) encourage team members to examine their own motivations for participation as levels of participation often vary by degree of project ownership. O'Cathain et al. (2008) and Wallerstein (1999) recommend discussing issues surrounding group and power dynamics from the beginning as well as throughout the entire course of a team project as group dynamics need to be carefully negotiated and time is required to build trust and strong working relationships among team members.

We find that leadership is very important in mitigating, negotiating, and avoiding the above-mentioned pitfalls in TD work. While each team will need to decide on its own leadership and organizational structure and discuss what type of coordination would be most beneficial, in our experience, a good TD team leader is one who is committed to the project and to the principles of equity and democratic decision making; keeps the group on track, organized, and moving forward; and is comfortable mediating disagreements. Further, we find that good TD leaders view their role as facilitating and supporting the will of the team, 'leading from behind,' rather than authoritatively determining the direction of the team.

TD researchers need to be mindful of group dynamic issues and, at the onset of a project, set an appropriate amount of time aside to ensure that careful planning and preparation can take place. A "Terms of Reference" agreement is a useful tool that can help group collaborations overcome some of these challenges. Such a document generally outlines project goals and objectives, guiding principles that members agree to abide by (see Israel, Eng, Schulz, & Parker, 2005), team members' roles and responsibilities, and procedures for how decisions will be made. In the Realist Review example, it took 2 months to develop and negotiate our Terms of Reference. The group felt that taking the time to discuss this agreement was helpful in setting the tone for democratic group collaboration and served as a helpful guide that could be referred to throughout the course of our research. Taking time at the beginning of a joint collaboration ensures that team members understand each others' goals, expectations, and values regarding team work and collaboration and prevents future misunderstanding and conflict. It is also noteworthy to keep in mind that a "Terms of Reference" agreement does not need to be finalized at the onset of a project. Rather, it can evolve over time as the team encounters new challenges or situations.

Another challenge commonly associated with team research such as TD collaboration has to do with communication. For example, the use of academic language (i.e., jargon) to dominate a conversation can exclude some members (e.g., community team members, academics from different disciplines). This difficulty can also arise when power is equally shared among team members: discipline-specific language that might be natural and easily understood for some team members can be

unintelligible to others. More dangerous, however, are words that have common usage but very specific connotations within a particular discipline such as "bias" in epidemiology, "political" in the qualitative traditions, or "theory." In the Realist Review project there were several heated discussions that were finally resolved when we realized that team members were talking about the same issue but were using different language to express themselves or were using the same language but referring to different issues. Team members must be prepared to spend time learning new vocabulary and concepts or relearning old ones so that all investigators share the same understanding and meaning of the topic and issues at hand. Team members should thus be on the alert for communication difficulties, pause and spend the time to explore the meanings behind the words that are used, and ensure that everyone understands each other. Building a new shared vocabulary can be a very time-consuming and frustrating experience, and as Peter Smith (2007) reminds us, "there are no benchmarks to indicate when a researcher has achieved sufficiently familiarity with the other disciplines in a research team" (p. 163).

A similar challenge that can arise in TD collaboration relates to arriving at the same understanding of what counts as evidence. Often, disciplines place emphasis on different concepts or aspects of (even shared) methodology. Team members need to be sensitive to these concerns and should discuss openly which specific methodologies, procedures, and findings will be considered valid, important, and necessary for rigorous research. While this challenge can complicate the research since not all team members may initially agree, it is essential that the team as a whole comes to a joint decision in order to advance the process of research. For example, in the Realist Review project, the epidemiologists were adamant about reporting confidence intervals, power calculations, and detailed information regarding study design and analysis, while the social scientists were less concerned with power calculations and more concerned with the context of the research and the interpretation of the findings. As a compromise, the team decided to place equal emphasis on contextual and statistical information.

Academic Support Challenges

Aside from challenges related to group dynamics and team composition, academic TD researchers may also struggle with academic realities as structural issues of academia, publishing, and granting agencies make it more difficult for these types of researchers to engage in TD collaboration. Specifically, universities and university-based research institutions provide "extremely strong incentives to work within an established discipline, using its established methodologies on problems that are deemed important in the field" (Hildebrand-Zanki et al., 1998). Firstly, there are often limited funds available for cross-disciplinary and TD collaboration, as compared to the plethora of funding streams for unidisciplinary research. While TD collaboration allows the team access to a greater number of funding agencies, unidisciplinary-specific funding streams may not look kindly on the additional

time and costs of TD research teams (for instance, expenses to accommodate group meetings and knowledge translation costs, see Chapter 8).

Secondly, in the current "publish or perish" academic climate, promotion and tenure greatly depend on the candidate's academic, peer-reviewed publication record. However, TD work is very time consuming and often requires additional projects that are not counted in the rubric for funding or tenure, such as writing bulletins for policy makers, giving community presentations, or other knowledge-translation activities. It is therefore not realistic for TD academic researchers to produce as many academic publications as disciplinary-based researchers, yet many academic departments and funding agencies do not have a mechanism to take these additional activities into consideration.

Authorship is a prime example of this. Because TD research teams can be quite large, the list of authors can be very long. In many academic traditions, the number of authors and the order of authorship are used to judge the amount of involvement and the amount of "ownership" an author had in a particular paper. Single-author papers in the social sciences and the first or last author role in the medical sciences are generally weighted more positively. However, academic researchers involved in TD research can find themselves contributing more time and effort to these types of publications compared to disciplinary publications without receiving similar acknowledgement in the order and configuration of authorship. This can be a disadvantage when funding agencies or university promotion bodies consider a researcher's publication record for career development. In order to legitimize such cross-disciplinary collaborations in the eyes of academic institutions, we encourage initiatives like those currently underway by the Community–Campus Partnership for Health (CCPH) which seeks to transform academic–community collaborations in the USA by addressing some of the challenges commonly faced by faculty engaged in community-based research including issues related to faculty development, adequate research dissemination, tenure, and promotion (http://www.ccph.info). For example, they recommend taking non-traditional publications such as technical and non-peer-reviewed reports to community organizations as well as the overall development of researchers themselves in terms of innovation and quality work into consideration when reviewing tenure applications (see Jordan, 2006).

Finally, finding an appropriate venue to publish a TD research project can also be a concern for researchers since many conventional, high-impact journals have a strong disciplinary focus that may not welcome other types of research endeavours including TD work (Smith, 2007). Furthermore, many of these conventional journals have strict word limits that are often not sufficient for TD researchers to adequately describe methods, process, and results of their TD projects making it thus challenging to reach the most appropriate audience. While a few specific TD academic journals currently do exist (e.g., *The International Journal of Transdisciplinary Research*, *Journal of Transdisciplinary Environmental Studies*), they tend to be very topic specific, covering issues related to economics or environmental studies, for example. With the increasing popularity of online journal subscriptions and the possibility of additional content available online, journals have the ability to allow for more in-depth discussion of research issues, so we encourage journal editors as well

as publishers to consider these suggestions to make TD research more accessible to target audiences.

Conclusion

In this chapter, we drew upon our experiences as team members in a Realist Review project to illustrate how combining and integrating various disciplines and perspectives in TD research can be a powerful tool for urban health researchers in understanding complex problems. The Realist Review project (O'Campo et al., 2009) benefited tremendously from the multitude of collaborators' expertise in defining the research question, selecting the appropriate review method, choosing search terms for the literature search, and disseminating the research findings to a broad audience.

By bringing various stakeholders together to work jointly on the same research question, TD researchers have access to greater resources and research tools and are more likely to develop a more complete understanding of the issue at hand. As with all types of team collaborations, this approach can also pose challenges including longer time investments, publication concerns, and issues related to group and power dynamics. However, given the complex nature of many urban health issues, we believe that finding successful solutions to these problems is beyond the scope of any one discipline. TD research with its focus on social change and action can thus be an appropriate approach for the study of urban health problems.

References

Drake, R. E., O'Neal, E. L., & Wallach, M. A. (2008). A systematic review of psychosocial research on psychosocial interventions for people with co-occurring severe mental and substance use disorders. *Journal of Substance Abuse Treatment, 34*, 123–138.

Gray, B. (2008). Enhancing transdisciplinary research through collaborative leadership. *American Journal of Preventive Medicine, 35*(2S), S124–S132.

Hildebrand-Zanki, S., Cohen, L., Perkins, K., Prager, D., Stokols, D., & Turkkan, J. (1998). *Report from the working groups of the youth tobacco prevention initiative*. Washington, DC: Center for Advancement of Health.

Israel, B. A., Eng, E., Schulz, A. J., & Parker, E. A. (2005). Introduction to methods in community-based participatory research for health. In B. A. Israel, E. Eng, A. J. Schulz, & E. A. Parker (Eds.), *Methods in community-based participatory research for health* (pp. 3–26). San Francisco, CA: Jossey-Bass.

Jordan, C. (2006). *Developing criteria for review of community-engaged scholars for promotion or tenure*. Report of the Community-Engaged Scholarship for Health Collaborative for the Community–Campus Partnership for Health (CCPH). Retrieved February, 27 2009, from http://www.ccph.info/

Monsebraaten, L. (2008, June 23). Homeless women in peril; groundbreaking Toronto survey finds they endure more sex assaults and mental illnesses than men. *Toronto Star*, p. A1.

O'Campo, P., Kirst, M., Schaefer-McDaniel, N., Firestone, M., Scott, A., & McShane, K. (2009). Community-based services for homeless adults experiencing concurrent mental health and substance use disorders: A realist approach to synthesizing evidence. *Journal of Urban Health, 86*(6), 965–989.

O'Cathain, A., Murphy, E., & Nicholl, J. (2008). Multidisciplinary, interdisciplinary, or dysfunctional? Team working in mixed-methods research. *Qualitative Health Research, 18*(11), 1574–1585.

Pawson, R. (2006). *Evidence-based policy: A realist perspective*. London, UK: Sage Publications.

Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review: A new method of systematic review designed for complex policy interventions. *Journal of Health Services Research and Policy, 10*(S1), 21–34.

Ramadier, T. (2004). Transdisciplinarity and its challenges: The case of urban studies. *Futures, 36,* 423–439.

Smith, P. M. (2007). A transdisciplinary approach to research on work and health: What is it, what could it contribute, and what are the challenges? *Critical Public Health, 17*(2), 159–169.

Stokols, D. (2006). Towards a science of transdisciplinary action research. *American Journal of Community Psychology*, *38*, 63–77.

Street Health. (2008, June). *The Street Health report 2007, Research bulletin #2: Women & homelessness*. Retrieved October 17, 2008, from Street Health, Toronto, ON Web site: www.streethealth.ca

Wallerstein, N. (1999). Power between evaluator and community: Research relationships within New Mexico's healthier communities. *Social Science and Medicine, 49,* 39–53.

Wallerstein, N. B., & Duran, B. D. (2006). Using community-based participatory research to address health disparities. *Health Promotion Practice, 7*(3), 312–323.