The year 2007 was a turning point in human history as it saw half of humanity already living in towns and cities. By 2030, three-quarters of the world’s population is projected to be urban.

Anna Tibaijuka, Under-Secretary-General of the United Nations and Executive Director of UN-Habitat, 2009.

Knowledge seeps through institutions and structures like water through the pores of the membrane. Knowledge seeps in both directions, from science to society and from society to science. It seeps through institutions and from academia to and from the outside world. Transdisciplinarity is therefore about transgressing boundaries.


The helter-skelter nature of urbanization, characterized by unpredictable inflows of migrants from rural and suburban areas as well as war zones, the patchwork quilt of services and systems with most not reaching low-income, marginal populations and often inefficient governance mechanisms . . . all these concatenating factors make urban planning a vitally important area for research and action (Ash, Jasny, Roberts, Stone, & Sugden, 2008). As a positive corollary, urbanization should also serve as a space for innovative researchers, policy makers, practitioners, and communities to collaborate in creating workable and livable cities. While many negative dimensions of urban life – especially, crime, unemployment, poor education – are grist for the popular media mill and urban despair, the dimension of life that arguably detracts most from a viable urban fabric is human health. In the past, the black plague and outbreaks of cholera made cities high-risk environments. Today, as amply detailed in this comprehensive collection, a challenging range of direct and indirect health problems permeates urban life.

The distinctive nature of this book is that the chapters are woven together by the theme of transdisciplinary (TD) research as applied to the problems of urban public health. The authors of all the chapters analyze how to initiate and conduct TD research and apply results utilizing this new frame. The TD research approach, carefully defined in the first part of the volume, places issues of urban health at the center of its focus and brings an appropriately wide range of perspectives and expertise to bear on the goal of understanding the underlying causes, consequences,
and solutions to key problems. In essence, on the assumption that complex health and social problems demand integrated analyses and solutions, TD research is an approach that draws together concepts and methods from a wide range of fields. As the editors state in Chapter 1, “It is necessary for researchers to work with experts of other disciplines in other areas of knowledge, and together, move beyond disciplinary perspectives, methodologies, theories, boundaries, and limitations to understand these complex urban health problems more fully and attempt to resolve them.”

A related, now widespread conclusion and concern is that, while supporting and drawing on largely separate disciplines is more manageable (i.e., outcomes are more readily defined, measured, and evaluated), such a linear approach has often led to ineffectively implemented and poorly sustained solutions (Rosenfield, 1992). Hence the importance of the studies in this volume that demonstrate, through a variety of illustrations and applications, how a TD approach “is advantageous for increased understanding of complex health problems emergent in urban settings” (O’Campo et al., Chapter 1). Such applications build on the recognition that integrated input from many different disciplines, including those with an understanding of health systems, community preferences, politics, and economics, is needed to achieve results that are both used and useful, as Chesney and Coates (2008), for example, have found by designing and systematically applying multi-level, integrated analyses to the problem of HIV/AIDS in San Francisco.¹

As Nowotny, a pre-eminent European social scientist who has written extensively on this topic, declared in 2004, “Transdisciplinarity is a theme which resurfaces time and again.” And yet, while such a research paradigm is the focus of much recent discussion, it is still not fully accepted as a viable approach for complex social problem-solving . . . neither by practitioners, policy-makers, or funders, or even by many researchers. Under such circumstances, and particularly through its presentation of a wide range of carefully analyzed case studies, this collection is a welcome and vibrant contribution to the process of illuminating the use and the value of TD research. In addition, the chapters in Part IV not only assess the opportunities and challenges of such an approach but also provide practical recommendations on how to extend the use of TD research in addressing apparently intractable urban health problems.

Converging Disciplines: A Transdisciplinary Research Approach to Urban Health Problems thus augments the emerging, albeit still limited, literature on the application of TD research. Through detailed assessment of the value of TD approaches applied to issues ranging from intimate partner violence, child injury, substance abuse, and harm reduction to homeless adults and refugees, the authors demonstrate the feasibility and value of multilayered studies in complex settings. As important, such studies are developed by teams drawn not only from relevant

¹Although Chesney et al. refer to the work of the Center for AIDS Prevention Studies (CAPS) as “multidisciplinary,” we have suggested (Kessel & Rosenfield, 2008b, p. S230) that the potential for it to become truly and importantly transdisciplinary is embedded in all of its projects and successes, which now extend well beyond San Francisco (see the postscript in Chesney & Coates, 2008).
disciplines, but also from practitioners and community members themselves. This volume thus contributes in a fine-grained manner to furthering our understanding of both the application of TD research and the related development of team science.

In so doing, this book significantly extends the findings and recommendations of three directly related publications. As noted in Chapter 1, the collection amplifies conclusions drawn from a series of case studies, presented in Kessel, Rosenfield, and Anderson (2008), that describe and analyze the creative work of interdisciplinary teams encompassing a range of health and social sciences. A second publication on “The Science of Team Science: Assessing the Value of Transdisciplinary Research,” edited by Stokols, Hall, Taylor, Moser, and Syme (2008), addresses basic concepts, methods, assessment, and training, as well as specific instances of team science in the study of tobacco-harm reduction and cancer. Finally, building on the burgeoning European movement in transdisciplinarity, the Handbook of Transdisciplinary Research edited by Hadorn et al. was also published in 2008. Like the innovative material presented here and in the other two collections, the Handbook presents a series of studies, ranging from river basins to nanotechnology, as the basis for critiquing and developing a TD research approach.

So the question arises: Given the increasing volume of research adopting a TD framework, why has it been a challenge for it to achieve recognition as an accepted approach to examine and address complex problems? Based on various analyses of case studies of interdisciplinary and TD research, we believe that, beyond those inherent in establishing collaboration that crosses discipline and departmental lines, key constraints revolve around the challenges in training and concomitant university support, the difficulty of achieving success in sustained funding, and the limited availability of publication opportunities (Kessel & Rosenfield, 2005, 2008b; Stokols et al., 2008). Such challenges are also noted in many of the case studies presented in this volume. And the fourth part provides detailed analyses of advances in such research, the need for sustained funding, and the appropriate training programs, along with the need for innovative approaches in assessing TD research’s value and, as a corollary, its value added.

Considering this book’s thoughtful presentations of the challenges and results of TD research, we suggest that two major features could significantly enhance the acceptability and applicability of such an approach, particularly around the cluster of urban health problems that are increasingly prevalent in the twenty-first century. The first such feature, and significant value added, is demonstrated by the multiple ways in which Kirst and her colleagues have incorporated practitioners and users into their research teams. Analogous to the development of translational research in biomedical research fields, where practitioners are brought into the process or, as a minimum, the possible application of the intervention is actively considered from the outset, this expansion of teams should greatly enhance the acceptability and use of research results by health and other service providers, as well as decision makers.

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2The original edition, published in 2003, was titled, Expanding the Boundaries of Health and Social Science: Case Studies in Interdisciplinary Innovation.
Foreword

That said, given the appropriate involvement of a multiplicity of disciplines and methods, the language for communicating research results and, indeed, the nature of the research process itself to both the public and the decision makers requires reflective, self-critical attention. An especially intriguing discussion of this process of knowledge translation (KT) is presented in this volume by Murphy, Wolfus, and Lofters (Chapter 9). Using the framework of a Socratic dialogue, they discuss the problems that emerge when “transdisciplinarity is presented as a collaborative research strategy that essentially ends when KT begins”. What can be missed here is that the TD research approach and TD teams also open up important opportunities for promoting “praxis”; or, the integration of inquiry and action to advance social change (see Chapter 9). Murphy et al. discuss how the KT framework can extend the process of interdisciplinary research and bring about greater collaboration of the researchers with communities, practitioners, and policy makers. In this context, it is worth noting how several authors have recently underscored an ever-present risk of communicating research in too simple a fashion so that the complexity of a proposed solution is unclear, perhaps even misleading. More positively put, given the increasing emphasis on building bridges between researchers, policy makers, and practitioners, as well as with community members who have a central stake in obtaining solutions to problems, it is likely that such risks will be minimized (Alberts, 2008; Downs, 2000; Klein, 2004).

The second feature that we believe could significantly enhance the acceptability and applicability of a TD research approach relates to the institutional structure of the research framework itself. As elaborated by Kirst and her colleagues in Chapter 12, TD research can seem unwieldy, complicated, and costly in terms of time and money. It also involves a considerable commitment to the collaborative process itself, sometimes only indirectly related to the substantive form and focus of the research. In addition, echoing other analyses, Kirst et al. highlight the investment required in learning other disciplines’ languages and the related need to listen to a wide range of voices and perspectives.

With those challenges in mind and seeking to facilitate the conduct of TD research – notably on the complex, multi-faceted problems of urban public health – so that the enterprise becomes at once less daunting and more manageable and more systematic, we would like to mention three innovative analytical approaches. First, there is the ecologically oriented work of Stokols and his colleagues, both in this volume (Chapters 8 and 10) and elsewhere, aimed at articulating and instatiating “the science of transdisciplinary action research” (Stokols, 2006). Second, there are the efforts of Cacioppo, Davidson, Seeman, and others that represent significant strides toward a theoretically sophisticated and empirically grounded framework that bridges and, indeed, blends the neuro-biological, psychological, and socio-cultural dimensions of health (Berntson & Cacioppo, 2008; Davidson, 2008; Seeman, 2008).

Finally, stimulated by Berntson and Cacioppo and others, in our own writings we have been exploring the concept of heterarchy. Originally developed in computer
and cognitive science and now extended in a number of fields (e.g., Crumley, 2005),
this concept provides a framework for understanding the kinds of reciprocal, multi-
level, and non-linear phenomena that are a central focus of TD research approaches.
In our view, heterarchy is a heuristically rich way to organize the complexity
required for analyzing and addressing deep-seated social problems. Moreover, and
as we have noted elsewhere (Kessel & Rosenfield, 2008a, 2008b), heterarchy has
great potential not only as an analytical lens but also as a way of conceptualizing
the non-hierarchical organization of TD teams and related institutional structures.
We therefore suggest that the next phase for the expansion of TD research on urban
health problems be organized, in part, around a heterarchical framework.

Whatever specific next steps are taken in the development of TD research on
urban health problems, the penetrating analyses in this publication will serve as a
firm foundation for future efforts. If only, but not only, because of the wide range
of urban public health problems addressed, these chapters provide the basis for
practitioners, community members, and researchers to collaborate creatively to help
ensure that the two-thirds of humanity who will be urban citizens in the twenty-first
century will lead healthier and hence more fulfilling lives.

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