

## Preface

The now widespread recognition of the need for transdisciplinarity represents a very new insight and a revolutionary change. Even in the most recent past, there was substantial opposition to the idea that it was necessary to embed disciplines in each other in order to create the integrated knowledge required to address complex social issues. There was, also, little recognition of the corollary need to identify and develop the methodologies that would make this embedding possible. This state of affairs was reflected in the fact that it was extremely difficult to obtain funding to study transdisciplinarity. In all of these respects, the holding of the colloquium on transdisciplinarity at L'Abbaye de Royaumont, Ansières sur Oise, May 25–29, 1998, symbolizes the changes in awareness and attitudes to transdisciplinarity that have occurred in the last three to five years. The sponsors enthusiastically agreed to fund the colloquium, and a broadly based group of distinguished participants eagerly accepted our invitation to attend. This book is the result.

Desmond Manderson, one of the participants in the colloquium, suggested that we should call this text *New Solutions*. This, he said, emphasizes the practical significance of the study of transdisciplinarity and its innovative character; it is about change, not just about theory (although, as this book makes abundantly clear, it also requires the development of a theory of transdisciplinarity – its principles, concepts, and analytic structures). Transdisciplinarity is about finding workable solutions to specific and chronic societal problems. It is not removed from the world; on the contrary, it is engaged with it in an endeavor to find new answers that work. The term “new solutions” directs us to the essentially practical and problem-oriented nature of these ideas.

But there is another point here, as Manderson went on to explain. A solution is also a mixture in which different particles have been *dissolved*, creating a new liquid in which those particles have lost their particularity. A solution is not just a forging together of different substances; each of the elements loses its original form and character and transforms itself into something new. This highlights the difference between inter- and transdisciplinarity. The latter is not just a mixing together of different disciplines which nevertheless keep their own shape. On the contrary, each of the separate disciplines gives part of itself towards the new enterprise – and in the research that results, the different elements can no longer be distinguished.

They have combined to form something new in which each and every constituent discipline suffuses the whole of the analysis; the participant disciplines can be said to be deeply embedded in each other. Transdisciplinarity *dissolves* the boundaries between disciplines and creates a hybrid which is different from each constituent part. In short, a solution is both the answer to a problem and a unique mixture which is more than the sum of its parts. The word *solution*, therefore, both captures the essence of transdisciplinarity and, as a metaphor, might help us to understand the kind of methodologies and relationships that we need to develop to engage successfully in taking transdisciplinary approaches to old and new societal problems.

As the history of science shows, very often the threads of a new concept, theory, or approach emerge concurrently with different people in different locales. This is true with respect to the concept of transdisciplinarity and the people who gathered to explore this at the Royaumont colloquium. We deliberately chose a very broad spectrum of participants in terms of their intellectual and professional backgrounds, expertise, and experience, and this is reflected in the contributions collected in this text. Participants came from the social sciences, the humanities and the arts, philosophy, law, religious studies, sociology, filmmaking, natural and environmental sciences, medicine, public health, and epidemiology, but all had professionally and personally confronted the need for transdisciplinarity. In this sense, the group formed *un club des amis*.

A feeling emerged and was articulated at the colloquium that most participants had one of two dominant focuses with respect to transdisciplinarity; they were predominantly either theoreticians or practitioners. The tension between these perspectives, which is commonly found in transdisciplinary endeavors, was fruitful in producing new insights and furthering old ones. To a degree not often encountered at a colloquium, the Royaumont meeting mirrored a “real life” transdisciplinary undertaking. We were, at the same time, both “talking about” how to do transdisciplinarity and “doing” transdisciplinarity. This bifocal aspect is captured in the combination of the two papers that constitute the first section of this text, *Voices of Royaumont* by Julie Thompson Klein and *Doing Transdisciplinarity* by Anthony McMichael.

The main body of the text comprises the papers prepared in advance of the colloquium and modified in light of the discussions at Royaumont. Collectively, the contributions in Section II map out the conceptual development and practice of transdisciplinarity today from the perspectives of an international community of scholars who represent a considerable diversity of disciplinary and intellectual cultures. The format of these contributions was to some extent influenced by the guidelines that we provided to the authors (see the Preamble). Section III consists of the reports from the plenary sessions and working groups for the various topic areas of the program.

One of the recurring themes of the colloquium was the need for transdisciplinarity in many problem-solving situations, particularly those relating to large issues on the sociopolitical agenda. These include the failure to cope

with world poverty and growing inequities between rich and poor (within and between nations); the failure to achieve sustainable environments; the failure to provide all citizens with some minimally adequate standard of health-care, even in some of the world's wealthiest nations; risks to human health, including those resulting from new technologies; and many other issues. These failures are not necessarily caused by the lack of viable solutions; they persist, in part, as a result of the narrow vision brought to bear on these issues. That vision often leans upon the engineer or the economist or the medical practitioner to "fix it." Moreover, the prevailing approach to problem solving often calls into play the "symptom-treatment" coupling without addressing the more fundamental issue of the basic causes. A transdisciplinary approach encourages thinking "outside the box," which is aimed at remedying some of these problems in our current approaches.

Transdisciplinarity is not an automatic process that can be successfully carried out simply by bringing together people from different disciplines. Something more is required, although the "magic ingredient" is difficult to pinpoint. Transdisciplinarity requires "transcendence," the giving up of sovereignty on the part of any one of the contributing disciplines, and the formation, out of the diverse mix, of new insight by way of emergent properties.

There are many difficulties that are likely to be encountered in embarking on a transdisciplinary undertaking. A major task that we assigned ourselves at the Royaumont colloquium was to identify as many of these difficulties as we could and to find ways in which they might be overcome. We also examined our achievements. While there have been many successful transdisciplinary undertakings, the reasons for success in particular instances are far from clear, and even what counts as "success" is not easy to identify. Indeed, it is very difficult to confidently predict whether a proposed transdisciplinary endeavor will succeed. This also means that it is difficult to repeat a success, and difficult to "teach" others how to successfully engage in transdisciplinary undertakings. It may be easier to pinpoint the reasons for failure: for example, personal, psychological, professional, or intellectual barriers. Above all, the lack of clearly defined, effective methodologies for integrating knowledge from a wide variety of disparate disciplines hinders progress.

For the moment, probably the best we can do is share our experiences in transdisciplinarity in the hope that they will be helpful to others engaged in similar challenges. If we are to cope with the immense threats to the survival of humankind that we are facing, it is clear that the prevailing situation of the inadequate integration of knowledge needs to be changed. At present, most of our intellectual activities, especially research, are based on specialization with its resulting fragmentation of knowledge. While we still need a unidisciplinary focus in developing new knowledge, this needs to be counterbalanced by an equally vigorous effort to reintegrate knowledge, which requires more than simply evolving parallel streams of knowledge. In short, a transdisciplinary perspective is an essential requirement of real-world problem solving.

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