Concepts for the design and evaluation of change-oriented research

There is increasing pressure on researchers and research organisations to demonstrate that their work contributes to positive social and environmental impact and addresses complex societal challenges. In response, research is crossing boundaries between disciplines as it engages more with stakeholders in complex systems. The pursuit of real-world solutions has resulted in an increase in interdisciplinary research (IDR), which integrates research methods and approaches from two or more disciplines, and transdisciplinary research (TDR), which involves stakeholders, research users, and other societal actors in the research process to embrace multiple forms of knowledge and facilitate social learning. This has transformed research approaches and inspired many new ways to design and implement research that is more engaged, change oriented, applied, effective, and impactful. "This evolution in modes of research brings with it the need for appropriate research evaluation to guide and assess the quality and effectiveness of the research produced. Responding to this need, the Sustainability Research Effectiveness Program, led by Professor Brian Belcher at Royal Roads University, has responded to this need by developing a Transdisciplinary Research Quality Assessment Framework to evaluate research design and implementation and a theory-based evaluation approach to assess research contributions to outcomes and impacts.

Professor Belcher explains how this evolution is a dynamic process; researchers are experimenting with new ways to design and implement research that is more engaged, pluralistic, and democratic in order to be more effective." There are many new TDR projects that provide opportunities to learn from experience. With these advances, however, comes the need for tools to assess the design, implementation, and results of these innovative research projects. We need a systematic way to assess these kinds of projects if we are to determine what works, where, and how.

The evaluation of problem-oriented research that employs interdisciplinary and transdisciplinary approaches is particularly challenging. There are no widely accepted standards to guide and assess research that crosses disciplinary bounds. Traditional discipline-specific concepts and measures of research quality used in peer review and typical bibliometric indicators of research impact (e.g., publications, citation counts, journal impact factors) are insufficient as they overlook key contributions of disciplinary research and TDR alike. Moreover, additional criteria are required to measure the quality of innovative approaches, together with the diversity of actors, outputs, outcomes, and long-term social impacts of TDR.

The Sustainability Research Effectiveness Program has developed tools and methods to assess the quality and effectiveness of innovative approaches. The research team carried out three rounds of testing on a set of Master’s theses, doctoral dissertations, and research-for-development projects that used transdisciplinary approaches in order to refine, improve, and test the framework.

Four key principles of TDR quality emerged: relevance, credibility, legitimacy, and effectiveness. Criteria for the assessment of either actual or potential contributions to problem-solving and social change were taken from each article and organised into themes that corresponded to the four principles. These principles and criteria, together with the researchers’ own experience, informed the evaluation rubric that is presented as the TDR Quality Assessment Framework. The research team is specifically directed at change-oriented research projects such as TDR, sustainability research, and research-for-development. A systems perspective is adopted in recognition that these projects operate in conjunction with other actors and processes. The approach adopts the concept of spheres of influence, and integrates first developed by Morgun and Belcher (2020) and popularized in Outcome Mapping (Earl et al., 2001), a planning and assessment methodology designed for development programs. The key idea is that any program, including a research program, can only control up to its outputs. Beyond that, the program can only influence other actors and processes (sphere of influence) to change, and thereby contribute to higher-level changes in the sphere of interest.

The Sustainability Research Effectiveness Program provides step-by-step guidance on how to apply the TDR Quality Assessment Framework. This includes advice on documenting a theory of change; determining data needs and sources; collecting, managing, and analysing data; and presenting findings. In addition to providing a clear conceptual and analytical

Researchers are experimenting with new ways to design and implement research that is more engaged, pluralistic, and democratic.

THE OUTCOME EVALUATION APPROACH

In response to the need for more comprehensive ways to evaluate TDR and research contributions to change processes, the Sustainability Research Effectiveness Program developed a theory-based Outcome Evaluation approach (Belcher et al., 2020) for research evaluation. This approach uses a detailed, actor-specific theory of change and a series of hypotheses about how and why a research project or program is expected to contribute to a process of change. It then tests each step, using empirical evidence. Professor Belcher explains that theory-based evaluation is valuable for evaluating research that is operating in complex systems because it can accommodate the diversity of contexts, non-linear causal processes, and lack of replication required for experimental impact assessment.

The Outcome Evaluation approach is specifically directed at change-oriented research projects such as TDR, sustainability research, and research-for-development. A systems perspective is adopted in recognition that these projects operate in conjunction with other actors and processes. The approach adopts the concept of spheres of control, influence, and interaction, first developed by Morgun and Belcher (2020) and popularized in Outcome Mapping (Earl et al., 2001), a planning and assessment methodology designed for development programs. The key idea is that any program, including a research program, can only control up to its outputs. Beyond that, the program can only influence other actors and processes (sphere of influence) to change, and thereby contribute to higher-level changes in the sphere of interest.

The Sustainability Research Effectiveness Program provides step-by-step guidance on how to apply the TDR Quality Assessment Framework. This includes advice on documenting a theory of change; determining data needs and sources; collecting, managing, and analysing data; and presenting findings. In addition to providing a clear conceptual and analytical

The Sustainability Research Effectiveness Program has developed tools and methods to assess change-oriented research.
CONCEPTUALISING RESEARCH IMPACT

The need for appropriate approaches to assess research impact for learning and accountability has already been established. Assessing impact is complicated by the many different concepts and definitions of “impact” in use. These definitions lack clarity and consistency, and some are fundamentally different in their meanings. Professor Belcher and his colleagues examined how various development organizations use and define the terms “outcome” and “impact”, seeking conceptual clarity (Belcher & Palenberg, 2018).

Based on this review of common usage, they identified different causal perspectives and defining elements underlying the various definitions and proposed guidelines for better definitional practice, clarifying causal perspectives in use and taking care in the use of qualifiers.

DEMONSTRATING ACCOUNTABILITY AND IMPACT

The researchers intend that their framework and methodology will enable the wider research community to plan and assess their research more effectively. Consequently, other researchers will be afforded the opportunity to build on these ideas and progress the research effectiveness agenda. This program’s goal is to empower more effective research through improved design, implementation, and adaptive management so that research contributions to positive social, environmental, and economic change are maximized.

The Outcome Evaluation approach provides a conceptual and analytical framework for more precise assessments of actor-specific outcomes and impact pathways.

The researchers emphasized the need to know how, and research actually contributes to positive change so that we can learn from experience and be able to demonstrate both accountability and impact. To complement their theory-based Outcome Evaluation methodology, the researchers applied and tested the TDR Quality Assessment Framework in a series of case studies of research-for-development projects.