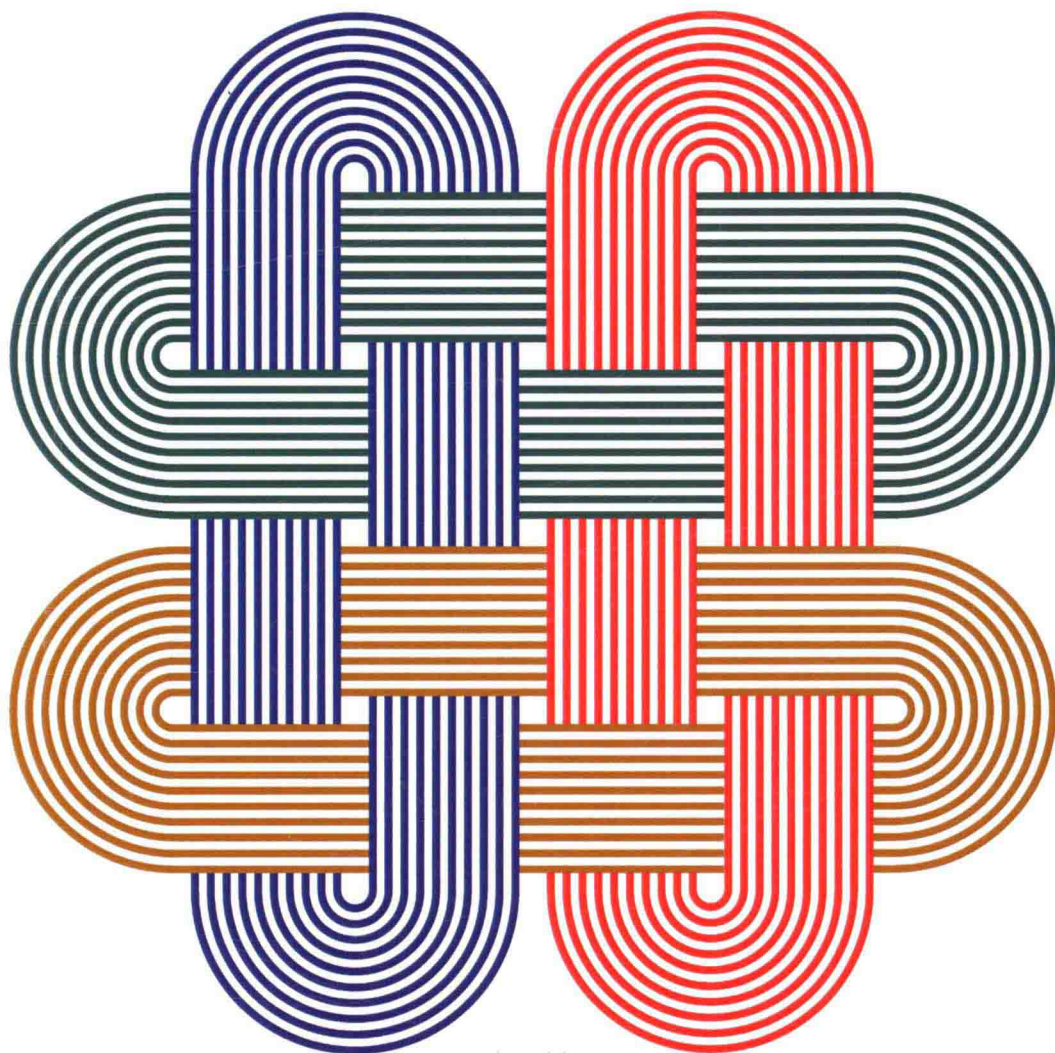


INVESTIGATINGDISCIPLINARY COLLABORATION

Theory and Practice across Disciplines



Edited by

Scott Frickel, Mathieu Albert, and Barbara Prainsack

"This high-quality volume makes a crucial contribution to our understanding of the worlds of interdisciplinarity at a time when they are generating a great deal of interest from funding agencies, academic administrators, and scholars alike. This book should be required reading for all concerned."

—Michele Lamont, Harvard University, author of *How Professors Think: Inside the Curious World of Academic Judgement*

"Interdisciplinary collaboration has been established as valuable to scientific creativity and vital to bringing knowledge effectively to major public issues. But discussion of what this means and how it works are still too often vague. This book will help, because it offers thoughtful and indeed disciplined case studies of how interdisciplinary collaboration works in practice."

—Craig Calhoun, London School of Economics and Political Science

"A most welcome contribution, filled with richly detailed case studies conducted by a stellar array of scholars. This volume scrutinizes key assumptions of the case for interdisciplinarity."

—Jerry A. Jacobs, University of Pennsylvania, author of *In Defense of Disciplines*

Universities in North America and Europe increasingly provide financial incentives to encourage collaboration between faculty in different disciplines, based on the premise that this yields more innovative and sophisticated research. Drawing from a wealth of empirical data, the contributors to *Investigating Interdisciplinary Collaboration* put that theory to the test. What they find reveals that interdisciplinarity is not living up to its potential, but also suggests how universities might foster more genuinely collaborative and productive research.

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A volume in The American Campus series, edited by Harold S. Wechsler

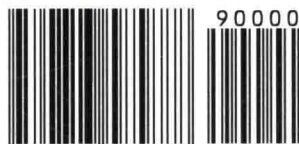
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Frickel • Albert • Prainsack

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PROLOGUE BY HELGA NOWOTNY



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INVESTIGATING INTERDISCIPLINARY COLLABORATION

The American Campus

Harold S. Wechsler, Series Editor

The books in the American Campus series explore recent developments and public policy issues in higher education in the United States. Topics of interest include access to college, and college affordability; college retention; tenure and academic freedom; campus labor; the expansion and evolution of administrative posts and salaries; the crisis in the humanities and the arts; the corporate university and for-profit colleges; online education; controversy in sport programs; and gender, ethnic, racial, religious, and class dynamics and diversity. Books feature scholarship from a variety of disciplines in the humanities and social sciences.

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Adrianna Kezar and Daniel Maxey, eds., *Envisioning the Faculty for the Twenty-First Century: Moving to a Mission-Oriented and Learner-Centered Model*

Scott Frickel, Mathieu Albert, and Barbara Prainsack, eds., *Investigating Interdisciplinary Collaboration: Theory and Practice across Disciplines*

ACKNOWLEDGMENTS

This book emerged out of several years of observing, analyzing, and discussing the workings of interdisciplinarity in our own lives as well as the lives of our colleagues, friends, and students. For some of us, interdisciplinarity has changed the institutions we work in, and affected our own practices and priorities. For all three of us, the political dimensions of interdisciplinarity in particular have been an area that we have sought to explore further, and in collaboration with others who have different perspectives and experiences. This desire to “dig deeper” into what drives interdisciplinarity, and how it drives academic collaboration, led to the conception of this volume. We are grateful to all contributors to this volume for their enthusiastic and, in fact, very *disciplined* collaboration. We also thank David Tobe for help with the index and Joseph Dahm for fantastic copyediting. Finally, heartfelt thanks go to our editors at Rutgers University Press, Leslie Mitchner, Katie Keeran, and—down the long home stretch—Kimberly Guinta and Kristen Bonanno, for their support and guidance.

Scott Frickel, Mathieu Albert, and Barbara Prainsack
PROVIDENCE, TORONTO, AND LONDON

INVESTIGATING INTERDISCIPLINARY COLLABORATION

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PROLOGUE

The Messiness of Real-World Solutions

HELGA NOWOTNY

In recent times hardly a concept has enjoyed so much popular consensus across a wide range of different funding agencies, university administrators, policy makers, politicians, and the media as the idea of interdisciplinarity in research. A vast literature exists that has delved into the various dimensions believed to contribute, if not to constitute, the elusive aim of bringing together the right kind of available scientific knowledge with the necessary and practical know-how in view of solving a concrete problem. Exploring how interdisciplinary research can live up to this task covers an enormous variety of actual scientific and technological practices, operating in very different organizational and institutional contexts across a vast scientific landscape. It includes the epistemological dimension when subtle and intricate encounters occur between different disciplines. It does not overlook the temporal dimension in the description of the emergence of a new discipline out of seemingly nowhere, combining theoretical, instrumental, and methodological know-how of existing disciplines or of merging subdisciplinary fields. Yet, when asking why, despite the richness of the existing literature, relatively little progress toward interdisciplinarity in research has actually been achieved, a sense of defiant disappointment sets in.

Somewhat unusual, the focus of a major part of this literature is therefore devoted to examining failures. The more attention is given to obstacles and the barriers that appear to prevent interdisciplinary research to flourish, the more urgent a link is established between their description and a call for action. What is singled out may be peer review and the admitted difficulties in coping with the evaluation of interdisciplinary research projects or the real or alleged conservatism of discipline-centered academic gatekeepers and institutions. It may be that those who want to promote interdisciplinarity grossly underestimate the time needed to find a common language and to provide other facilitating

conditions for cross-disciplinary engagement. Whatever obstacles are identified, the link between them and the appeal for their removal are so striking that this has become an interesting phenomenon in itself.

Maybe this blatant gap between ideal and practice, between the vision and belief that interdisciplinarity yields better results and the sobering inquiry into the obstacles that prevent it from happening, tells us something about the perceived disconnect between the often referred to “real-world” problems and the capacity of science to respond in an adequate and expected way. The manifold, messy, and complex problems of society for which we turn toward science and technology to provide solutions obviously do not translate easily into the kind of problem solving that drives scientific activity. If such a diagnosis is correct, the call for interdisciplinarity in research would function as a placeholder of an ideal, although highly simplified, vision of the relationship between “science” and “society.” The widespread imaginary of interdisciplinarity as producing better science and better solutions for society would be nothing but a proxy object—unattainable and elusive, yet persistent as long as the aspirations, dreams, and misunderstandings that underpin it are not analyzed, named, and rendered visible. We might have to concede that the unbroken faith into more interdisciplinary research is nothing but a well-intended, if desperate, call for action: to open up “science” for the “real” needs and problems that “societies” face. As such, it has preceded and continues to exist alongside other attempts that point in the same direction. Among them are more recent programs and manifestos like Responsible Research and Innovation and movements like Open Access and citizen science.

But one can also take a more sober view of the same phenomenon. Funding agencies, acting on behalf of governments as the ultimate political authority to allocate taxpayers’ money, see it as their mission and responsibility to make sure that the research they fund will actually deliver results for society that can be measured and be accounted for. The pressure toward accountability and what is now called societal impact has increased considerably. Ex-ante and ex-post assessments have become more refined with greater reliance on metrics and other quantitative indicators. Seen from the perspective of funding agencies, administrators, and policy makers, the likelihood of increasing the return from research with high benefits for society—which often translates into academic research contributing faster and with more direct impact toward innovation and economic growth—is greater when scientific knowledge and know-how are being pooled. “Only connect” is a seductive formula also for facilitating more collaboration across the implicated disciplines and institutions and, more generally, between academia, industry, and business. None of this can be accomplished through working within disciplinary boundaries only.

The reaction as well as anticipation on behalf of researchers and the academic community is at least threefold. Partly, the demands of funding agencies are in

resonance with their own experience. Researchers know very well that novel approaches, often introduced through new research technologies and instrumentation coming directly out of the lab, can transform a research field by opening up completely new vistas and opportunities. They are aware that innovative ideas in research often occur at the interface of disciplinary or subdisciplinary paradigms and approaches. They highly value the role played by serendipity in research, the unexpected discovery of new phenomena or connections one was not looking for and yet realizes their significance. It is in the very nature of serendipity that it is not bound to disciplines nor does it respect other institutional and circumstantial constraints. Experience tells the scientific community that the likelihood for any of these boosts in creativity to happen often increases by talking to people outside their own area and specialty. At the same time, they know that this is only the beginning. A long and arduous road lies ahead, and no certainty is ever guaranteed for the outcome.

Then, there is the skepticism among researchers against certain forms of interdisciplinarity, equally rooted in experience. They are intimately aware of the difficulties of assessing the scientific quality of research projects that claim to be interdisciplinary. After all, peer review, with all the admitted weaknesses and faults, remains the daily life blood of doing science. They know about the widespread feeling among their peers that interdisciplinary research is often looked down upon as somehow lower in quality. This may be nothing but prejudice, but as long as it persists, it makes them wary to guide their PhD students and postdocs toward career paths where they are likely to encounter such prejudice.

Finally, there is the realistic assessment that science as a whole is moving in the direction of more and larger collaborations. Researchers know that the quantity of multiple-authored scientific publications is on the rise and that it correlates with higher citations. The internationalization of science is also greatly favored by the recognition that many of the most urgent societal challenges, from climate change to the eradication of poverty, from effectively fighting new epidemics to continuing work on healthy aging, can be tackled only by multidisciplinary, multinational, and multifunded forms of collaboration. Yet, many questions remain of how to best organize such and other desirable as well as necessary forms of collaboration. Here, issues of what is genuine interdisciplinarity and what are multi-, cross-, trans-, or other forms of collaboration and how to set up conditions that favor and facilitate them return with a high policy-relevant urgency.

It is precisely at this junction of very different strands of inquiry into interdisciplinary research where the value of a fresh, critical look enters. Trying to make sense of these issues by carefully analyzing interdisciplinary research with a distant, yet engaged approach is the goal that the contributors to this volume strive

to achieve. Coming mostly from a background in the social sciences and inspired by an STS (science and technology studies) approach, they are well equipped to cast the empirical net of inquiry across a wide range of interdisciplinary research. They are ultrasensitive to the differences in organizational and institutional context in which it is situated and well attuned to take a temporal, historical dimension on board. They can draw upon a rich tradition of social theory that allows them to delve into the manifold practices of interdisciplinary research. They are determined to scrutinize the different strategies and purposes—including the deliberate instrumentalization of interdisciplinary research—that practitioners, funders, and policy makers deploy. They are in a good position to carefully compare what otherwise remains fragmented.

The volume has the potential of putting interdisciplinary research into a larger frame of the ongoing transformation of the scientific enterprise. These processes span the macro level in the form of the ongoing globalization of science with its trends toward more collaborative ventures, as well the inner dynamics of different fields operating at the micro level. This includes the social sciences and humanities. A larger picture allows scholars to focus on the emergence of novel forms of how science is organized and organizes itself under the growing pressure of delivering faster and more tangible results and benefits. The necessity of including the social sciences and humanities in ways that are still to be determined becomes clear if problems and challenges are to be tackled at the real-world scale with its inherent messiness.

The time may have come for a more honest and critically sharpened view of interdisciplinary research, one that is better grounded in the continuously evolving relationship between science and society. If this can be achieved, policy makers, funding agencies, and governments may gain a better and more realistic understanding of what is actually at stake, while initiating another major step in the responsiveness of science toward societal needs and problems.