In Defense of Disciplines
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Interdisciplinarity and Specialization in the Research University

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Preface

This project began innocently enough nearly a decade ago when I served a term as editor of the American Sociological Review. Because my tenure at ASR coincided with the centennial of the American Sociological Association, I was asked to publish some type of commemoration. I did so by writing about the most-cited papers published in the history of the journal, which appeared in a research note entitled “ASR’s Greatest Hits.”

I became curious about whether these articles were popular outside of sociology. They were. This curiosity led in turn to a grant from the Spencer Foundation to study the movement of ideas into and out of the field of education research. As this work proceeded, I began to recognize the tremendous number of initiatives designed to break down disciplinary “silos” in order promote cross-disciplinary collaborations—at universities, grant foundations, and even the National Institutes of Health. I found this puzzling, since my research on education showed that ideas moved quite easily between fields under the prevailing arrangement of disciplines and research centers. I began to wonder if these reforms might make the university more like schools of education, which led me to the literature on interdisciplinarity and eventually to this book.

My skepticism about the promise of interdisciplinarity grew, yet I found myself presented with the opportunity to help establish an interdisciplinary scholarly association, the Work and Family Researchers Network (WFRN). I pursued this opportunity because I saw only benefits from promoting conversations and connections among work and family researchers from different disciplines and different countries if the goals of these efforts remain realistic. The concerns I express in this book are not to interdisciplinary conversations
per se but instead represent objections to organizing the research university along interdisciplinary axes rather than around arts and science disciplines.

I have had many useful conversations about these topics over the course of this study, and I have not been able to keep track of every useful suggestion. Scott Frickel’s collaboration on the Annual Review of Sociology paper helped to familiarize me with theoretical and empirical studies of interdisciplinarity. Indeed, his paper with Neil Gross (published in ASR when I was the editor) helped to rekindle my interest in the sociology of science, which had been dormant since my graduate school days. I thank Indiana, Cynthia Fuchs Epstein, Susan Lindee, Eliza Pavalko, Daniel Raff, and Mitchell Stevens for giving me the opportunity to present portions of this research.

The greatest debts I owe are to Steven Brint, Andrew Abbott, Harvey Graff, Michelle Lamont, Paul DiMaggio, Randall Collins, Mitchell Stevens, Myra Strober, and Lowell Hargens. Richard Arum, Josipa Roksa, Steven Brint, and Kristopher Proctor graciously provided analyses of data from their own studies that are reported here and enrich the findings, especially in chapter 8. Richard Pitt shared useful data on dual majors, and Sarah Winslow tabulated the disciplinary backgrounds of education-school faculty. Howard White and Catherine McCain generously offered guidance on citation analyses. Rebecca Henderson’s analysis of interdisciplinary journals made chapter 4 possible. Terry Labov, Sam Summers, and Megan Kohler all provided excellent research assistance. The anonymous reviewers of the manuscript at the University of Chicago Press provided very detailed and helpful suggestions. Kathleen Gerson and Brian Powell generously offered unerring guidance and numerous editorial suggestions.

In addition to the Lyle M. Spencer Foundation, I am indebted to the Alfred P. Sloan Foundation for a grant to support cross-field connections in work and family research, and for a subsequent grant that facilitated the creation of WFRN. Kathleen Christensen, a senior program officer at Sloan, is the most helpful foundation grant officer I have had the opportunity to work with.

My family—Sharon, Elizabeth, and Madeleine—have always been there for me, including the times when I most needed them. Their probing questions helped to clarify a number of issues examined here, and their love and support made the completion of this book possible.
Introduction

Higher education today faces a series of challenges: cash-strapped parents, declining support from state governments, questions about the future of research support, and increasing demands for accountability in terms of cost, graduation rates, and contributions to students’ knowledge. While competition from foreign universities does not yet pose the threat to universities that it does to manufacturing, the question of how to position American universities in an increasingly global system of higher education preoccupies leading university presidents. Most recently, leaders in higher education have had to confront the question of how universities should position themselves relative to virtual courses and for-profit colleges. These tests may be largely external in origin, but they have produced serious internal debates about the future direction of higher education.

While all of these issues are important, an even more fundamental question centers on the very structure of the liberal arts. Are academic disciplines, such as biology, economics, and history, obsolete? The system of disciplines, departments, and majors, which became a standard feature of most American colleges and universities after the Second World War, is being questioned today in basic ways. In part, this is due to financial pressures that have led many students to pursue applied fields of study. The shrinking share of enrollments naturally raises concerns about the place of the liberal arts. Despite the many successes the various disciplines have achieved as dynamic centers of intellectual activity, they face new scrutiny regarding their role in American higher education.

The case for interdisciplinarity, once advocated by a small number of critical writers, has become a popular idea in academia in the United States. Calls for closer connections and greater integration are increasingly com-
Presidents, provosts, and deans espouse it in an effort to create a sense of excitement and novelty on their campuses while also seeking sizable contributions from foundations and prospective donors. For example, in her year-end message to members of the Harvard community, President Drew Faust mentioned multi- or interdisciplinary initiatives six times in just four paragraphs (2011). Julie Thompson Klein, the leading analyst in the field, suggests that interdisciplinarity has become ubiquitous, the “mantra du jour” in discussions of American higher education (2010a, 153).

Natural scientists also increasingly embrace interdisciplinarity. In 2004, a committee of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine published a report entitled *Facilitating Interdisciplinary Research*. A Massachusetts Institute of Technology “white paper” (2011) on the convergence of the life sciences, the physical sciences, and engineering pointed in the same direction. Perhaps even more significant is the fact that “interdisciplinarity” has become a special category of funding at the National Institutes of Health and the National Science Foundation. Some observers (Geiger and Sa 2009) see interdisciplinarity as a prominent feature of the twenty-first century university, whose role is to “tap the riches of science” and serve as an engine of economic growth. Interdisciplinarity has also become a touchstone in the humanities, although in different ways and for different reasons (Menand 2010a, 2001).

The concept of interdisciplinarity is not new but the frequency of conversations on this topic have become more frequent and concrete developments in this area have become commonplace (Braun and Schubert 2007). University presidents routinely announce multimillion dollar donations and grants for interdisciplinary activities, and cross-field initiatives of one form or another are popping up on campuses everywhere: well-funded research centers in the sciences; plans for cross-disciplinary or “cluster” hiring; seed money for new interdisciplinary research projects. Equally telling, the adjective “interdisciplinary” now generally has a positive valence. Indeed, it sometimes seems that interdisciplinarity has become an end in itself. It was not always so. The negative connotations of the term, such as “undisciplined” and “flakey,” remain sufficiently powerful that some promoters of interdisciplinarity still take pains to counter these images (e.g., Lattuca 2001, 3–4).

Interdisciplinarity can take on a wide range of meanings, from simply encouraging contact and communication among scholars in different fields to far-reaching proposals that involve restructuring doctoral training to efforts to dismantle the disciplinary system entirely. While some steps to facilitate communication across fields might raise few objections, the notion of a fundamental restructuring of the arrangement of disciplines poses serious ques-
tions about how the goal of interdisciplinarity should be advanced—in what ways, at what cost, and with what potential side effects?

Disciplines, as organized into departments, are the key units of social organization in most universities, although the role played by research centers at major research universities bridging structures is often overlooked. Publications, professional associations, and careers are shaped by the structure of disciplines. Disciplines, departments, and majors overlap to a considerable degree, although, as we will see, the correspondence is far from complete. The challenge to disciplines thus represents a potential revolution in the basic structure of academic life.

This book addresses the current wave of calls for more interdisciplinarity in academia. While any institution as large and complex as American higher education is vulnerable to criticism, critics of liberal arts disciplines have overstated their complaints and underappreciated the value of the interconnected system of academic disciplines. Discussions of interdisciplinarity have not always posed the hardest questions in a systematic way. While there are kernels of truth in some of the critiques, the sheer diversity of arguments on behalf of reform has made it more difficult to discern a clear alternative vision of the university. Suggestions for change point in many, often inconsistent, directions, and not all of these suggestions would necessarily improve the organization of the academy.

This book challenges the case for interdisciplinarity. I review the arguments on behalf of this perspective carefully and respectfully by concentrating on the main ideas of the some of the most thoughtful and influential analysts rather than considering every facet of every argument. The jungle of terminology in this field is just too thick and the arguments have more twists and turns than can be fully surveyed here. While this book delves into a wide range of topics, two sets of questions are central. The first concerns the extent of communication across fields of scholarly inquiry. While the criticism of disciplines as isolated silos has become commonplace, the evidence indicates that communication across fields is not only common but is remarkably rapid. The spread of techniques and ideas between fields is the rule and not the exception. The first half of the book takes on this set of concerns. Chapters 2–6 are concerned with these interdisciplinary exchanges.

The second half of this book approaches interdisciplinarity from the longer-term vantage point of the development of new fields of inquiry, rather than the eureka moment of scientific insight or the successful collaborative project but. The principal question is whether successful interdisciplinary ventures over time come to emulate established disciplines, especially in terms of developing their own journals, their own professional associations,
internal specialties, and tendency to hire from within. The discussion explores what can be learned about the likely trajectory of new interdisciplinarity fields from prominent historical examples. Specifically, the prospects of interdisciplinarity for “integrating” knowledge are considered. Moreover, I examine whether interdisciplinarity is best viewed as a complement to existing fields of inquiry, a viable alternative, or simply a transitional phase traversed before a new field of inquiry. Chapters 7–10 examine the meaning and viability of an interdisciplinary university.

While my main focus is on scholarship conducted in research universities, undergraduate education is also an essential part of the disciplinary system. The analysis considers whether undergraduates are clamoring for greater integration in their educational experience, and, if so, in what sense. The promotion of integrative education for undergraduates turns out to be as complex and paradoxical as the quest of interdisciplinary research. In addition to the integration of knowledge across disciplinary lines, reformers have called for stronger connections between students’ personal and intellectual development, between academics and real-life experiences, between theory and practice, and even between academic life and spiritual values. In intellectual terms, the challenges posed by the traditional liberal arts disciplines stem from their intellectual breadth, not their narrowness. Some aspects of integrative education may be best implemented in the context of the more circumscribed agendas of preprofessional education, but this comes at the cost of losing the scope and critical perspective offered by a liberal arts education.

A prominent theme of this work is the unavoidable fact of intellectual specialization in the face of the daunting volume of contemporary scholarship. Disciplines reflect a rough and admittedly imperfect response to the need to divide intellectual domains. With over twenty-eight thousand peer-refereed journals currently being published and hundreds of scholarly societies convening regular meetings, no new organizational arrangement for academia can hope to avoid some form of specialization. Indeed, it is quite easy to show that ostensibly interdisciplinarity fields are themselves elaborately divided into specialties, and that newly emerging interdisciplinarity projects quickly develop their own forms of segmentation. As we will see, interdisciplinary undertakings are likely to result in the proliferation of academic units rather than the consolidation of knowledge into a more unified whole.

While this study focuses on the development of disciplines in the United States, the issues raised here have implications for systems of higher education throughout the world. Universities everywhere are now indispensable for promoting economic development and broadening opportunities (Alt-
Countries around the world have been expanding their university systems, yet growing costs, exacerbated by the current economic crisis, lead policy makers to scrutinize educational investments ever more closely. In this context, global university rankings proliferate (Holmes 2011), and countries seek to identify the essential ingredients needed to build world-class universities. Claims that interdisciplinarity is vital to the successful twenty-first century university are heralded at a moment when “tectonic change” is not simply academic hyperbole but may well be upon us.3

In addition to asking hard questions, the book will present data that have played too small a role in earlier discussions. The research presented here draws on many data sources in order to shed light on the pivotal questions underlying the case for a more interdisciplinary form of higher education. Data are presented on cross-disciplinary communication patterns, including the timing of citations and the number of studies examining the important applied topics of the day. Counts of the number of research centers at the leading US research universities help to assess their potential to foster interdisciplinary communication. An examination of 789 peer-reviewed journals founded in 2008 was conducted to see how many were interdisciplinary in orientation. Dissertation abstracts in American studies along with a wide range of other materials offer insights into the trajectory of this interdisciplinary field over its sixty-year history.4 These and many other types of data are described in the appendix in order to provide sufficient detail about these investigations without unduly distracting from the flow of the text.

The book is organized as follows. Chapter 2 examines the main criticisms leveled at disciplines that radiate from the assumption that they have become “silos.” This view holds that excessive compartmentalization inhibits communication between fields and stifles innovation. Disciplines are viewed as the wrong units to tackle the vexing social problems of the day, most of which are multifaceted and require insights from diverse areas of expertise. Increasingly, the case is being made for the university as an engine of economic growth; again, disciplines are seen as limiting rather than maximizing this potential. Finally, disciplines are criticized for impeding a more holistic and integrated undergraduate educational experience.

Chapter 3 presents an institutional theory of academic disciplines. This approach emphasizes the vibrant forces for innovation at work within disciplinary contexts. Discussions of interdisciplinarity generally ignore or downplay competition over status and resources among scholars within a field, competition among specialty areas within disciplines as well as competition among disciplines. In other words, disciplines are dynamic, with both inter-
nal and external forces propelling scholarship forward. Disciplines thrive because they create effective research communities. While research specialties can run the risk of becoming insular and stagnant, over time this problem tends to self-correct because such groups have increasing difficulty in recruiting new generations of students, maintaining the allegiance of mid-career researchers, and garnering the resources needed to pursue new agendas.

The keys to this institutional approach are the breadth of individual fields and the fuzzy boundaries between them. A review of the number of degree-granting disciplines and departments suggests that the number of liberal arts disciplines is quite small. Evidence on the rise of academic specialization shows that the modern academic department was common during the 1930s but generally had very few faculty members. The expansion of the liberal arts disciplines into intellectually vital units is only two-thirds of a century old.

Chapter 4 emphasizes the unavoidable need for specialization by examining the size and rapid growth of new research and scholarship. It also considers the issue of scholarly communication from the point of view of research journals with an analysis of 789 academic journals founded in the year 2008. A typology of six different approaches to interdisciplinary publishing is presented, including a paradoxical category, specialized interdisciplinarity. These are journals that cut across traditional disciplinary lines, but they do so in a focused and relatively narrow manner. The chapter concludes with a discussion of the forces that mitigate the push toward specialization by pulling in the direction of intellectual synthesis.

Chapters 5 and 6 address issues of scholarly communication. Chapter 5 asks whether disciplines can indeed be viewed as isolated silos. The evidence indicates that all fields are connected to one another to varying degrees, as is evident in maps of science derived from the Web of Knowledge database. The flow of particular ideas across disciplinary boundaries is tracked. Evidence is presented on the prevalence of research directed at important social problems, as are data on the ubiquity of research centers. I also consider why the “silo” idea remains so appealing despite the considerable evidence against it.

Chapter 6 builds on the ideas developed in chapter 5 by considering the timing of intellectual exchanges. If “isolated silos” is not a tenable model of communication patterns among disciplines, it may nonetheless be the case that some fields are slow to pick up on the latest research techniques and the most promising conceptual advances. The idea of an intellectual delay is specified by mapping out “receptivity curves” that trace the timing of attention to research in particular disciplines. This concept is put into action by considering the case of research and scholarship moving into and out of the
field of education. While critics of educational scholarship abound, especially in schools of education, this analysis suggests that excessive delay in responding to the latest developments in the liberal arts disciplines is not characteristic of education scholarship.

Chapters 7 through 10 consider the practicality and viability of interdisciplinarity as an alternative to the current system of disciplines. This part of the book shifts attention from the communication of individual ideas to the longer-term trajectory of interdisciplinary units. Chapter 7 considers the question of whether successful interdisciplinary lines of inquiry will congeal into new research fields or disciplinary subspecialties. It revisits some of the themes developed in chapters 2 and 3 and includes a discussion of the multiple meanings of the term “integration.” The theme of antidisciplinarity that weaves through much of the thinking of reformers is considered here. Despite the appeal to some of breaking down institutional structures, successful academic fields require social organization that serves as the functional equivalent of a discipline. The enduring success of any interdisciplinary arrangement will thus require the recreation of discipline-like units that function as intellectual, social, career, and political systems. The discussion emphasizes the importance of research communities to the vitality of the current disciplinary system. Chapter 7 also includes a brief review of extant interdisciplinary doctoral degree programs.

American studies, one of the first academic fields to embrace the principle of interdisciplinarity, is the topic of chapter 8. I summarize its main intellectual currents and organizational evolution since the late 1940s. In interdisciplinary terms, American studies can be viewed as having achieved the “transdisciplinary” intellectual synthesis that is sometimes held up as the holy grail of interdisciplinary knowledge, only to lose that synthesis at a later date as new political and intellectual developments took the field in very different directions. American studies has contributed to a substantial expansion of the domain of cultural and material studies, and in this respect it is a good case of “subject matter expansion” along the lines outlined by Walter Metzger (1987). In other respects, however, the example of American studies represents a mixed model at best, as it has by no means unified the study of American society and culture. Instead, it helped to foster a climate that was receptive to the creation of additional interdisciplinary fields of inquiry, including African American studies and women's studies. As a result, in this case, interdisciplinarity did not foster the consolidation of academic units in the humanities and social sciences but instead furthered the proliferation of new academic units. The point of this analysis is not to criticize the many fine
scholars who have contributed to American studies over the years, but rather to assesses the long-term trajectory of a prominent interdisciplinary field and its relationships to its intellectual neighbors.

In chapter 9, which considers interdisciplinarity in the context of undergraduate education, many unexpected conclusions emerge. Connections between diverse subjects are surprisingly common, as is evident from the prevalence of cross-listed courses, team-taught classes, and dual majors. Trend data since the 1970s indicate how small many of the interdisciplinary majors are. This finding, among others, questions the notion that undergraduate demand is responsible for the expansion of interdisciplinary programs.

The chapter reviews the meaning of the concept of “integrated knowledge” in the context of teaching undergraduates. Integrative education is paradoxically more feasible and more likely the narrower the student’s specialty. In terms of enrollments, interdisciplinarity does not represent the principal competitive challenge to the traditional liberal arts disciplines, but instead it is applied fields, including business, criminal justice, and communications, that have seen considerable expansion in the number of majors. Ironically, the traditional disciplines have created the intellectual underpinnings of many of the applied fields that now draw substantial undergraduate enrollments.

In chapter 10, a number specific proposals designed to promote interdisciplinarity are considered. The most elaborate proposals for the interdisciplinary university necessarily involve the creation of new forms of scholarly communities. If they succeed, they will do so by reproducing many of the elements of the disciplinary structures they seek to replace. There is also a risk that they would contribute to a decline in the power of academic departments and a concomitant rise in the centralization and consolidation of decision making. Ironically, an interdisciplinary university is less likely than present arrangements to protect the very academic independence that reformers seek to promote.

Chapter 10 also considers a number of specific proposals that have been advanced, including cross-disciplinary faculty appointments, “cluster hiring,” eliminating departments and disciplinary degrees, more extensive interdisciplinary training of graduate students, and the creation of special criteria for evaluating interdisciplinary research. These reforms are assessed in terms of their likely consequences, along with the implications they have for the autonomy and viability of existing disciplines. Many of the proposals advanced thus far would do little over the long term to consolidate knowledge into broader themes, since specialization will remain a powerful force. Some of the reforms designed to integrate knowledge would instead contribute to the proliferation of specialized interdisciplinary niches. Academic depart-
ments in particular and faculty members in general are likely to find their position in university affairs weakened as a result. Rather than promoting interdisciplinarity as an objective, I consider better ways to strengthen the liberal arts and sciences.

In short, this book challenges many of the premises of the case made for interdisciplinarity. While it surely has its place in the modern university, interdisciplinarity should not be viewed as an end in itself. In organizing research, advancing knowledge is the goal, and reforms should be undertaken when they represent the best means of achieving that objective. Proposals for a transdisciplinary university remain vague and based on sketchy premises.

Disciplines as currently constituted are central to the creativity and dynamism of the modern research university. The arts and sciences are specialized in many ways, but they are also fundamentally broad and dynamic. Discipline-like organizational arrangements in one form or another are needed and will continue to be needed. Proposals for reform of the research university should place the disciplines at the center, and strive to protect and enhance their central role.

Reinforcing the liberal arts ethos throughout the academy is vital to the future of American higher education. Despite its many weaknesses, idiosyncrasies, and internal contradictions, the arrangement of the liberal arts into disciplines, departments, and majors has produced remarkable intellectual advances in a short period of time and has provided the conditions for relatively unfettered critical inquiry. While these arrangements must evolve and adapt to changing circumstances via experimentation and reform, a wholesale reorganization of this system is unlikely to improve on the current system. Scholarly communities are pivotal to the success of the research enterprise and the preservation of academic independence. In the end, this book is a defense of the liberal arts disciplines and the research universities in which they have thrived for the last sixty years. I hope that a reexamination of the strengths of these institutions helps them to thrive for at least another sixty years.