

Introduction

1.1 Knowledge in Landscape Architecture

The “new normal” in landscape architecture is the production and consumption of knowledge. The past two decades have seen an unprecedented increase in the standards and complexity of disciplinary expertise, and with that comes increasing pressure to formalize the ways in which we seek, create, and validate knowledge. As the discipline expands and engages with other disciplines to address the profound challenges of the twenty-first century, there is pressure to include a broader base of thinking in the field and to deepen the way we think. These dynamics intersect in research.

This book offers researchers in landscape architecture a place to begin shaping their research program. It comprises a critical review of research strategies that have built and continue to build the knowledge base in landscape architecture. Its primary audience is students in higher education who are working on capstone or terminal studio projects, advanced independent studies, theses, or dissertations, as well as faculty who are supervising graduate students. As the number and size of Master of Landscape Architecture (MLA) thesis and PhD programs expand (Tai 2003), candidates and examiners require guidance and clarity of expectations about acceptable research methodology—that is, the principles, practices, and procedures of inquiry that characterize the discipline.

The career development and eventual success of academic staff also hinges increasingly upon their research agenda: its productivity, value, and impact. Universities and funding agencies demand metrics of performance and productivity that indicate the quantity and quality of research activity and dissemination, and programs are frequently ranked on this basis. In some countries, public funding for universities is tied directly to research output (Forsyth 2008), and there may be financial incentives that favor postgraduate education that involves substantial research outcomes. All of these activities involve creation of new knowledge, for which a clear strategy, or systematic process of inquiry, is needed.

An important secondary audience for the book is landscape practitioners in private-sector design, multidisciplinary or corporate consulting firms, public-sector agencies, and academia. In the design and development industry, as well as in government sectors and at not-for-profit agencies, research is becoming integral to shaping policy and practice. Indeed, success in business often depends on developing strategies for innovation in order to maintain

competitiveness. “Evidence-based design” (Davies et al. 2000) is an area of fast-growing interest, as clients, public officials, and practitioners seek credible sources of knowledge of landscape and social processes upon which to base their evaluation of design proposals and policy recommendations. Forms of peer review are increasingly used in all of these situations, but they still beg the questions of which research strategies are effective and appropriate for the discipline and by what criteria should new knowledge be evaluated.

1.2 The Need for a Guide

There is at present little disciplinary guidance on research strategies. Nor is there any clear standard within landscape architecture for courses in research design and methods that are required in graduate design programs and, increasingly, taught to undergraduates. Rather than teaching from a broader “meta,” or strategic, perspective, faculty members often teach research design in a way that reflects their own familiarity with a single research method or a category of methods (e.g., survey or thematic maps). Their task is made even more difficult because no single text adequately serves the landscape architecture student in finding his or her own focus of inquiry or allows the student to position his or her work in the context of a larger investigative framework. The problem is confirmed regularly in informal and formal discussions at educators’ conferences in North America, Europe, and Pacific Rim countries, and we have repeatedly encountered this need in our own teaching.

Equally, there are no discipline-wide protocols or frameworks in landscape architecture by which to evaluate the validity of research proposals that seek commercial or public funding, or to assess the claims made by practitioners in the explanations of their projects, in competition entries, and in their written work. Clients in the public sector have no basis upon which to judge the validity of assumptions and presumptions made as a basis for policy advice.

This book aims to empower and inform new researchers, evaluators, and clients of research and theoretically justified work by providing a framework through which to address the following questions:

1. What research strategies are possible in landscape architecture?
2. What strategies do landscape architectural researchers tend to use?
3. How might an effective research strategy be shaped, and how might it be evaluated?

It follows that we focus primarily upon strategies rather than methods—on the configuration of an overall system of inquiry relative to the current range of epistemological and theoretical perspectives in our field, rather than upon detailed procedures, methods, and techniques that may be relevant to a particular investigation. This reflects our belief that, rather than method, it is the perspective driving an inquiry that is most fundamental in shaping any research project, and that it is the application of distinctive inquisitive strategies within particular theoretical contexts that shapes a discipline. Many methods and techniques are interchangeable across disciplines. It is the way they are

used, combined, and linked to theoretical propositions and practical actions in a coherent overarching strategy that gives them a distinctive disciplinary character.

It is also important to dispel any potential confusion in the overlapping concepts of *research design* and *research strategy*. In this book, *research design* refers to the logical order or structural composition of an investigation; essentially it is a formal, or a formulaic protocol. Trochim (2006) calls research design “the glue” that keeps a research project together. Many sources suggest that there are only a limited number of possible research designs (e.g., randomized experiment, quasi experiment, nonexperiment). Research design guides the way in which an inquiry selects from and processes all possible sources of data (i.e., sampling approach) and treatments.

Research strategy, on the other hand, is essentially conceptual and is shaped by intention—not by the “how,” but by the “why” of finding out. The nature of any research strategy is defined by two key dimensions that guide the process of scholarly inquiry. The first is the purpose or the relationship of the inquiry to theory—is the purpose of the investigation to build, shape, or test theory? The second dimension is the nature of the truth claims, or epistemology, that lie behind the investigation—is reality dependent upon, independent of, or interdependent between the researcher and the world?

Hence, research strategy is clearly related to, but larger and more conceptual than, research design. Research strategy subsumes research design within a larger order or agenda of thought and action. Research design is the investigative structure or logic created in the service of particular intellectual strategies; research methods are specific procedures used to advance particular research designs; research techniques are used to access and organize data (e.g., interviews) in support of particular methods.

In essence, the “strategies” that we present in this text are methodologies (studies of multiple methods) that are organized by and instrumental to an intellectual purpose and epistemological position. This guides their placement in a classification matrix (see Section 1.4). One order below that, our examples describe specific research designs, research methods, and analytical techniques that *illustrate* how these strategies operate in support of landscape architectural topics. The strategy itself is actually quite limited in its form and effect in our detailed discussions of examples, but it provides the essential context and logic for the investigation and its choice of design, methods, and techniques. Our hierarchy of terms is as follows:

1. Strategy: An agenda of thought and action for knowledge formation (*Nine strategies are classified in Table 1.1*)
2. Research design: The structure of how to choose, structure, or limit the evidence vis-à-vis the query (e.g., sampling frame or generative design)
4. Methods: Procedures of investigation, some serving more than one strategic category (e.g., historiography or survey)
5. Analytical techniques: The tools of investigation, almost all serving multiple strategies and designs (e.g., depth interview, statistical analysis, or coding)

Questions of research strategy in landscape architecture are neither new nor trivial. There have been intense debates within the discipline in recent decades as to the legitimacy of different research paradigms. Each paradigm carries its own presuppositions, and typically each commentator advocates for his or her own position. Cross-disciplinary investigation is increasingly common, yet boundaries between fields of knowledge and the validity of “borrowing” different ways of creating knowledge are increasingly contentious, particularly in relation to the closely related discipline of architecture.

As well as points of tension, there are also significant gaps in knowledge and research activity. This raises further questions: How does the discourse of “how we know what we know” shape the discipline? Which, or whose, knowledge survives this scrutiny, becoming legitimated and eventually reproduced? What questions, evidence, and ideas are excluded? And what are the implications for practice?

1.3 The Gatekeeping Dilemma in Context

Our approach to these questions of scope and legitimacy is inclusive rather than exclusive. Overall we advocate a greater focus on the conceptual logic of inquiry, explanation, and evaluation of research approach and outcomes. There have been classifications of research

Responses from Key “Gatekeeper” Informants

1. What criteria are used by your journal to evaluate the quality and validity of research and scholarship submitted for publication?
 - Scholarship—quality and insight
 - Method—coherence, integrity, and rigor
 - Outcomes—significance, relevance, and originality
 - Presentation—clarity and style
2. Does the choice and/or weighting of criteria change depending upon the topic of research, or is it standard across all submissions?
 - In principle, largely standard
 - In practice, nuanced according to the type of paper
3. Do you have an expectation or preference for certain acceptable research strategies in landscape architecture? If so, what are they?
 - A broad range is acceptable (even desirable)
 - Needs to be appropriate to the subject
4. Have you rejected any work in recent years because the research paradigm adopted is not acceptable to your journal? If so, what type of research was involved?
 - Never specifically
 - Typically, rejection occurs if the quality of work is “not good enough,” or subject is not sufficiently relevant to the target journal

methodology offered recently in related disciplines (Creswell 2009, Groat and Wang 2002, Laurel 2003), and within landscape architecture a conceptual framework has been proposed to reconcile the seemingly incompatible traditions of “objectivist” science and subjectivist arts (Swaffield 2006). However, the practical resolution of questions of legitimacy relies most heavily upon the judgment of “gatekeepers.” These judges of research quality include, among others, academic advisors and graduate examiners, administrators and appointment committees, acquiring editors and advisory boards, editors and peer reviewers, foundation managers and granting agencies, and jurors and critics.

In the current structure of knowledge production, “gatekeepers” may wield extraordinary power. Not only do these men and women decide on career choices and success (for instance, in deciding tenure and promotion), but they also have the privilege of deciding what new knowledge is approved—and not approved—for degree completion, funding, and dissemination. Even in the context of new media and the Internet, which enables new “blog” and “wiki” formats (essentially consensual, collective efforts at knowledge production), gatekeepers are ever present.

In a recent study (Swaffield and Deming 2007), we found that in most design and planning professions, and in landscape architecture in particular, the range of acceptable

5. How does the research paradigm of submitted work influence selection of referees?
 - Suggests what type of expertise is relevant
 - May predispose intellectual affinity or sympathy for the approach
 - Demands a need for impartiality
6. Do you believe the situation is different in landscape architecture, as compared to more traditional disciplines? If so, how?
 - Yes—greater breadth and generality of interests
 - Yes—more contextual and cross-disciplinary emphasis
 - More frequent use of case studies
 - Lack of deeply embedded tradition or expertise in research
 - Lack of commitment to quantitative methods and mainstream science; this means limits to knowledge are, in part, self-imposed
7. Are there any other insights you could offer about the way that research and scholarship is evaluated for peer-reviewed publication in landscape architecture?
 - Need to remain cross-disciplinary requires a pluralistic approach, and also provides useful benchmarking
 - Stronger connections to practice could be fruitful, but research by design still lacks a strong research infrastructure
 - Research in the field is still inhibited by professional anti-intellectualism
 - Despite best efforts, much published scholarship is neither interesting nor stimulating
 - Need to think deeply about the nature of the audience for our scholarship—what do we want to accomplish?

modes of research are challenging even to the gatekeepers who are charged with evaluating and facilitating the dissemination of research. We asked a group of key informants among these gatekeepers—academic journal editors and advisors—to share their reflections on the role they play. Three consistent themes emerged:

- *Fitness for purpose*: methodological integrity is more important than adherence to any particular set of protocols or methodology
- *Relevance*: researchers in landscape architecture need to retain their breadth of approach, but must improve the professional and social relevance of scholarship
- *Transparency*: there is need to strengthen the quality of research reporting on the application of “mainstream” science paradigms to landscape architecture and in design-based research, each of which require transparency as well as clarity in communication

In these exchanges with key informants there were never any particular strategies or methods identified that were or were not considered worthy of publication. On the contrary, almost any research strategy or method was acceptable to the editors as long as certain other parameters of quality were upheld. This is certainly understandable: as the discipline of landscape architecture becomes increasingly diverse and ambitious in its scope and impact, its scholarship draws upon many different research traditions from related or analogous fields.

Perhaps as a consequence, however, many long-standing and unresolved contests that exist over the selection of protocols for knowledge formation and knowledge validation in other disciplines have been imported to landscape architecture. These include differences between the humanities and sciences in criteria for peer review, as well as tensions between objective and subjective claims to knowledge and disagreement over the acceptability of hybrid strategies—the so-called “emergent” methods (Hesse-Biber and Leavy 2008). The openness of the discipline to diversity in research and scholarship is commendable, but it has created a problem of validation that will not solve itself and will only increase in complexity and intensity as research efforts increase.

Most commentators upon research in landscape architecture have adopted a position of advocacy for or against a particular paradigm of knowledge or research, asserting greater legitimacy for one or another form of validation. Our position in this book is to argue, instead, that knowledge in a diverse practice-oriented discipline such as landscape architecture must be consensually produced within an intellectual and professional community. The questions that are asked and the significance reported depend on the needs of the field itself, not upon some externally referenced school of thought or normative paradigm of knowledge. In this regard, therefore, the scope and nature of research in the design fields is never “pure,” abstract, or objective—rather, as with theory, it is historical, situated, pragmatic, evolving, and cumulative (Meyer 1997).

This contextuality of knowledge in the discipline highlights the critical role that gatekeepers play in the validation process. It also points to the need for greater transparency from authors in explaining the presuppositions that underpin their claims to

new knowledge, and an explicit commitment to “bridging” or “translating” the traditions within the discipline. This requires authors to explain the significance of their findings in a shared (plain) language that is accessible to students as well as practitioners. Grinnell (2009, 16) notes that “in the everyday practice of science, calling things as they are is reserved for the community rather than the individual.” Knowledge validation is a collective enterprise, and this is a position we advocate for landscape architecture.

1.4 Mapping the Terrain

Our primary goal in this text is to present a framework for classifying, using, and evaluating a range of research strategies in landscape architecture. Through this process, we aim to cultivate a greater understanding of what we already do and know and open researchers to the potentials of a greater number and variety of strategies for investigation than might otherwise be academically and professionally practiced. We also hope that it will help more landscape architects find research topics of interest to inform and enrich their work.

The book is therefore organized around a heuristic model of research strategies based on what actually happens in our field. We have analyzed articles published within the past decade in the main English-language peer-reviewed journals of landscape architecture and located them within a conceptual framework that is structured according to different modes of explanation and epistemology. Our purpose is to recognize, situate, and legitimize the widest range of strategies of inquiry that typically take place in, around, and through landscape architectural practice.

There is much common ground between categories of research used in the applied-design disciplines (such as landscape architecture) and those commonly used in more traditional research fields. The development of a flexible and inclusive classification for landscape architectural research does not require the reinvention of new research strategies. Instead our rubric aims to situate, expand, and augment existing practices and procedures in a way that integrates diverse traditions and attitudes from many fields of investigation into a framework of research strategies for landscape architecture. We reinforce and build on received definitions, while also allowing for greater tolerance and latitude in choices that individuals, corporations, and institutions of landscape architecture may pursue.

We have classified the strategies used in the discipline along two primary dimensions (fig. 1.1). On the one hand, we recognize the distinction between inductive and deductive research strategies. Inductive research, in broad terms, is the generation of descriptions and explanations of relationships in the world through strategies of inquiry grounded in the world of experience and empirical evidence. Deduction is the development of explanations from theory and the systematic testing of these explanations through formal processes of experimentation, evaluation, and argumentation.

The other dimension we have recognized is epistemological—between, on the one hand, an objectivist approach that presumes and seeks to understand a reality or realities in the world existing independently of the investigator and, on the other hand, subjectivist and intersubjectivist approaches that presume knowledge of reality is entirely the product

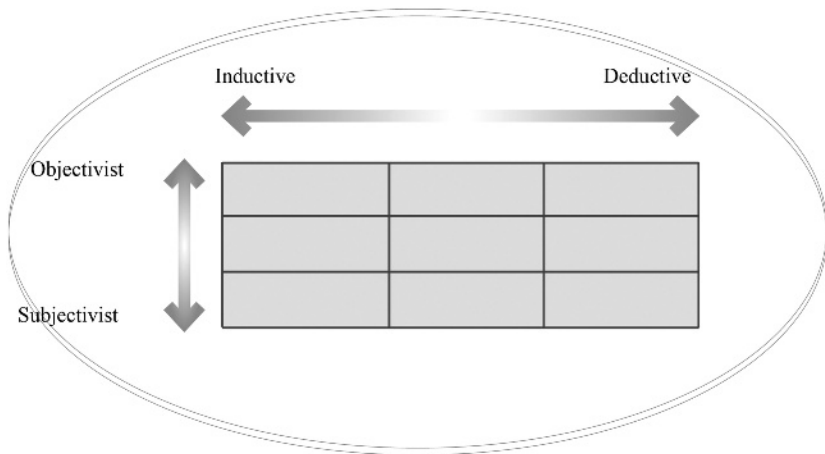


Figure 1.1 The logic of our classification of research strategies

of individuals and society. The “objectivist” position is typically associated with the natural sciences and human sciences and leads to a methodological emphasis upon how to maximize internal and external validity, for example by minimizing the influence of the researcher and by randomized sampling, respectively. The “subjectivist” position is associated with the fine arts and humanities and with a number of emerging social disciplines in which the immersion of the researcher in the systems of creating new knowledge and new realities is recognized and celebrated, and “sampling” is more concerned with the selection of particular examples and cases than with the representation of general populations.

We have expanded the classification matrix beyond the four basic possibilities created by these two dimensions, to recognize a range of transitional strategies, which in practice account for much research in landscape architecture and in other applied disciplines (fig. 1.2). Between the conventional dichotomies of induction and deduction, we recognize a “reflexive approach.” In this approach, researchers move back and forth between deductive and inductive perspectives, modifying their theoretical propositions in the light of the evidence, revising their understanding of the evidence (its categories, and its meaning and significance) in light of theoretical concepts and exploring new possibilities of understanding and new ways of knowing. The pragmatic philosopher Charles Peirce used the term “abduction” to describe a way of creating knowledge that is neither inductive nor deductive: “Deduction proves that something must be; induction shows that something actually is operative; abduction merely suggests that something may be” (Peirce 1955, cited in Schobel 2006). This is described elsewhere as a “moment in the design of the world” (Bude 2000, in Schobel 2006).

We also recognize an epistemological position that lies between the objectivist and subjectivist poles that we have termed constructionist (Crotty 1998). This presumes that knowledge is generated through the interaction between the investigators (and their society) and a reality (or realities) that exists but that can never be known independently of

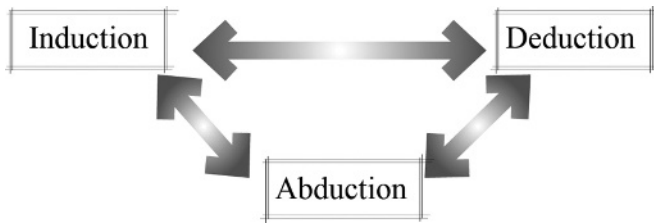


Figure 1.2 Reflexivity in inquiry

the presumptions of the investigators. Landscape knowledge is thus actively constructed rather than found or discovered, and it must always be interpreted in its context (Greider and Gardovich 1994). It is nonetheless anchored in some way and to some degree in a world that exists beyond the subjectivity of an individual or group of individuals (Swaffield 2006).

By expanding the two dimensions in this way we have generated a matrix of possible research strategies that contains nine broad categories (see Table 1.1). Each of these categories has been illustrated and refined in examples of published research studies that are analyzed in later chapters of this book. Having some similarity to classifications in other related disciplines, the framework also “makes sense” of the diverse research strategies we have encountered in our survey of recent research in landscape architecture. The classification is intended to help researchers locate their own interests, needs, and inclinations within a wider field and to recognize relationships with other research.

The framework is, therefore, grounded in the wider conceptual dimensions that shape research strategies across all disciplines, and in examples of research practices and outcomes that have already been executed and published in our field. However, it is not the specific selection that matters. We are more interested in the systems of knowledge formation that this sample, or any other sample, might reveal. In that sense, this book is itself a form of classification research. Another group of researchers might select a different set of examples, possibly adding specific subcategories to our major groups. However, our proposition—the basic shape of the framework—should be refined and strengthened by additional examples. This is the way we hope the framework will be used by students and

Table 1.1 Strategies of Inquiry

	Inductive (theory building)	Reflexive (theory/practice interactions)	Deductive (theory testing)
Objectivist strategies	Description	Modeling and correlation	Experimentation
Constructionist strategies	Classification	Interpretation	Evaluation and diagnosis
Subjectivist strategies	Engaged action	Projective design	Logical systems

practitioners alike—as an additive, cumulative, and, hopefully, consensual project. This, in turn, should lead to the development of improved protocols for validating research that will better integrate knowledge formation in the discipline itself.

The framework categories are described according to the distinctive principles and procedures used for knowledge production. Because most of these categories and the methods that support them are standard to many other disciplines, they have already been studied and described in dozens of methods manuals. In this book, therefore, we do not attempt to reinvent the wheel, so to speak, but simply to illustrate, highlight, and “translate” how these strategies have proved instrumental in generating new forms of knowledge and practical expertise for the design disciplines.

In laying out such a framework, this book also offers a selective survey of current intellectual conditions in the field of landscape architecture through the examples used in each chapter. The examples are taken from the past decade or so of a small sample of refereed publications associated with the discipline. The sources are limited to peer-reviewed English-language journals of landscape architecture and landscape planning. This inevitably excludes research published in a wide range of other journals, in books and nonrefereed journals, and in other languages, as well as excluding other expressions of new knowledge, such as competition entries.

The Content of the Strategy Chapters

Chapter 5: Descriptive Strategies

Direct observation, for example, field records of vegetation

Secondary description, based upon existing sources such as archival documents

Descriptive social surveys, such as polls, surveys, and questionnaires

Case studies, based on comprehensive data collection for a site or situation

Chapter 6: Modeling and Correlational Strategies

Descriptive and synthetic models

Analytical models, such as correlation

Predictive models

Dynamic simulations, including alternative futures

Chapter 7: Experimental Strategies

Classic experimentation, such as laboratory tests or field experiments

Quasi experiments, such as preference studies

Chapter 8: Classification Schemes

Collection, inventory, and catalogues

Typology and Taxonomy

The decision to narrow the sources in this way is partly pragmatic, but it also expresses our interest in the collective character of knowledge formation within the discipline and in the importance of disciplinary protocols for validation of published work. As a consequence, the selection does not include all research undertaken by landscape architecture researchers, whose publication outlets, as revealed by Gobster et al. (2010), extend well beyond the “landscape architecture” journals and include a wide range of related disciplines. Rather, it is intended to illustrate the different strategies evident within the visible “core” of the discipline in a way that enables readers to locate their own interests. It also places within the framework additional examples of research strategies that have been derived from other sources. The content of core chapters is summarized in the following list.

Each of the chapters begins with a definition and review of the characteristic strategies that led us to recognize the category. Selected approaches are exemplified by brief summaries of published research studies, with sufficient detail included for initial discussion and comparison. The examples follow a broad template that draws out their key features and enables them to be compared. These examples are intended to show how established and emerging research practices have been applied to problems of landscape architecture. Our hope and expectation is that students will access the original articles for more detailed analysis, having located and clarified their interests and questions from this overview.

Bibliography and literature reviews

Chapter 9: Interpretive Strategies

Ethnography, such as participant observation and depth interviews

Discourse analysis, such as content analysis of primary documents

Formal and iconographic analysis

Historical narrative, using primary documents and historical evidence

Chapter 10: Evaluation and Diagnosis

Parameters and Norms

Design evaluations, such as postoccupancy evaluation

Diagnostics, such as environmental impact

Landscape assessment

Chapter 11: Engaged Action Research

Pedagogy, such as service learning

Participatory action research (PAR)

Transdisciplinary action research

Chapter 12: Projective Design

Design as research, such as design experiments

Design operations

Design as interpretation

Chapter 13: Logical Systems

Logical frameworks, synthetic logic and expanded field analysis

Spatial syntax, pattern language and indexing

Template Guide for Examples

1. Title: authors, date, and short title
2. What seems to be the condition/problem/opportunity and what is known about it.
3. What question was asked and why this is relevant for the discipline.
4. What needs to be learned (e.g., what condition or event needs to be identified, measured, compared, etc.)
5. How the question was framed or positioned by conceptual, theoretical, or ideological assumptions.
6. What research strategy was adopted and why.
7. What techniques were used and what evidence was recorded; how evidence was analyzed.
8. What were the main findings or conclusions and what are their implications or applications.
9. Why this is a good example and what we can learn from it in terms of research design.

Rather than ideal examples or nearly perfect research models, we chose these examples from the published literature because they were typical and most representative of the widest possible array of research practices in our field. Indeed, several examples illustrate common design problems or errors, duly noted in their summaries. And although the selection of these studies is not intended to provide instruction in specific research methods, it does illustrate the range of methods and techniques that have helped define contemporary research practices and theory in landscape architecture.

There have been a number of interesting challenges in placing particular examples of research within the classification framework. The first is that few practical research programs sit simply and squarely within a single class or type of strategy (Abbott 2008). The majority are hybrid strategies that combine different modes of inquiry in different ways and to different degrees. In cases where the research is sequentially staged and shifts in emphasis as the investigation narrows down to a particular question, we will discuss only a portion of the study. In others, the topic requires a multifaceted approach. Sometimes (indeed, more frequently than is desirable), the strategy lacks structure or clarity due to poor design, or it is reported in a fragmented way. Our approach has been to select examples in which the strategy is clearly stated or expressed and to place the example in the classification “space” that corresponds most closely with the fundamental character of the investigation.

A second challenge has been how to deal with the fact that some types of investigation techniques are used in different ways in different strategies. Modeling and case studies are good examples of particular types of approach that can be used in a range of ways across the inductive-deductive and objectivist-subjectivist dimensions. We have noted this flexibility where relevant.

A third issue has been terminology. Many of the concepts used in research methodology have both technical and popular meanings, and in a number of cases they are used in contrasting strategies (laboratory experimentation versus design experimentation, for example). In other situations, terms are used differently in different disciplines. Simulation is an example of this plurality. We have tried to clarify our usage in the relevant places.

1.5 Building a Research-Based Discipline

As we highlighted earlier, the underlying proposition of this text is that a wide range of research practices has an important role to play in building the discipline; multiple forms of knowing are valuable and necessary in contributing to new knowledge in the field. There is far too much to learn in landscape architecture to be too fastidious about capital “R” or small “r” research or to sustain any outdated chauvinism regarding quantitative and qualitative, “hard” or “soft,” inductive or deductive, or traditional or critical research. Nor is this any time to argue whether landscape architecture has its own body of research methods. Although any discipline may pioneer new applications and forms of inquiry, no discipline “owns” its research methods. However, this is not an argument for a methodological free-for-all (Feyerabend 1993). Rather, we endorse Law’s position (2005, 4) in seeking “greater methodological variety” within a shared understanding of the possible research strategies and their characteristics.

New knowledge is urgently needed on all fronts, and at all levels, and each of us can and should contribute in the ways we are most capable. In the “new normal,” landscape architects simply need to be smarter about producing and consuming research—all forms of research. In a *Landscape Journal* editorial, we argued that:

current catchphrases are all about being “smart”—smart growth, smart energy, smart cars, smart cities. If we accept any part of the truism that “knowledge is power,” then landscape architects might need to get smarter, too.

Pursued as a trade for centuries, then regulated as a field of professional practice, landscape architecture has slowly matured into a comprehensive scholarly discipline. The term refers to an abstract body of knowledge—an evolving, semiautonomous system of learning, knowing, and praxis that is methodically and consensually produced, legitimized, and consumed. Bodies of knowledge undergo constant renewal through the processes of interrogation and investigation. Similar to a system of civil laws, academic disciplines have rules of evidence, precedent cases, and stylized, structured forms of argument. Similar to our system of litigation, we maintain and advance disciplinary knowledge in a collective, participatory process of open challenge and debate. Instead of trial by jury, however, we call it peer review.

It should be emphasized that knowledge production and consumption are reciprocal processes. The production of new knowledge is never a one-way street, and expertise does not naturally flow from the academy to the profession.

After all, practical application (design and planning) is what makes science (theory and method) meaningful. But the practice of better questioning helps produce better answers—and therefore new competencies. (Deming 2009, vi)

This book is aimed at facilitating these “new competencies”: not only for students but also for design and planning practitioners. In addition to providing service to clients, and solutions to problems, practitioners also must reframe practical problems as intellectual opportunities—to test theories, apply best practices, generate new realities and alternative futures, and simulate new social and environmental dynamics. This is typical in other professional fields, such as medicine, law, engineering, and business. For the discipline of landscape architecture to flourish, its professionals similarly need to disseminate and reinvest in the results of practical and theoretical research.

The process of understanding landscape architecture as a discipline begins with students. Along with other sets of skills, knowledge, and understanding, students are expected to understand the basics of research processes, including problem recognition and researchable question formation, mastery of relevant literature and the current state of knowledge, design of research strategies in response to specific knowledge needs, and a mature understanding of the impact and limitations of specific research activities. The curricular ramifications of this should be apparent, as we have argued:

The fundamentals of research demand a skill set that ought to be taught at the undergraduate level, emphasized and honed in graduate programs, and reinforced in professional practice. Finally, the production, legitimization, and consumption of disciplinary knowledge should not grind to a halt when students enter practice. (Deming 2009)

Over the long term, students/practitioners who adopt this type of thinking about research and evidence-based design will have an impact on the intellectual culture of landscape architecture. If practitioners more fully recognize the processes of research in their own work, they ought to be able to conduct better original investigations, share what they have learned, and expand the collective body of knowledge. In the process, they will elevate their own practices, along with the practices of all others.

The suggestion that we could collectively broaden the scope of research practice by enrolling practitioners more fully is not an argument for the discipline to attempt to comprehensively investigate all dimensions of practice or to claim that all practice comprises research. Rather, it seeks an opportunity for new knowledge creation in a range of settings. Paradoxically, as the potential scope widens, there is a case to argue that specific research actions embedded in practice could benefit from a tighter focus—in the words of Wolcott, “doing less, more thoroughly” (1990, cited in Silverman 2005, 85). That means identifying an achievable research goal that may itself be modest but which, *when combined with others*, can build the discipline. All practitioners have this opportunity.

By allowing emerging techniques and voices to be recognized and given a place in the academic/professional system of knowledge production, the field will be substantially

enriched. These new techniques and voices might include research strategies that have previously been misunderstood in some academic “silos,” for example, site-based or phenomenological research methods associated with the arts and humanities, critical feminist investigations, narrative or exploratory methods associated with underrepresented perspectives, participatory action research, and design as research, to mention just a few. Yet these can and should be reconciled and positioned within a comparative framework of knowledge.

The book is organized in two parts. The first part establishes our approach and maps out the knowledge terrain for the discipline. Chapter 2 (“Knowing Landscape Architecture”) summarizes recent surveys of the knowledge domain of landscape architecture, and its research priorities. Chapter 3 (“Theory/Research/Scholarship/Critique”) then offers a similar summary of recent debates about the nature of theory in landscape architecture and its relationship with research, scholarship, and critique. These two survey chapters provide the context for developing a research strategy. Chapter 4 (“Integrating Design and Research”), the final chapter in part one, considers the practical and theoretical considerations involved in selecting and shaping a research strategy.

The second part of the book constitutes the substantive review of strategies, with nine chapters that feature specific examples of how different strategies have been applied in landscape architecture, as well as a concluding discussion of the linkage of research and practice. Chapter topics relate directly to the classification matrix set out earlier and are organized in sequence from left to right, starting at the top row of the classification (Description) and moving to the bottom (Logical Argumentation).

Finally, it is important to reiterate that this text is focused upon research strategies rather than on specific methods and techniques. Nonetheless, questions of method and technique are frequently at the forefront of students’ and new researchers’ concerns. We have therefore included a series of notes on method throughout the strategy chapters and have provided references to a range of relevant methods texts. For classroom use, we encourage faculty and students to supplement this book with specific methods manuals that are relevant to their project interests or curricular goals.

References

- Abbott, M. 2008. *Designing wilderness as a phenomenological landscape: Design directed research within the context of New Zealand’s conservation estate*. PhD diss., Lincoln University, Christchurch, New Zealand.
- Bude, H. 2000. Die Kunst der Interpretation. In *Qualitative forschung*, ed. U. Flick et al., 569–77. Reinbek at Hamburg: Rowohlts Enzyklopädie.
- Creswell, J. W. 2009. *Research design: Qualitative, quantitative, and mixed methods approaches*. 3rd ed. Thousand Oaks, CA: Sage.
- Crotty, M. 1998. *The foundations of social research: Meaning and perspective in the research process*. St. Leonards, Australia: Allen and Unwin.
- Davies, H. T. O., S. M. Nutley, and P. C. Smith. 2000. *What works? Evidence-based policy and practice in public services*. Bristol, U.K.: Policy Press.

- Deming, M. E. 2009. Editor's introduction. *Landscape Journal* 28 (2): iv–viii.
- Feyerabend, P. 1993. *Against method*. London: Verso.
- Forsyth, A. 2008. Great programs in architecture: Rankings, performance assessments, and diverse paths to prominence. *International Journal of Architectural Research* 2 (2): 11–22.
- Gobster P. H., J. I. Nassauer, and D. J. Nadenicek. 2010. *Landscape Journal* and scholarship in landscape architecture: The next 25 years. *Landscape Journal* 29 (1): 52–70.
- Greider, T., and L. Gardovich. 1994. Landscapes: The social construction of nature and the environment. *Rural Sociology* 59 (1): 1–24.
- Grinnell, F. 2009. *Everyday practice of science: Where intuition and passion meet objectivity and logic*. Oxford, U.K.: Oxford University Press.
- Groat, L., and D. Wang. 2002. *Architectural research methods*. New York: John Wiley and Sons.
- Hesse-Biber, S. N., and P. Leavy. 2008. *Handbook of emergent methods*. New York: Guilford Press.
- Laurel, B. ed. 2003. *Design research: Methods and perspectives*. Cambridge, MA: MIT Press.
- Law, J. 2004. *After methods: Mess in social science research*. Abingdon, U.K.: Routledge.
- Meyer, E. 1997. The expanded field of landscape architecture. In *Ecological design and planning*, ed. G. F. Thompson and F. R. Steiner. New York: John Wiley and Sons.
- Pierce, C. S. 1935. *Pragmatism and Pragmaticism*. Vols. 5 and 6 of *Collected papers of Charles Sanders Peirce*, ed. C. Hartshorne and P. Weiss. Cambridge, MA: Harvard University Press.
- Schöbel, S. 2006. Qualitative research as a perspective for urban open space planning. *Journal of Landscape Architecture* 1(1): 38–47.
- Silverman, D. 1985. *Qualitative methodology and sociology*. London: Gower.
- Swaffield, S. R. 2006. Theory and critique in landscape architecture. *Journal of Landscape Architecture* 1(1): 22–29.
- Swaffield, S. R., and M. E. Deming. 2007. Embodied knowledge: Research strategies in landscape architecture. In *Negotiating landscapes: Abstracts of the 2007 annual meeting of the Council of Educators in Landscape Architecture, Pennsylvania State University, August 14–19, 2007*, ed. B. Szczgiel and M. Bose, 223–24. State College, PA: Pennsylvania State University Department of Landscape Architecture.
- Tai, L. 2003. Doctoring the profession. *Landscape Architecture Magazine*, November, 64–73.
- Trochim, W. 2006. *Research methods knowledge base*. Web Center for Social Research Methods.
- Wolcott, H. F. 1990. *Writing up qualitative research*. Los Angeles: Sage.