# Dynamic Research Design:

## Iteration in Field-Based Inquiry

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Generations of political scientists have set out from their home institutions in search of fresh sources and insights in the field, studying everything from party machines to géno-cidaires to coup plotters. Field research inevitably involves twists and turns, is filled with obstacles and opportunities, and sparks transformative flashes of inspiration. Drawing on such experiences, researchers often make both minor and major adjustments to their research designs while conducting fieldwork. Yet such modifications are challenging to introduce and can weaken a project's analytic architecture and theoretical punch as well as strengthen it. Moreover, the methodological literature in the discipline offers little guidance on making such changes, and some influential voices discourage the practice under certain circumstances, as we discuss below. Due in part to these factors, scholars rarely acknowledge, describe, or justify their mid-course research design alterations in their presentations and publications.

For instance, shortly after arriving in Argentina to study the country's high court—as part of a funded comparative project also involving Venezuela—Kapiszewski began to see that Venezuela was unsuitable for the analysis. Given new theoretical insights leading to a broadening of the project to consider both high courts' decision-making and elected leaders' responses to their rulings, and unfolding political events in Venezuela (including the packing of the Supreme Court), comparing Argentina with Brazil held far greater analytical potential. Yet Kapiszewski struggled with the decision. What could be salvaged from the pre-field study of Venezuela? How could she prepare to systematically collect data in Brazil given that it was largely unfamiliar to her? Would more time in the field, or more funding, be necessary? What were the analytic implications of such a fundamental change? Whose permission did she need to seek, formally and informally, and how would the change be perceived? As neither publications based on fieldwork nor the methods literature provided guidance on whether and how to make such a major

research design adjustment, Kapiszewski engaged in extended consultation with colleagues, exchanging dozens of emails with scholars familiar with the topic or the countries in question. Ultimately, she made the change, and the project resulted in several research publications, two of which earned disciplinary prizes. Yet neither the change to the very foundation of the project, nor the profoundly generative period of reflection and consultation that underpinned it, were acknowledged in the published work.

This article examines this dynamic updating of a research design in the course of conducting a study. We call this process "iteration," by which we mean modifying, specifying, or fleshing out key research design parameters based on what one learns while confronting new realities and cycling between collecting and analyzing data. Appreciating iteration requires rethinking the nature of field research. Far from representing a discrete "data gathering" step in a linear research process, fieldwork involves carrying out, and repeatedly pivoting among, a broad array of interacting data collection, analysis, and research design tasks. This cycle, and the resulting iterative design recalibrations and refinements, are central reasons why fieldwork delivers such strong evidence, encourages original conceptualization, and inspires innovative theoretical insights.

A review of the discipline's methodological literature reveals epistemic disagreement on the place and value of iteration. As we discuss later in the article, in interpretive scholarship, research design changes are necessary, expected, and guided by individual scholarly reflexivity. Methodological literature in more positivist traditions includes a range of views on iteration. The quantitative research methods canon directly and indirectly discourages iteration. Iterative research design was implicit in, but not central to, methodological discussions connected with the renaissance in qualitative methods beginning around 2000: that literature acknowledges but neither highlights nor problematizes the idea that research evolves as it proceeds. Disagreement is more prominent in current methodological debates, as some scholars promote the preregistration of research plans, which complicates iteration, and others actively defend updating a project's theoretical and analytic infrastructure as it progresses. Nonetheless, the literature includes little guidance on how a scholar can adjust their research design choices in an analytic and productive way.

Our understanding of the nature of field research and iteration's role in it was generated through analyzing published accounts based on fieldwork; discussions with colleagues; our own fieldwork, teaching, and advising; and studying the experiences of other researchers. More than a thousand political scientists shared information on their fieldwork with us via an original web-based survey, and more than sixty scholars did so through in-depth interviews.

We draw on these sources to address three questions about iterative research design: Why is iteration such a core aspect of research based on fieldwork? What challenges does iteration present? And how can researchers iterate on their designs in ways that address those challenges and strengthen their projects? We illustrate the centrality of iteration to inquiry based on field research. Our survey and interview data demonstrate that most scholars who conduct fieldwork draw on what they learn as their research progresses to develop or refine key aspects of their projects' design (i.e., to iterate).

This is the case, we argue, because studies based on fieldwork often pose questions about geographic, substantive, or theoretical terrain that is relatively unexplored in existing scholarship; and because fieldwork is commonly shaped by unexpected events and challenges. Design updates allow scholars to align their projects theoretically and analytically with what they are learning (maximizing the validity and relevance of their work) and to cope with or capitalize on new circumstances.

While iteration thus holds great intellectual promise, changing core aspects of a research project after beginning to collect data also presents significant challenges. Multiple factors impinge on such amendments in ever-evolving fieldwork contexts, and introducing change poses analytic risks. Moreover, authoritative injunctions against such changes lead scholars to doubt their advisability and worry about acknowledging them. Given these challenges, scholars who nonetheless iterate on their research designs often neglect to mention these changes in their presentations and writing, instead implicitly or explicitly outlining a tidier and more linear research process. These omissions pose important problems. Scholars' failing to be open about iteration perpetuates its status as taboo despite all that it contributes; inhibits the development of strong methodological strategies for fruitful iteration; and prevents other scholars from understanding how we conduct our inquiry, and thus from evaluating and learning from it.

We propose a framework to help scholars iterate on their research designs in ways that can address iteration's challenges and help researchers to achieve their intellectual goals. We describe how scholars can prepare and plan for iteration, recognize opportunities and problems that might call for iteration, diagnose their causes, and adjudicate among possible research design changes. We strongly emphasize the importance of scholars carefully documenting iteration so that they can clearly describe and justify the process in their presentations and publications. We conclude with a brief discussion of the implications of acknowledging and embracing iterative research design for the establishment of shared expectations about research assessment, for graduate education, and for the practice of iteration and its profile in political science. Greater openness about how research designs evolve during project execution should enhance the discipline's understanding of the analytic nature of field research and give fledgling field researchers a more realistic sense of what to expect when they set off on their journeys of inquiry.

## What is Iteration?

This article examines iteration—the process of dynamically specifying, fleshing-out, or modifying key analytic parameters of a research project in the course of the research itself—in field-based inquiry in political science. Ours is not the only discipline in which the process of discovery is enhanced through incremental design changes, of course. To the contrary, the basic ideas of iteration are well-established in other fields.

For instance, in computer software engineering, iterative and incremental design has emerged since the 1970s as an alternative to a previously dominant approach known as

the "waterfall model."[1] The waterfall follows a sequential logic, with projects unfolding in discrete phases: developers first specify what a new piece of software needs to do (its requirements), then design the software (creating the architecture to meet these requirements), then implement this design (develop and test the software itself). In its ideal form, just a single pass through the stages of the waterfall is required. Yet in practice, complex new systems rarely work well after a single development cycle. More fundamentally, the very idea of fully specifying requirements before beginning development is chimeric, for multiple reasons. A system's users are rarely aware of or able to articulate what they want, details often emerge only in implementation, and most projects undergo change due to exogenous factors. These and other realities "may invalidate previous design decisions" and require backtracking.[2] While iterative approaches were initially seen as inelegant deviations from the waterfall, something to be "almost apologetic about," over time they gained acceptance and were codified in a new paradigm.[3] Rather than attempt a full version of a new system the first time around, programmers "start with a simple implementation of a subset of the software requirements."[4] A project's requirements are repeatedly reformulated, design re-envisioned, implementation repeated, and adjustments made based on feedback. The very purposes of the project, and all its details, remain subject to adaptive modification.

The design and conduct of field-based inquiry in political science similarly departs from a clear-cut, step-by-step process of positing hypotheses, collecting data, and then testing the former using the latter. Instead, it often involves repeated cycles of project development—incorporating into project design learning based on early analysis of information and data from participants, stakeholders, and other sources. Iteration may extend to rethinking fundamental building blocks of research design (e.g., research questions, hypotheses, field sites, or techniques for data gathering) as research proceeds. Fine-tuning (e.g., adjusting research instruments based on pre-testing) also constitutes iteration, but we focus on larger mid-course changes here.

Research projects often unfold over time, from initial inspiration, to publications, to follow-up endeavors. In this article, we consider iteration during a subset of that span: between the initial specification of essential elements of research design and publication of results. Design modifications that occur as a result of pre-dissertation trips or other preliminary or pilot forays are widely understood and not our focus here;[5] we likewise do not consider ways in which researchers might update their ideas or approach between projects.

Iteration might happen "in the field," during the trips back to one's home institution that often punctuate fieldwork,[6] or at other moments as the researcher generates and analyzes data and writes up results. Scholars may be more likely to rethink and amend some aspect(s) of their research design toward the beginning of a research project; indeed, in some types of research certain design aspects must solidify at some point, such as question wording in a large survey. Yet in many research projects and settings, most aspects of a research design can be analytically, systematically, and openly updated—and the risks of such updating effectively mitigated—later in the research process as well. Indeed, such iteration could potentially "save" a research project that otherwise seems destined to fail.

## Iteration in Research: Perspectives from the Literature

Conceptualization of iteration's benefits and problems varies across methodological traditions and time. Although little of the work we review here focuses directly on field-based inquiry, this work is typically covered in graduate methods training and profoundly influences how scholars carry out fieldwork.[7] We find that most methodological traditions acknowledge that iteration is necessary and constructive under at least some circumstances. However, views about its value and implications vary considerably among political scientists with different epistemological commitments who use different analytic methods: some scholars embrace the idea of revisiting theoretical priors and research-design decisions as they gather data, while some dominant voices in the discipline sound discouraging notes. Overall, the literature offers little in the way of guidance on how to engage in analytically productive iteration.

Interpretive scholarship embraces iteration but conceptualizes it as part of an overarching logic of inquiry or process of sense-making called abductive reasoning. Explaining this process, Schwartz-Shea and Yanow write that the fieldwork, "deskwork," and "textwork" phases of research are all "intertwined":[8] concepts and categories cannot be fully formed and "imposed" at the outset of a project prior to fieldwork,[9] and hypotheses cannot be fully developed prior to immersion in the field and then rigidly tested on site.[10] Instead, scholars begin with a puzzle or a tension, then search for insight and understanding by "tack[ing] continually, constantly, back and forth in an iterative-recursive fashion between what is puzzling and possible explanations for it …"[11] In other words, "Interpretivists work out iteratively the precise nature of the empirical focus and what that focus means in theoretical terms."[12] In interpretive research, learning can catalyze new questions, as it can in many forms of inquiry. However, as an element of abductive reasoning, iteration is understood as an ongoing and recurring cycle involving sparks and spirals of intellectual discovery, driven by encountering what is not understood, that can thrust research in unanticipated directions. Put differently, changing one's research via iteration is the very point in interpretive scholarship, which emphasizes making intellectual pivots through abduction—rather than progressively refining a research design using an analytic framework to plan, problematize, weigh, and justify iteration.

There is greater variation in the acceptance of—and overall more skepticism about—iteration in positivist research traditions. For instance, among the most influential messages in King, Keohane, and Verba's landmark book ("KKV")—which reflects the zeitgeist of quantitative research methods while asserting that a single logic of inference underpins all social science inquiry—is its injunction against mid-course reformulation of a project's theoretical architecture. According to KKV, scholars should choose a research question, develop or identify relevant theories, and discern their observable implications, early in the execution of a study, and then collect evidence related to as many observable implications as possible in order to evaluate the theories.[13] The bright line between theory development and testing is critical: scholars are discouraged from evolving theory or deriving new hypotheses based on the analysis of evidence collected. KKV acknowledge that "pilot projects" can lead to the alteration of questions or

refinement of theory to be investigated further in a subsequent study.[14] In the course of an inquiry, however, theory should only be modified in ways that expose it more fully to falsification by expanding the number of applicable cases; narrowing the scope of theory should be avoided unless new data can be collected to evaluate the modified theory.[15] For Yom, KKV exemplifies the "deductive paradigm" that prominent methodologists commonly espouse and that is pervasive in political science.[16] Even if some lines in KKV complicate their message somewhat, the overall thrust discourages adjusting theories after generating data to test them.[17]

During the renaissance in qualitative research methods that KKV helped to catalyze, a number of scholars who hold generally positivist commitments have commented on the utility of iteration. For instance, Collier, Seawright, and Munck write that "the refinement of theory and hypotheses through the iterated analysis of a given set of data is an essential research tool, and researchers lose other aspects of analytic leverage by not employing it."[18] George and Bennett concur that "some iteration is often necessary" among the design, execution, and assessment phases of case study research.[19] Munck likewise observes how data-driven theory reformulation "allows social scientists to learn from their research."[20] Others argue that iteration can strengthen discrete aspects of research design. For example, Mahoney asserts that scholars' movement "back and forth between ideas and evidence" facilitates refining concepts and measures.[21] These selected passages notwithstanding, few early contributions to the qualitative methods corpus highlighted or elaborated on iteration as integral to the research process. Well-known books on research design tend to say little or nothing about it.[22]

Beginning a decade and a half after KKV's publication, however, iteration began to move toward the forefront of methodological debate. An important trigger was cross-disciplinary concern about bias resulting from the selective reporting of results and ad hoc manipulation of models to create publishable findings ("p-hacking" and the like). This unease, particularly within mainstream quantitative research, engendered efforts to limit scholars' latitude for making mid-course adjustments to research design, at least in confirmatory, hypothesis-testing analysis.

The research registration movement calls on scholars to publicly specify their hypotheses, or even publish pre-analysis plans outlining the full arc of a research project prior to its initiation.[23] Jacobs finds evidence of "fishing" practices in qualitative research as well and suggests parallel remedies for studies involving certain kinds of data.[24] Yet preregistration remains controversial even among the quantitative experimentalist community from which it emerged. Humphreys, Sanchez de la Sierra, and van der Windt advocate a "non-binding" approach to preregistration that permits later deviations (but requires that they be reported); they note that postponing design decisions can provide opportunities to "gain new insights … collect more measures or access more data …" and allows productive "model changes in the analysis phase."[25] Others question preregistration given the "complex and evolving" nature of social science hypotheses,[26] and worry that it may discourage the "data exploration that many researchers report as the basis of their deepest insights."[27]

The debate over preregistration and related proposals has recently provoked energetic defenses of the value of adjusting theoretical or analytic aspects of a research

project while carrying it out. Such assertions are underpinned by a belief that it is natural and appropriate for inquiry to proceed through an ongoing "dialogue with the data."[28] Yom forcefully advocates for "inductive iteration," in which researchers may begin with "something less than a fully theorized hypothesis"; reformulate explanations after encountering data, "contradictory or null results, competing propositions, [or] unexpected inspirations"; and repeatedly move "back and forth between data and theory" to develop convincing explanations.[29] Yom asserts that this is what political scientists in multiple traditions actually do—despite often presenting their work in the trappings of the deductive paradigm—and suggests that they openly embrace their iterative process and document it fully in their publications. This, he argues, will curb problems like data mining and strategically selective publication of results while preserving flexibility.[30]

In a similar vein, Fairfield and Charman defend iterative research in which "prior knowledge informs hypotheses and data gathering strategies, evidence inspires new or refined hypotheses along the way, and there is continual feedback between theory and data."[31] A "logical Bayesian" inferential framework, they write, makes no distinction between exploratory and confirmatory research; alternating "between theory development, data collection, and data analysis" need not pose problems of confirmation bias or ad-hoc theorizing.[32] Also following Bayesian lines, Bennett asserts that by making prior expectations explicit and updating them over the course of research, scholars can "make process tracing more rigorous and transparent."[33]

To be sure, injunctions against mid-project changes apply most explicitly to hypothesis-testing studies or aspects of a project. Much field-based research also pursues other goals, such as detailed description and interpretation of a phenomenon or building new theory. Few if any methodologists would explicitly object to iteration in pursuit of these objectives. However, there are rarely clearly delimited descriptive or theory-generation phases of field-based inquiry, despite pressure to shape inquiry around hypothesis testing or present it as seeking to achieve that end.[34] This lack of clearly demarcated phases makes it even more difficult to discern when iteration would be "acceptable": given the dominance of the deductive paradigm, even adjusting project design in pursuit of these goals may seem to violate disciplinary expectations. Despite this lack of clarity, the emerging literature defending theory-data dialogue offers little specific advice for how to engage productively in iteration.

As this brief review suggests, political scientists have divergent perspectives on the value of iterative research design. Moreover, the discipline is only beginning to come to terms with how research projects unfold in practice, how that process is represented in published accounts, and how to align the two. While scholars' views on iteration are shaped by their epistemological priors and analytic goals, there is increasing acknowledgment that research projects rarely proceed unmodified from an initially specified plan. Still, as we document below, political scientists who modify their research designs while doing fieldwork frequently experience anxiety, doubt, or even shame about their choices, and rarely discuss or justify iteration in presentations or publications. In the rest of this article we scrutinize this gap between iteration's analytic potential and its scholarly profile and consider strategies for bridging it.

**Data and Methods**

Our study of iteration in field-based inquiry draws on multiple forms of original empirical evidence. As part of a book project, we conducted a web-based survey of political scientists at colleges and universities throughout the United States, carried out in-depth interviews, and reviewed published scholarship concerning, and based on, field research.[35] While we conducted our survey and interviews in 2011 and 2012, their results remain highly relevant. Our questions solicited data on decades of scholars' research experiences, demonstrating the enduring nature of many fieldwork practices. Moreover, several of the discipline's recent methodological innovations—e.g., the renaissance in qualitative and mixed methods research and the rise of experimental work—had already begun to emerge by the time we conducted our inquiry and are thus captured in our data.

In the survey, we asked respondents to answer sets of questions about specific field research projects they had undertaken. In all, 1,142 respondents reported on 1,468 discrete field research projects. We randomly selected respondents from a list, provided to us by the American Political Science Association (APSA), intended to include every U.S.-based political science faculty member (not merely APSA members). Qualitative and quantitative researchers, and members of all major subfields, were well-represented in the sample.[36] The respondents correspond closely to the sampling frame in most observable respects.[37] The survey clearly shows response bias toward those who had conducted field research (although we urged scholars to participate regardless of field experience level), meaning the results are reasonably representative of political science faculty who have done fieldwork, though not necessarily of all faculty in the discipline. According to AAPOR definitions, the Response Rate 2 was 22.8 percent; the response rate just among field researchers is higher but unknown.[38]

We also carried out sixty-two semi-structured interviews with a diverse set of political scientists who have conducted fieldwork. We selected respondents purposively, seeking broad variation on relevant parameters, including type of home institution, academic rank, disciplinary subfield, substantive and geographic focus, time spent in the field, and data-collection strategies and analytic methods used. We assured respondents we would not reveal their identities in hopes of eliciting their candid perspectives on how and why they conducted fieldwork as they did, and what challenges they encountered and solutions they devised.

The present study also integrates insights and examples from the growing literature on field research in the discipline, and from a wide selection of books and articles written by fieldworkers from every subfield employing a diverse range of data-collection techniques. We also draw on our own experiences teaching field research in a variety of contexts (e.g., sessions at the Institute for Qualitative and Multi-Method Research (IQMR), short courses at the annual APSA conference, and workshops in multiple countries). Finally, the authors have conducted fieldwork on five continents (Africa, Asia, Europe, North America, and South America) in a wide range of locations, from wealthy cities of the industrialized world to remote villages of the Global South, collecting and analyzing both quantitative and qualitative data.

## Iteration in Field-Based Inquiry: Benefits and Challenges

Scholars are constantly learning as they cycle between data collection and analysis during field research. They often acquire information that changes the way they think about key aspects of their project and encounter unanticipated circumstances that affect the plausibility, costs, and benefits of their research plan. Iteratively updating their research designs in the field allows scholars to integrate what they are learning into their projects.

Some very recent contributions to the field methods literature reflect how common, and how productive, such "dynamic research design" is among fieldworkers from diverse epistemological traditions. Krause and Szekely's collection of essays highlights this theme in a section titled "Make a Plan… Then be Ready to Toss It."[39] Posner reflects on how he pivoted from his original research question to an ultimately more fruitful one in the midst of his dissertation research in Zambia, concluding: "one should go into the field prepared, but one should also be prepared to go off script."[40] Michelitch explains how a military coup and gender hierarchies in Mali forced her team to make multiple design changes, and created new questions and theoretical opportunities.[41] Soss explores how conceptualization or casing ("What should I treat this as a case *of*?") might evolve based on learning in the field.[42]

Yet, because iterating on a research design can pose challenges and raise concerns about the rigor of a research project, fieldworkers rarely explicitly or fully acknowledge iteration in their presentations or publications.[43] Their reticence keeps iteration "in the shadows"; limits our ability to learn about the practices, prevalence, benefits, and challenges of iteration; inhibits understanding (and evaluating) how field-based inquiry is conducted; and hampers the generation of methodological strategies for fruitful iteration.

Below, we draw on our survey and interviews, our own experiences, and insights from the literature, to illuminate iteration. We demonstrate how common it is for political scientists to update their research designs based on what they learn in the field, highlight how scholars do so and how their work benefits, show how iteration varies across different kinds of projects, and discuss the intellectual challenges that iteration poses.

**Evidence for Iteration from Our Survey and Interviews**  In our survey, we asked scholars to indicate which of eight analytic tasks their work in the field facilitated (see Figure A1 in the online appendix).[44] Respondents selected all that applied to a given field-based project. Unsurprisingly, in more than 88 percent of reported research projects, respondents indicated that they gathered data (acquired information or source material) in the field. In many projects, fieldwork also facilitated data analysis tasks such as hypothesis testing and understanding causal processes. Yet, field research also was reported to contribute to six discrete research design tasks (see lighter bars in Figure A1). It is particularly striking that fieldwork facilitated "developing or refining the research question" in 83 percent of projects, given that other aspects of research design often change when the research question does. Fieldwork was also important, in a strong ma-

jority of projects, for developing concepts, hypotheses, and measures. In just over half, it contributed significantly to case selection. In sum, in most cases political scientists redesign, rethink, and augment multiple elements of their projects' research design on the basis of fieldwork.

Our in-depth interviews with researchers confirmed that iteration is prevalent—and beneficial—in field-based research.[45] First-time and veteran fieldworkers alike, from diverse subfields and methodological traditions, recounted how amending their research design allowed them to integrate knowledge acquired in the field into their ongoing research efforts. Far beyond updating interview protocols, survey questionnaires, or sampling strategies after pre-testing or piloting,[46] scholars described renegotiating central aspects of research design throughout their field-based research projects. In one instance, a graduate student discovered that his carefully planned single-sector, two-country study of the political economy of development no longer seemed "as big and exciting a research topic" after conversations with locally based academics. He invested weeks rethinking the project, settling on a single-country, multi-sector design that necessitated additional weeks of historical inquiry to develop an exhaustive universe of cases from which to sample specific sites for in-depth study.[47]

Respondents often noted how their fieldwork experiences helped them to clarify their project's goals, formulate their research question, select data collection techniques, and more. For instance, one scholar who studied education in the Balkans described how carefully debriefing the undergraduate students who conducted interviews for her helped her sharpen her research question.[48] Another respondent discussed how her initial interviews prompted a substantial reframing of the research question, from when and why foreign policy decisions are made to how policies organically emerge without specific decisions at identifiable points in time.[49] A student of informal workers in Latin America recounted how she changed course when her initial analysis of responses from leaders of street vending organizations revealed that her interviews were producing superficial and likely misleading data. She surmised that the cause was the formal protocol of questions she was using, derived from the literature and including terms inapplicable to her respondents' reality. Initiating more free-wheeling conversations with vendors—ultimately engaging in participant observation—produced more meaningful data.[50]

**Why Do Scholars Who Engage in Field-Based Inquiry Tend to Iterate?** Why do political scientists who conduct fieldwork so often reconsider and adjust central aspects of their projects? Beyond the analytic dividends that iterative research design delivers, we argue that particular characteristics of research requiring fieldwork—qualities tied to its often-pioneering nature—make iteration especially necessary and beneficial.[51] While other political scientists also benefit from iterative research design, the analytic challenges fieldworkers face more commonly require iteration.

First, the problems, puzzles, and questions that are addressed through fieldwork frequently lack well-developed or context-relevant theoretical literatures.[52] Such theoretical gaps complicate deductive reasoning, hampering scholars' efforts to derive meaningful

hypotheses and making it more difficult to design other aspects of research prior to field-work. Consequently, the field sites and cases; concepts, questions, and hypotheses; and measurement strategies and data-collection techniques that prove compelling and theo-retically rich once scholars are in the field often differ from those that seemed promising when they initially designed their projects based on extant theory.

Second, research requiring fieldwork often confronts new realities, exploring empir-ical terrain about which less is known or documented. Consequently, scholars routinely find it difficult to gather all the information they need in advance of fieldwork, even with the explosion of digital data. Further, essential political facts can easily be misunderstood based on scholars' pre-field consideration of invariably partial data and variably germane scholarship. Wood makes this point when she emphasizes the difficulty of understanding actors' "preferences and beliefs" prior to entering the field, particularly when the politi-cal is repressed or crucial players hide their actions and views.[53] Likewise, key political processes and practices are often informal—neither officially documented nor formally institutionalized—complicating learning about them from afar.[54] These dynamics can limit scholars' ability to fully design their research in advance of fieldwork.

Finally, research requiring fieldwork is disproportionately affected by the funda-mentally unpredictable and ever-evolving nature of politics. As Emerson rightly notes, fieldwork is never static, but "highly situational and contextual," requiring researchers to constantly adapt to new challenges as they observe the "ongoing worlds of other people."[55] Sometimes such changes are quick and dramatic: coups, insurgencies, massive protests, or economic crises, for instance, may necessitate project adjustments. Settings of violence or conflict, and rapid changes in security, demand improvisation in the field for reasons of physical safety, mental health, ethics, and feasibility.[56] More subtle contextual changes can also complicate research plans and dictate refinements. Key respondents who promised interviews can renege; archives can close, flood, or burn down; and would-be partners in an experiment can withdraw. Of course, on-the-ground changes can also represent "seren-dipitous surprises" offering new research opportunities,[57] or what Trachtenberg describes as "strokes of luck."[58] For example, one interview respondent studying bicameralism in the U.S. benefitted from the fortuitous establishment of a Joint Committee on the Organization of Congress during his on-site field research;[59] another comparing presidential campaigns cross-nationally unexpectedly found himself collecting video advertisements that he had assumed were unavailable.[60] Whether inopportune or fortuitous, the contextual changes that scholars confront as they conduct fieldwork require flexibility in research design.

In sum, scholars who conduct field research are often operating in new theoretical and/or empirical terrain. They confront unforeseen complexity and variation, particularly when working in multiple research sites. As they get "a feel for the context" and fill gaps in their knowledge through initial data collection and analysis, and confront changing political conditions, they develop new ideas about their research,[61] leading them to recon-sider and adjust their research design. Moreover, as described previously, the operation of intellectual feedback loops that inform dynamic research design are inevitable aspects of fieldwork that improve scholars' research. Iterating on their research design makes it more likely that scholars will develop valid inferences and interpretations, enhancing internal

validity. Conversely, ignoring new knowledge and its research implications—failing to correct misconceptions or ill-conceived design decisions, or continuing to pursue theoretically unpromising questions, cases, or explanations—is unproductive and can stunt knowledge generation and theory development. Taking a less-rigid, more iterative approach to project design and execution allows scholars to capitalize on, rather than be capsized by, the dynamism of the fieldwork experience.

**Patterns in Iteration in Field-Based Research**    If the explanation just offered of why scholars who conduct fieldwork iteratively update their research designs holds true, we should find that the degree to which scholars evolve their designs varies with the causes we posit. Exploring patterns in iteration by estimating a set of logit regression models (see Table A1 in the online appendix) on data from our survey of U.S.-based political scientists suggests that our explanation has merit. First, projects in which scholars confronted unfamiliar contexts, that involved more fieldwork, and that relied more heavily on fieldwork, were more likely to undergo adjustments to their analytic architecture. For instance, fieldwork drove hypothesis development in projects carried out in international settings more than in those conducted completely in the U.S. In addition, projects comprising more trips entailed more research question refinement, hypothesis development, and case selection than those with fewer trips. Projects involving more time in the field were more likely to involve iteration in each aspect of research design about which we inquired than those involving fieldwork of shorter duration. Finally, design changes were more likely in projects that depended significantly on data collected in the field, versus those mainly drawing on non-field sources. Thus, for example, field research was about 43 percent likely to facilitate hypothesis development in a two-week project carried out on a single trip within the U.S. that generated only a tenth of all data used in the project. By contrast, it was about 85 percent likely in a year-long project involving six overseas trips that produced all of a project's data.[62]

We also identified a link between iterative research design and a project's epistemological orientation and resultant methodological bases (represented with variables for projects involving interpretive analysis, qualitative analysis, and quantitative analysis). Projects involving interpretive analysis, in keeping with interpretivists' emphasis on abductive reasoning, were highly likely to entail iteration on almost every aspect of research design about which we inquired. Field research facilitated developing research questions, concepts, measures, and case selection in all types of qualitative projects, and aided with developing hypotheses, and especially measures, in projects based on quantitative analysis. The techniques that scholars used to generate or gather data are also linked to the prevalence of certain design changes. For example, ethnography and participant observation facilitated case selection; the use of interviews predicted research question refinement; and survey research was particularly conducive to conceptualization. In short, scholars of all epistemological and methodological persuasions iterate on their research designs in the field in varying, yet partially predictable, ways. These findings bolster our claim that scholars who conduct fieldwork, and do so in particular ways, are more likely to engage in such iteration.

**Iteration's Challenges and Their Implications**    Its potential analytic benefits notwith-standing, altering the design of a field-based research project—given the fluid contexts in which fieldwork often proceeds and the multiple factors that influence such changes—is challenging and can pose multiple analytic risks.[63] A first set of risks relates to the intri-cate and inter-connected analytic decisions and arrangements that fieldwork often entails. Changing one aspect of a project can set off a cascade of adjustments that may weaken rather than strengthen its analytic and inferential foundations. Researchers expend great effort carefully striking analytic micro-compromises, for instance, about how to sequence data collection, forge agreements with archivists, or partner with non-governmental organizations, as they conduct their research. Changing their designs can unsettle those arrangements, calling the future of a project into question.

Another set of risks concerns data. When a scholar changes their research design, the data that they originally collected may no longer fit their project, requiring a new round of data collection that could prolong the project or result in unsatisfactory information. One of our interviewees expressed just this concern: "If it's a grad student embarking on research, what I really worry about is their returning without the info they need to write the disser-tation. So I want them to be hard-nosed about not deviating too far from the prospectus. Unless they realize the project is not feasible and they need to go in a different direction. I want to avoid their returning with a little bit of information about a lot of things."[64]

A third set of risks relates to a project's cases and concepts. Excessive or careless iteration can result in a scholar including cases that seem to confirm their emerging understanding and/or cases from which less can be learned. Continually iterating may also tie the concepts and measures employed in a research project ever more tightly to the specific phenomenon and context of study. In either scenario, a project risks becoming increasingly idiosyncratic, reducing the potential generalizability of its findings and arguments.

A final set of risks is inference-based and most likely to arise when scholars revise their descriptive or causal propositions. For instance, when a scholar discards their initial propositions at the first sign of contrary evidence, those propositions are not subjected to sufficient scrutiny.[65] Also, when a researcher develops new hypotheses based on their observations in the field, they may consider those hypotheses confirmed without assess-ing them using additional observations, possibly leading to false positives. Alternative-ly, when collecting data to evaluate new propositions, a researcher may "cherry pick" evidence or interpret information in a way that confirms those propositions (confirma-tion bias). The more propositions a scholar generates as a project progresses, the more challenging it becomes to carefully evaluate each one.

In recognition of these risks, as discussed previously, important strands of the methodology literature feature admonitions against changing the design of a study while carrying it out. Such injunctions make departing from what was specified in prospectuses and grant applications seem inappropriate, suspect, and at odds with neutral scientific inquiry and with the familiar notion of research as a linear progres-sion (posit–gather–evaluate–write). Moreover, the literature provides little guidance on how to iterate productively.

The challenges that iteration poses have two important implications. First and more viscerally, scholars sensing the need to adjust a research design mid-project often worry that they have wasted precious time and money, and question whether they have the practical or intellectual resources that now seem necessary to carry out the project. Our interview respondents conveyed just these reactions. One scholar described how "it was one big crisis" when her "beautifully worked out research design" initially foundered upon contact with realities in the field, where people she interviewed failed to fit neatly into her pre-conceived conceptual categories.[66] Another reported facing one "panic issue" after another. Civil unrest, difficulty accessing certain areas, and a natural disaster called for wrenching research design adjustments, such as changing the project's geographic scope: "There was a week of crying before I came to that conclusion. I asked myself: is my research still valid? I had all these insecurities."[67]

A second implication, as noted earlier, is that scholars who iterate on their research designs rarely openly acknowledge having done so in their presentations and publications. As a result, scholarly communities are unable to fully grasp and evaluate how field-based inquiry is conducted: they cannot assess how the analytic architecture of research projects evolve, whether choices and changes authors made were warranted, or whether precautions against bias were adequate. Moreover, scholars implicitly or explicitly describing a neater, more linear research process than the one they actually followed perpetuates the idea that iteration is "forbidden" (or at least imprudent) and impedes the development of analytic strategies for productive iteration.

In short, changing one's research design mid-course can deliver important intellectual benefits. Yet iteration is not a panacea: overly malleable research designs cannot effectively direct or discipline research. Moreover, design changes can generate new intellectual problems, create considerable stress, and lead to obfuscation.

## A Framework for Analytic Iteration

We believe that iterating on a research design in a careful, structured, and reflexive way can strengthen rather than weaken a research project. Below, we present a framework to help scholars to plan for, engage in, and document iterative research design. Engaging in iteration in the way we discuss is not required to reap iteration's benefits, nor does it guarantee a scholar will do so. However, following the steps and reflecting on the criteria we outline should reduce the risks of iteration and increase its likelihood of enhancing a research project.

We preface our discussion with an overarching recommendation: scholars should not change course hastily. Opportunities and problems can be ephemeral and deceiving in content and importance. After discovering an opportunity or problem, scholars should wait to act, ideally setting a timeline to carefully examine the contours and causes of the development, devise and consider possible research design changes, and identify and weigh the implications for their research of different courses of action. For instance, Newsome established specific data collection goals for particular points in time, which

she shared with colleagues in the field site and advisors from home, before deciding on potential research design changes.[68]

**Planning and Preparing for Iteration**    Adopting a flexible yet disciplined approach to research design and to field research design—articulating contingency in specific terms—facilitates productive iteration in field-based research.[69] While research designs should be detailed, some design decisions are best made with, or require, information that scholars can only acquire on the ground. Choices such as which regions to study, what sampling method to use, or how to operationalize key variables may usefully remain open until information from the field is available.

To address this challenge, scholars can identify in their research designs critical choice points, sketch out a logic for making the relevant decisions, list options for consideration and specific criteria for choosing among them, and discuss a plan for obtaining the required information. It may be useful to develop one or more alternative strategies (addressing different types of contingencies) for key aspects of a project. For example, while designing her study of decision-making by supreme courts, Kapiszewski realized that identifying which court cases to study required compiling and analyzing specialized information that could only be gathered in the field. Her research design, then, detailed a process for selecting cases once the requisite information had been gathered. Seeking pre-approval from advisors and funders, and the concurrence of collaborators, to continue refining design as research proceeds may also be advisable.

The more a scholar learns about and engages with their research topic and context in advance of conducting fieldwork, the better prepared they will be to design field research in this flexible way with key contingencies, and to productively execute and iterate on that design while in the field and thereafter. Creating a detailed yet flexible "Data Collection Plan" can also assist with these imperatives.[70]

**Iterating on Research Design in Response to Opportunities and Problems**    Productively iterating on a research design involves three analytic steps: 1) identifying a specific opportunity or problem; 2) pinpointing the cause(s) of the opportunity or problem; and 3) deciding whether and how to change one's research design in response. Table 1 illustrates these steps for several opportunities and problems that field researchers typically encounter. Possible responses and changes do not align one-to-one with particular causes; researchers should evaluate all possibilities.

Recognizing the potential for productive iteration is an analytic process that scholars may undertake at different points in a project. Sometimes scholars anticipate the need for iteration when designing their studies, as discussed above. Alternatively, scholars identify the potential for productive iteration as they work in the field. Some glimpse unanticipated opportunities (e.g., a new way to frame the question, a new hypothesis, or a new strategy to measure a key concept). For example, one of our interview respondents discovered she could learn much more from government officials by accompanying them in their work through a form of participant observation than by interviewing them, as she had begun to do.[71] Another launched a project to assess which of two policy paradigms

**Table 1**  Identifying, Diagnosing, and Addressing Research Design Opportunities and Problems

| Opportunity / Problem | Possible Causes | Possible Responses and Research Design Changes |
|---|---|---|
| Unanticipated data source has emerged | Data source was overlooked while planning<br>Alteration in research context (e.g., political change)<br>An action researcher took | Assess value of new data source relative to other sources; estimate time required to capitalize on it<br>Integrate if high-value relative to other sources and not too time-consuming to do so<br>Ignore or save for separate or spin-off project |
| Unable to obtain necessary data / information | Participants / interviewees / archives / statistics inaccessible<br>Participants / interviewees not forthcoming | Become more immersed in research context<br>Explore alternative approaches to gathering data and/or alternative types of data<br>Switch unit of observation and/or analysis |
| New case has been identified, or a case is not working out | Learning in the field has surfaced a previously unrecognized case<br>Data for case are unavailable / inaccessible<br>Case is impractical given time and resource limits<br>Case no longer seems interesting or no longer fits selection criteria | Drop case and consider whether to add a different case in its stead<br>Switch unit of analysis (e.g., cities in one country rather than multiple countries)<br>Explore within-case variation<br>Rethink logic of case selection |
| Concepts or measures seem inapt; alternate concepts / measures have been identified | Original concepts or measures require "localization" (adjustment to context)<br>Approach to conceptualization or measurement was drawn from work on a dissimilar context<br>Respondents or other sources have offered data the researcher did not expect to access | Return to theoretical literature to find alternatives<br>Examine in greater depth how concepts manifest in local context<br>Use alternative / related concepts or measures after confirming their appropriateness and validity |

*(Continued)*

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**Table 1  (continued)**

| Opportunity / Problem | Possible Causes | Possible Responses and Research Design Changes |
| --- | --- | --- |
| Hypotheses do not seem to explain outcome / variation; new theoretical propositions have emerged | Researcher is not getting full story<br>Initial hypotheses were wrong<br>Theories in which project is framed are poorly suited to subject | Employ strategies to deepen and broaden information gathering<br>Develop alternative hypotheses<br>Seek to reframe topic within different theoretical approach |
| Dependent variable (DV) or outcome of interest seems inapt; related outcome seems more exciting | DV / outcome is not the most interesting object of inquiry<br>DV / outcome does not have the scores that scholar anticipated<br>Insufficient variation on DV/outcome | Shift DV / outcome to related phenomenon<br>Rethink and possibly revise conceptualization and measurement of DV / outcome<br>Rethink case selection |
| Research question seems inappropriate; new question seems to hold more analytic potential | Research question is not well formulated<br>Research question is inadequately specified<br>Research question is out-of-step with empirical realities<br>Emerging answer to research question is theoretically uninteresting | Revisit original impetus behind project and justification for research question<br>Reconsider DV / outcome and whether a slight modification will address challenges with research question<br>Recast, sharpen, or reformulate research question<br>If no other possible change addresses issue, and after consulting broadly, discard research question and identify a new one |

Note: We thank Julia Lynch for this table's original inspiration. Julia Lynch, "Tracking Progress while in the Field," *Qualitative Methods*, 2 (Spring 2004), 13.

**17**

governed interviewees' thinking and was surprised to hear them invoke an unfamiliar third perspective.[72] Other scholars identify a problem or realize they are stuck. Like LaPorte, they may experience a "crisis of research design."[73]

How can scholars best position themselves to identify opportunities and problems, and to diagnose their causes? One key strategy is engaging with the research environment, constantly seeking to learn more about, and critically reflecting on, a study's political, social, and cultural context. For instance, analyzing data in preliminary ways while collecting them—summarizing documents gathered and interview notes, or developing initial descriptions of important variables—helps scholars to detect unanticipated complications or new ways of thinking about the research question. Triangulating among multiple data sources also helps researchers to identify potential conflicts and gaps and diagnose their causes. Of course, scholars need to balance analyzing data collected against collecting new data; their primary focus while in the field should be on things they can only do in the field.

Once scholars have clarified a specific opportunity or problem, and its causes, they should evaluate the significance of the development and the advisability of responding to it. How might seizing the opportunity benefit, and how might ignoring the problem impair, the fundamentals of the project? Is a change necessary for solid descriptive or causal inference, or would a design alteration make the project different yet not better? Considering counterfactuals can be useful: will the project remain on solid empirical and inferential footing without grasping the opportunity or addressing the problem?

Re-designing an aspect of a project entails analytic steps similar to those taken when originally formulating a research design. Scholars should first develop a concrete set of potential modifications that could allow them to capitalize on the opportunity or address the problem in the context of the research project. Consulting other scholars who may have encountered similar problems or opportunities can be beneficial. Next, scholars should devise a strategy for adjudicating among these possible research design modifications, considering the potential risks, benefits, and trade-offs, and the broader implications for the project, of each. We offer four broad criteria against which scholars can evaluate changes, considering them holistically.

First, how will each possible change affect the project's real-world relevance? Ultimately, political science is valuable to the degree it produces meaningful and novel results and findings that increase our knowledge about important real-world questions and problems—that have implications for people, or could be used to make a difference, in the places we study. Second, what are the intellectual implications of each possible research design change? Will the change increase concept validity,[74] or strengthen measurement? Will it augment the likelihood of achieving internal validity (i.e., of the scholar accurately interpreting the dynamics of interest and drawing valid descriptive and causal inferences) or of fully exposing descriptive and explanatory propositions and hypotheses to falsification? Will it help the researcher make a novel theoretical contribution? Or might it have the opposite effect?

Third, what are the ethical implications of each potential change? Fieldworkers often come to better understand ethical imperatives and boundaries after spending time on the ground. Will the design change take a project outside those boundaries or ensure that it stays

within them? Will the change help the scholar to engage in active ethics, such as integrating the voices of the disempowered into a project?[75] Might the changes require resubmitting aspects of the project to one or more ethics boards? Finally and fundamentally, which (if any) of the possible changes are feasible—able to be introduced with the time, money, and expertise that the researcher has? For instance, will instituting any of the changes require new data, and, if so, what resources are required to collect them? If a change necessitates modifying a project's theoretical or geographic scope, is doing so realistic?

**Documenting Research Design Changes**   Documenting change is the crucial last step in analytically iterating on one's research design. One of our major contentions is that the dynamic process of identifying, considering, and evaluating possible research design changes should not remain a "quiet crisis," hidden from public view. As Yom also advocates,[76] scholars should carefully document the evaluative process just outlined, discussing why some research design changes were considered and discarded during project execution, and describing and justifying those that were introduced. Driscoll also highlights the importance of documenting change, observing: "We sometimes pivot, change questions, and explain why we did what we did—what *specifically* we learned in the field that changed our original point of view."[77] This suggestion is in line with those offered in essays written by working groups associated with the Qualitative Transparency Deliberations, which note the desirability of documenting design changes that so commonly occur in political science research.[78]

Taking this "lab book" or "field journal" approach to documenting iteration is important for several reasons. Doing so helps scholars to be more conscious and self-critical about the changes they consider and implement. Also, once a scholar introduces a change to their project, the part of the project that was placed aside or amended continues to be part of the project. For instance, retaining dropped hypotheses in the project's "analytic space" encourages scholars to continue to look for evidence that supports or refutes them. Doing so can increase a scholar's confidence that the change benefited the project—or, indeed, lead them to question its introduction. Documenting iteration also facilitates repeating research processes in additional contexts. Finally, as we discuss in greater depth in the conclusion, careful documentation helps scholars to be open about iteration in the presentations and publications that stem from their research. Scholars clearly describing and explaining how and why they updated their research designs allows them to demonstrate how iteration strengthened their project, increasing the credibility of both the research and iteration; it also empowers other researchers to understand how the work was carried out, and to learn from and assess the robustness and integrity of their research processes.

## Conclusion

Field research makes contributions of enduring value to the discipline of political science. Much of this value, we submit, derives from its iterative nature. As the results of

our survey and interviews of political scientists from varied demographic backgrounds, ranks, subfields, areas of specialization, epistemological commitments, and methodological preferences demonstrate, political scientists frequently modify their research designs in the course of conducting field-based inquiry. Scholars who conduct fieldwork must cope with the complexity and mutability of real-world political settings, and frequently work on problems for which the theoretical or empirical terrain is uncharted. As field researchers collect and interpret data and map it back to theory, they derive novel insights that change the way they think about their questions and arguments. Those new ideas lead them to dynamically renegotiate, reformulate, or refine core dimensions of their project design in order to maximize its analytic potential. This process—and the repeated learning and discovery that propel and result from it—are among fieldwork's core strengths and are essential to its contributions to knowledge about politics.

Yet engaging in iteration is challenging. Balancing the multiple factors that influence amending a research design is complicated, and iteration can entail a range of analytic risks. Moreover, making mid-course changes to research design seems to interrupt the linear, sequential research process portrayed or implied in much of the methodological literature. As a result, scholars often question the wisdom of altering their research designs and worry that acknowledging doing so could call the rigor of their work into question. Consequently, scholars who modify their designs rarely mention that iteration in their presentations and publications. Their failure to do so has a range of negative intellectual implications and implicitly reinforces the impression that iteration is *verboten*.

We argue that scholars can often avoid, minimize, or mitigate the risks that iterating on a research design can pose—and maximize its benefits—by engaging in iteration in an analytic, structured way. We offered a framework to help scholars to do so and emphasized the importance of scholars being open about research design changes (describing the modifications they considered and introduced, and justifying their choices). To conclude, we consider some implications for the assessment of research and for graduate training that a greater appreciation of iteration among political scientists might have, and then consider what scholars being more open about iteration might imply for fieldwork's profile and place in the discipline.

**Establishing Shared Expectations for Designing and Assessing Research**    Greater recognition of the value of iteration should lead to a multi-faceted reconsideration of how we assess research. Knowing that a research project will evolve in the field does not negate the need to develop a clear and detailed research design. It does, however, condition how scholars lay analytic groundwork. As noted earlier, anticipating iteration recommends building contingency and "pivot points" into research designs. It also suggests the utility of spending less time up-front making and justifying specific design choices, and more time articulating broad logics to guide later design decisions and outlining possible options to choose among when the information required to do so is obtained.

The idea that research design is an ongoing process, and that research procedures evolve away from initial plans and intentions, poses a fundamental obstacle for

preregistering research designs. Our evidence and analysis underscore this challenge. But what about political scientists who both understand research projects to be their own idiosyncratic journey of exploration defying pre-specification, and seek to rigorously, impartially, and credibly test theories about the empirical world?[79] We believe that carefully documenting research design changes, and continuing to explore alternative and discarded hypotheses even after new hypotheses have been adopted, can help scholars show that they are presenting a full and faithful record of findings, not merely selecting results that will maximize their work's potential for publication. Another concrete approach, versions of which many researchers already follow, is to specify procedures for data collection and analysis once they are tested and the kinks are worked out; one might call this "just-in-time registration." We believe that the emerging guidelines for and discussions about preregistering qualitative research[80] can and should be reconciled with the value of iteration. Lines of dialogue on this point—and the implications for the assessment of field-based research—should be opened and sustained.

Given the value we see in iteration, we believe scholars should be discouraged from prematurely considering their research to be fully defined, and advisors and granting agencies should see flexibility and foresight in proposals as a sign of strength that increases the likelihood a project will be successful. Also, funding models should be flexible, supporting multiple shorter trips as well as one extended field stay.

Further, departments, universities, and professional associations should reconceptualize the model traditionally employed to assess scholarly progress so that it takes into account the particular ways in which fieldwork creates knowledge. Most political science departments assess productivity largely by the quantity and quality of articles and books published within fixed periods of time: they take a snapshot of productivity at a particular moment. Field research is rewarded insofar as it results in dissertations and publications in what the discipline considers a reasonable timeframe. This traditional assessment model is insufficiently sensitive to the intellectual processes through which field research produces knowledge.

Capitalizing on fieldwork's intellectual opportunities, and generating important findings in the field, often entails analytic iteration. Analytic iteration requires time, typically lengthening the time it takes to publish. Scholars who conduct field research—like all scholars—should feel confident being open about their research processes, and the time-to-publication those processes require should not negatively impact the assessment of their scholarly record: they should receive credit proportionate to the value and contributions of their work. Of course, fairly evaluating scholarship based on fieldwork vis-à-vis other research does not address the broader and crucial structural inequities—between tenure-track and non-tenure track faculty, those at private versus public institutions, or those affiliated in the Global North versus the Global South—that create immense gaps in opportunities to conduct field research.

**Developing Graduate Training to Prepare Scholars for Iteration**    Training in political science graduate programs, as well as research methods texts, should be

revised to reflect the role that iteration plays in multiple types of inquiry. Iteration is not the exclusive domain of interpretive scholars; rather, positivist researchers conducting both observational and experimental work also frequently engage in iteration to some degree. Consequently, all graduate methods courses that include research design should help students to see the dynamism that research design often entails, and appreciate that iterative design may be necessary to place research projects on the firmest analytic footing. Methods texts should forthrightly acknowledge and discuss the analytic and operational flexibility and creativity that designing and conducting inquiry in the absence of well-developed theory and deep empirical knowledge require. Graduate methods coursework should also introduce students to multiple data-collection techniques. Gaining this knowledge will help students to anticipate and plan for mid-stream revisions to their research designs, and empower them to thoughtfully and nimbly shift course when research opportunities and challenges inevitably arise. For some graduate students, effectively planning for and engaging in iterative research design also requires learning about unfamiliar contexts and cultures through taking language and area studies classes.

**Surfacing Iteration in Presentations and Publications**  We have advocated a "lab book" or "field journal" approach to documenting field research practices, involving scholars recording and justifying their design choices and changes throughout the research process. We believe these insights should be mentioned in scholars' research presentations and appear in the text of, or supplemental material accompanying, their published work. Of course, such openness must be pursued ethically, with careful attention to the protection of human participants. Also, graduate students and untenured faculty should carefully consider what and how much to disclose until disciplinary norms become more accepting of iteration, and the discipline's different epistemological communities develop norms for openness. Yet, when it is possible, greater openness about iteration can produce important benefits for field research and the scholars who conduct it.

Fieldworkers openly acknowledging and discussing how they iterated on their research design will lead to the slow chipping away at iteration's image as taboo. Acknowledging iteration will enable honest conversations about fieldwork practices, empowering political scientists to share their knowledge about doing field research and to learn from each other's successes and mistakes. It will also propel the development of strategies to capitalize on the benefits, and avoid or address the potential pitfalls, associated with the iterative nature of field-based inquiry. Scholars demonstrating the analytic work that directs their field research will help to correct the misleading notion that field researchers depart for the field with fully formed research designs that they execute without deviation, and simultaneously debunk the myth that fieldwork is simply "rudderless rummaging." Surfacing and celebrating iteration will thus enable more effective and equitable evaluation of scholarship based on field research. The ultimate outcome should be more rigorous fieldwork practices and more rewarding and productive political science research.

# NOTES

1. Craig Larman and Victor R. Basili, "Iterative and Incremental Development: A Brief History," *IEEE Computer*, 36 (June 2003), 2–11.

2. David Lorge Parnas and Paul C. Clements, "A Rational Design Process: How and Why to Fake It," *IEEE Transactions on Software Engineering* SE-12 (February 1986), 251, cited in ibid, 7.

3. Larman and Basili, 5.

4. Ibid., 4.

5. Indeed, the frequency with which scholars undertake exploratory trips while framing research, and their usefulness, speak to the points we emphasize about how fieldwork informs research design.

6. Diana Kapiszewski, Lauren M. MacLean, and Benjamin L. Read, *Field Research in Political Science: Practices and Principles* (Cambridge: Cambridge University Press, 2015), 59–63.

7. See ibid., 8–22, 34–46, for further discussion of the literature on field research.

8. Peregrine Schwartz-Shea and Dvora Yanow, *Interpretive Research Design: Concepts and Processes* (New York and London: Routledge, 2012), 7.

9. Ibid., 8, 17–18; Dvora Yanow and Peregrine Schwartz-Shea, "Introduction," in Yanow and Schwartz-Shea, eds., *Interpretation and Method: Empirical Research Methods and the Interpretive Turn* (Armonk: M.E. Sharpe, 2006), xii–xiii.

10. Dvora Yanow, "Neither Rigorous nor Objective? Interrogating Criteria for Knowledge Claims in Interpretive Science," in Yanow and Schwartz-Shea, eds., 2006, 71.

11. Schwartz-Shea and Yanow, 2012, 27, also 32, 55–56.

12. John Boswell, Jack Corbett, and R. A. W. Rhodes, *The Art and Craft of Comparison* (Cambridge: Cambridge University Press, 2019), 57.

13. Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton: Princeton University Press, 1994), 12–28.

14. Ibid., 22–23.

15. Ibid., 22–46.

16. Sean Yom, "From Methodology to Practice: Inductive Iteration in Comparative Research," *Comparative Political Studies*, 48 (April 2015), 620–21.

17. KKV acknowledge some interaction between theory and data, noting that "learning from the data may be as important a goal as evaluating prior theories and hypotheses," 44.

18. David Collier, Jason Seawright, and Gerardo L. Munck, "The Quest for Standards: King, Keohane, and Verba's Designing Social Inquiry," in Henry E. Brady and David Collier, eds., *Rethinking Social Inquiry: Diverse Tools, Shared Standards*, 2nd ed. (Lanham: Rowman & Littlefield Publishers, 2010), 62.

19. Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge: The MIT Press, 2004), 73.

20. Gerardo L. Munck, "Tools for Qualitative Research," in Henry E. Brady and David Collier, eds., *Rethinking Social Inquiry: Diverse Tools, Shared Standards* (Lanham: Rowman & Littlefield, 2004), 119.

21. James Mahoney, "After KKV: The New Methodology of Qualitative Research," *World Politics*, 62 (January 2010), 134.

22. Examples include Barbara Geddes, *Paradigms and Sand Castles: Theory Building and Research Design in Comparative Politics* (Ann Arbor: University of Michigan Press, 2003) and John Gerring, *Social Science Methodology: A Unified Framework* (Cambridge: Cambridge University Press, 2012).

23. E.g., E. Miguel et al., "Promoting Transparency in Social Science Research," *Science*, 343 (January 3, 2014), 30–31.

24. Alan M. Jacobs, "Pre-Registration and Results-Free Review in Observational and Qualitative Research," in Colin Elman, John Gerring, and James Mahoney, eds., *The Production of Knowledge: Enhancing Progress in Social Science* (Cambridge: Cambridge University Press, 2020), 221–64.

25. Macartan Humphreys, Raul Sanchez de la Sierra, and Peter van der Windt, "Fishing, Commitment, and Communication: A Proposal for Comprehensive Nonbinding Research Registration," *Political Analysis*, 21 (January 2013), 11.

26. Andrew Gelman, "Preregistration of Studies and Mock Reports," *Political Analysis*, 21 (January 2013), 40–41, at 40; see also Richard G. Anderson, "Registration and Replication: A Comment," *Political Analysis*, 21 (January 2013), 38–39.

27. David Laitin, "Fisheries Management," *Political Analysis*, 21 (January 2013), 45.

28. Fairfield and Charman borrow this phrase from astrophysicist Stephen Gull by way of statistician and scientist D. S. Sivia. Tasha Fairfield and Andrew Charman, "A Dialogue with the Data: The Bayesian Foundations of Iterative Research in Qualitative Social Science," *Perspectives on Politics*, 17 (March 2019), 156 and note 22.

29. Yom, 618; see also Jody LaPorte, "Confronting a Crisis of Research Design," *PS: Political Science and Politics*, 47 (April 2014), 414.

30. Yom, 623–38.

31. Fairfield and Charman, 154.

32. Ibid., 155.

33. Andrew Bennett, "Appendix: Disciplining Our Conjectures: Systematizing Process Tracing with Bayesian Analysis," in Andrew Bennett and Jeffrey T. Checkel, eds., *Process Tracing: From Metaphor to Analytic Tool* (Cambridge: Cambridge University Press, 2014), 297.

34. Jacobs, 2020, 230, 235–36 documents this for qualitative inquiry.

35. Kapiszewski, MacLean, and Read, 46–79, 412–14.

36. Among all field research projects reported, 87.1 percent included qualitative analysis, 53.5 percent interpretive analysis, and 49.3 percent quantitative analysis. Survey respondents with experience in at least one field research project gave their subfield affiliations (multiple in some cases) as: comparative politics 49.7 percent, American politics 36.6 percent, international relations 31.3 percent, public policy 20.5 percent, political philosophy 15.2 percent, methodology 13.9 percent, public administration 11.1 percent, and public law 8.8 percent.

37. Women constituted 37 percent of survey respondents but only 30 percent of the sampling frame. Proportions of respondents identifying with six of the eight major subfields are within three percentage points of the proportions in the sampling frame; comparativists are over-represented by six percentage points and theorists are under-represented by four percentage points.

38. American Association for Public Opinion Research, "Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys" (2011). Further details about the survey available at Kapiszewski, MacLean, and Read, 412–14.

39. Peter Krause and Ora Szekely, eds., *Stories from the Field: A Guide to Navigating Fieldwork in Political Science* (New York: Columbia University Press, 2020), 81–123.

40. Daniel N. Posner, "Be Prepared (to Go Off Script)," in ibid., 91.

41. Kristin Michelitch, "Radio Gaga: Evolving Field Experiments in Mali," in ibid., 93–101.

42. Joe Soss, "On Casing a Study Versus Studying a Case," in Erica S. Simmons and Nicholas Rush Smith, eds., *Rethinking Comparison: Innovative Methods for Qualitative Political Inquiry* (Cambridge: Cambridge University Press, 2021), 84–106, at 84.

43. There are, of course, exceptions. For example, Dunning recounts how he and his collaborators, seeking to develop a map of cousinage relations in Mali, "iterated between focused interviews, new versions of the cousinage matrix, and our experimental data to improve the random assignment mechanism" in an experiment. Thad Dunning, "Natural and Field Experiments: The Role of Qualitative Methods," *Qualitative and Multi-Method Research*, 6 (Fall 2008), 17–23. Parkinson examines how her initial design for a project on Palestinian refugee camps in Lebanon "fell apart and, indeed, *needed* to fall apart." Sarah E. Parkinson, "Composing Comparisons: Studying Configurations of Relations in Social Network Research," in Simmons and Smith, eds., 152–71, at 153.

44. Due to space constraints, the Appendix is not in the print version of this article. It can be viewed in the online version, at https://www.ingentaconnect.com/content/cuny/cp.

45. We rarely inquired directly about iteration and its consequences in our interviews, yet in just fewer than half, respondents of all academic ranks, subfields, and methodological leanings offered examples of the ways in which they iterated as they carried out their projects and how they benefited from doing so.

46. Interviews X-3, August 6, 2012; Z-10, September 18, 2012; Z-17, September 11, 2012 all specifically discuss the updating of survey instruments, dropping ineffective questions, correcting inappropriate wording, etc.

47. Personal communication, October 10, 2015.

48. Interview Y-09, August 2, 2012.

49. Interview Z-15, September 10, 2012.

50. Interview Y-01, July 20, 2012.

51. See also Yom, 2014, 24.

52. Randy Stevenson, "Making a Contribution: The Role of Fieldwork in Scientific Research Programs," APSA-CP Newsletter 16 (Summer 2005), 12–16; Soledad Loaeza, "Concepts that Travel, Scholars Who Don't?," APSA-CP Newsletter 16 (Summer 2005), 9–12; David Collier, "Data, Field Work and Extracting New Ideas at Close Range," APSA-CP Newsletter 10 (Winter 1999), 1–6.

53. Elisabeth Jean Wood, "Field Research," in Carles Boix and Susan Carol Stokes, eds., *The Oxford Handbook of Comparative Politics* (New York: Oxford University Press, 2007), 125.

54. Akhil Gupta and James Ferguson, "Discipline and Practice: 'The Field' as Site, Method, and Location in Anthropology," in Akhil Gupta and James Ferguson, eds., *Anthropological Locations: Boundaries and Grounds of a Field Science* (Berkeley: University of California Press, 1997), 1–46.

55. Robert M. Emerson, *Contemporary Field Research: A Collection of Readings* (Boston: Little, Brown, 1983), viii, 1.

56. Noelle Brigden and Miranda Hallett, "Fieldwork as Social Transformation: Place, Time, and Power in a Violent Moment," *Geopolitics*, published online in 2020, 11; Jannis J. Grimm, Kevin Koehler, Ellen M. Lust, Ilyas Saliba, Isabell Schierenbeck, *Safer Field Research in the Social Sciences: A Guide to Human and Digital Security in Hostile Environments* (Thousand Oaks: Sage, 2020); Kai M. Thaler, "Reflexivity and Temporality in Researching Violent Settings: Problems with the Replicability and Transparency Regime," *Geopolitics*, published online in 2019.

57. Shareen Hertel, Matthew Singer, and Donna Lee Van Cott, "Field Research in Developing Countries: Hitting the Road Running," *PS: Political Science and Politics*, 42 (April 2009), 309; see also Wood, 2007, and Akasemi Newsome, "Knowing When to Scale Back: Addressing Questions of Research Scope in the Field," *PS: Political Science & Politics* (April 2014), 410.

58. Marc Trachtenberg, "Stumbling around in the Archives," in Krause and Szekely, 135–41.

59. Interview X-01, June 1, 2012.

60. Interview Y-03, July 27, 2012.

61. Gerardo L. Munck and Richard Snyder, *Passion, Craft, and Method in Comparative Politics* (Baltimore: Johns Hopkins University Press, 2007), 186–87, quoting Juan Linz.

62. These predicted probabilities were generated using Stata's margins command, with covariates set at observed values in the sample. The 95 percent confidence interval runs from 35 percent to 52 percent for the first prediction and from 81 percent to 89 percent for the second.

63. While this is also true in other types of research, given how often and how much scholars who conduct fieldwork tend to change their designs, such risks can arise particularly frequently, and be especially acute, for fieldworkers.

64. Interview X-05, August 13, 2012.

65. Interview Y-14, August 10, 2012, discussed this possibility as a *downside* of having a Plan "B."

66. Interview Z-20, September 20, 2012; see also LaPorte, 414–17.

67. Interview X-07, August 15, 2012.

68. Newsome, 410–13.

69. The six principles underlying effective field research outlined in Kapiszewski, MacLean, and Read—flexible discipline, engagement with context, critical reflection, ethical commitment, triangulation, and transparency—are integrated in the framework for analytic iteration offered here.

70. Kapiszewski, MacLean, and Read, 89–99.

71. Interview X-10, August 21, 2012.

72. Interview X-09, August 15, 2012.

73. LaPorte, 414–17, identifies warning signs of trouble and provides suggestions for retooling.

74. Robert Adcock and David Collier, "Measurement Validity: A Shared Standard for Qualitative and Quantitative Research," *American Political Science Review*, 95 (September 2001), 529–46.

75. See e.g., Mneesha Gellman, "Collaborative Methodology and Mixed Methods Design in Education Policy Research: Reflections on Fieldwork in Mexico and California," Paper presented at the Southwest Multi-Methods Research Conference, November 8–9, 2018.

76. Yom, 2014, 626.

77. Jesse Driscoll, *Doing Global Fieldwork: A Social Scientist's Guide to Mixed-Methods Research Far from Home* (New York: Columbia University Press, 2021), 131.

78. In their summary essay, Jacobs and Büthe mention documenting "any mid-course changes in evidence-gathering plans and procedures." Alan M. Jacobs and Tim Büthe et al., "The Qualitative Transparency

Deliberations: Insights and Implications," *Perspectives on Politics*, 19 (March 2021), 176. In their essay on "Research on Vulnerable and Marginalized Populations," Milli Lake, Samantha Majic, and Rahsaan Maxwell advocate both "explaining the original project design" and documenting "how the research actually unfolded." See page 238 of "The Qualitative Transparency Deliberations: Full Reports," at https://static.cambridge.org/content/id/urn:cambridge.org:id:article:S1537592720001164/resource/name/S1537592720001164sup002.pdf.

79. Here we revisit Jacobs 2020, in particular.

80. For instance, see Rafael Piñeiro and Fernando Rosenblatt, "Pre-Analysis Plans for Qualitative Research," *Revista de Ciencia Politica,* 36 (December 2016), 785–96; Florian G. Kern and Kristian Gleditsch, "Exploring Pre-Registration and Pre-Analysis Plans for Qualitative Inference," Working Paper (University of Essex, 2017).

# APPENDIX

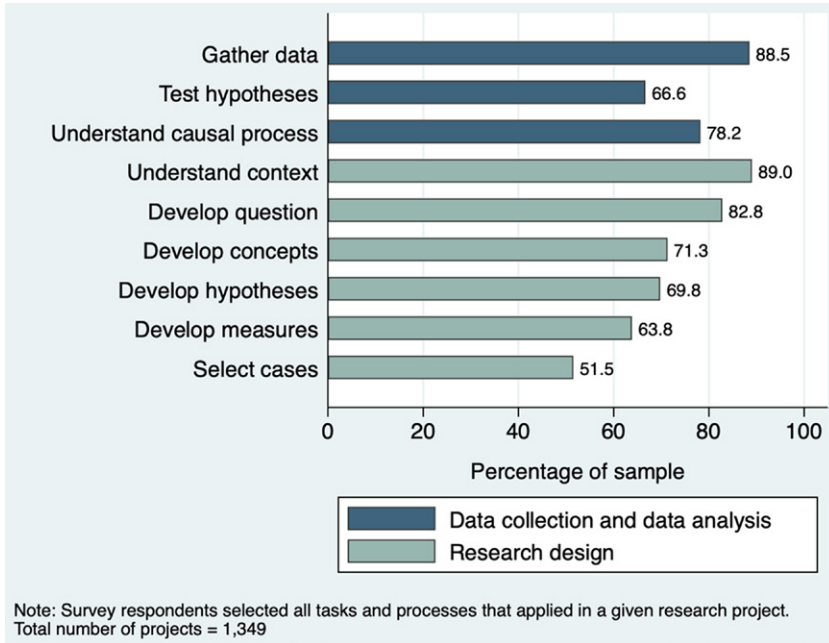**Figure A1**  Tasks and Processes Facilitated by Field Research



Note: Survey respondents selected all tasks and processes that applied in a given research project. Total number of projects = 1,349

**Table A1**  Predicting Iteration in Field Research Projects

| | Effect on probability of iteration in: | | | | |
|---|---|---|---|---|---|
| | **Research question** | **Hypotheses** | **Concepts** | **Measures** | **Case selection** |
| All project locations are international | .04 | .13*** | .03 | -.02 | .05 |
| Number of trips (log) | .04* | .07** | .03 | .01 | .07** |
| Total time-in-field (days, log) | .02* | .02* | .03** | .04*** | .05*** |
| % of project data coming from field | .14** | .12* | .11* | .30*** | .14* |
| Project involved interpretive analysis | .10*** | .10** | .15*** | .02 | .07* |
| Project involved qualitative analysis | .10** | .08 | .15*** | .10* | .09* |
| Project involved quantitative analysis | -.04 | .07* | -.02 | .22*** | .04 |
| Project involved archival research | .03 | .05 | .04 | .04 | .00 |
| Project involved interviews | .08** | .04 | .00 | .03 | -.07 |
| Project involved ethnography or PO | .01 | .02 | .04 | .05 | .07* |
| Project involved survey research | .02 | .04 | .09** | .06 | .00 |
| Project involved experiments | -.04 | -.04 | .00 | .04 | .07 |
| R is female | -.01 | .03 | -.01 | -.00 | -.04 |
| R was faculty, not grad, at the time | .02 | .02 | .05 | -.06* | .00 |
| n | 1190 | 1190 | 1190 | 1190 | 1190 |
| Pseudo r-squared | 0.14 | 0.08 | 0.1 | 0.14 | 0.06 |

Note: Models are logit regressions (probit results are almost indistinguishable). The table reports average marginal effects (AME), representing, in general terms, the change in the probability the outcome occurs associated with a unit change in the independent variable. The dependent variables came from the following yes/ no questions in the FRPS survey: "Please indicate the tasks or analytic processes that the research you conducted in the field facilitated: … Developing or refining the research question; Developing hypotheses; Developing concepts; Developing measures or operationalizing concepts; Selecting cases."

Each observation is an individual field research project. As defined in the questionnaire: "By field research project, we mean an academic research project, of which field research is one component, aimed at producing scholarly work such as a conference paper, an article or set of articles, a dissertation, or a book."

Respondents could indicate that a project involved multiple approaches to analysis (including interpretive, qualitative, and quantitative.) Respondents could indicate that a project involved multiple data collection techniques (including archival research, interviews, etc.)

The 1,190 projects were reported by 779 individual researchers. Robust standard errors were used to adjust for this clustering.

p-values: * p<.05, ** p<.01, *** p<.001.