A Note on Methodological Fit in Management Field Research

Introduction

Many management scholars relish the opportunity to collect data in real organizations to further knowledge about organizational practices and their outcomes. The potential relevance of field research and the intriguing contexts encountered when studying real people, real problems, and real stakes make this an exciting endeavor. Realizing that the outputs of the research may inform and shape actions of practitioners is motivating.

At the same time, management field research is challenging—messy, inexact, and often inefficient. Field research requires substantial time investments, brings concerns about confidentiality, presents limits to access, and often involves unexpected mid-project changes and logistical hurdles. Many standard criteria of the scientific method do not apply well to research in organizations: we can rarely sample randomly, and we are not always unbiased. In many cases, management researchers are invited guests—partners with organizational informants who are as interested in learning about the phenomena as we are. Data collection is never as systematic as we wish and often occurs in fits and starts, as opportunity allows.

Most journal articles reporting on field-based research in organizations acknowledge such limitations apologetically—implicitly or explicitly suggesting they are aberrations to be overcome in subsequent research. Broadly speaking, less attention has been paid in the literature to embracing the world of management field research as it is rather than as it should be. Researchers, focused on explaining or overcoming discrepancies from the ideal of the scientific method may find themselves ignoring other critical decisions about the design, execution, and communication of field research.

In particular, this note advocates the importance of fit, or internal consistency, among the different elements of a field research project. Although the scientific method provides an essential framework for gaining knowledge about many natural and social phenomena, we argue that internal coherence among research questions, data collection, analysis, and contributions to the literature may be as, or in some cases more, important than scientific rigor to the development of useful and compelling research products from field research.

This argument is based on two observations. First, management scholars very often find others’ research findings compelling if the logic is sound and the data presented are consistent with this logic—even when essential tenets of scientific rigor are violated (e.g., researcher bias, non-random sampling, etc.). Thus, why not acknowledge and celebrate the wisdom of this tradition? Second, the
criticality of the scientific method varies with the type of research. To illustrate, exploratory qualitative research can make good use of thoughtful awareness of a researcher’s own biases and how they shape his or her inquiry. In contrast, research that seeks to challenge prior theory through quantitative hypothesis testing will be considerably strengthened by adherence to scientific rigor. Thus, a contingency perspective is needed to identify when methodological “flaws” in a field research project are fatal ones.

Objectives

The primary aim of this note is to articulate lessons for designing and executing field research as taught in the doctoral course, Design of Field Research Methods (DFRM), developed by the first author. We seek to provide guidelines that contribute to creating compelling products from the research process. The secondary aim is to celebrate the messy reality of field research and to consider ways in which this messiness can be used to its best advantage.

To do this, we draw from the course’s reading list, which features research articles published in academic journals, to describe nine field research projects that differ on important dimensions. The course uses the articles as case studies through which students compare and contrast authors’ methodological decisions and inductively develop a contingency framework relating methodological approach to theoretical contribution.

All of the articles report on original field research. An essential criterion for inclusion in the reading list is effective matching of research question, research design, data analyses, and contribution to the literature. Articles were also selected for their focus on interesting topics, clear writing, and their collective demonstration of a variety of research methods.

In what follows, we provide a brief overview of the course framework, define management field research, discuss the nature and role of theory in field research, and review elements of good research design. The bulk of the note is devoted to discussing nine papers, organized into three broad categories of management field research. Within each category, the following areas are covered: (1) the nature and examples of research questions; (2) study design and data collection; (3) data analyses; and (4) contributions to the literature. We also discuss “mis-fits,” or research papers that are not compelling because of poor fit between methods and intended contributions. The note concludes with lessons from the full set of cases, suggesting a tentative framework for conducting methodologically compelling management field research.

Framework and Scope

The fundamental premise of the course is that methodological fit is critical for effective research contributions. To demonstrate a variety of approaches that result in successful methodological fit, this note sorts nine papers into three broad categories that delineate stages of theory.¹ This case-based approach is designed to illuminate how different types of questions are associated with different theoretical goals.

The three categories span a range of theoretical and methodological approaches. On one end of the spectrum is mature theory that presents precise models that are well supported by data. In this

¹ Our sample of papers draws heavily from research on organizational behavior because this is the area of work with which we are most familiar. The course, however, also includes both articles and students from marketing, operations management, and other areas in which management field research is conducted.
category, the theoretical area or terrain is well developed and has spawned extensive research on related themes in varied settings. Typically, work in this category relies primarily on quantitative data to make new contributions to theory. Such contributions may introduce moderator variables that more carefully specify boundaries of the theory or identify conditions under which models do not hold, or perhaps demonstrate support for a mechanism linking previously studied independent and dependent variables. To illustrate, research on team effectiveness, which includes many empirical studies that provide statistical support for similar explanatory models, fits the category.2

On the other end of the spectrum is nascent theory, situated in new areas for which little or no previous theory exists. Typically qualitative in nature, research in this area may involve the full immersion of ethnography (defined and described below) or exploratory interviews with a number of organizational informants. Papers involving nascent theory typically present propositions or models as suggestive. New relationships or explanations are suggested by the data, but not demonstrated or proved, and as such are presented as worthy of future systematic research. To illustrate, research on geographically dispersed (or “virtual”) teams is likely to belong in this category. When a phenomenon itself is new—such as virtual teams—it presents an opportunity for researchers to take an exploratory approach to begin understanding the new phenomenon.

In the middle is a category that has received less formal attention in management research but characterizes a growing number of studies. We refer to this category, which can be thought of as a hybrid between nascent and mature theory, as intermediate theory, with provisional propositions and models. This work tends to draw heavily on existing theory—often from quite disparate areas of research—to propose novel integrations of previous ideas or new constructs3 that inform existing mature theory. The papers typically demonstrate tentative support for new models. Some research on team learning fits in this category, because it integrates insights from organizational learning with theory on team effectiveness to propose provisional explanatory models of team learning.

Overview of Field Research

The note does not attempt to generalize beyond management field research, although some of the ideas may apply well in other types of research. Field research in management is characterized by studies that involve collecting original data in real organizations.4 Thus, we are not discussing other valuable methods of investigation such as laboratory experiments, computer modeling, analyses of existing data sets, or conducting library research and historical analyses. Some field research paradigms, such as field experiments—an infrequent but potentially powerful approach—are not covered.

Theory

A central aim of this note is to clarify the nature and role of theory in developing a research question, in deciding among methods, in carrying out effective research projects, and in writing up research for publication. Sutherland’s (1975: 8) definition of a theory as “an ordered set of assertions

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3 A construct is an abstract or general idea derived from specific instances; a specific variable can be developed to provide a concrete measure of a construct.

about a generic behavior or structure, assumed to hold throughout a significantly broad range of specific instances’ provides a helpful starting point. Theory comprises distinct constructs that are related to each other in a specific way and necessarily encompasses an explanation for the proposed relationships. Theory is thus a compelling “story about why acts, events, structure, and thoughts occur.”5

We explore the distinction between variance theory and process theory.6 The former describes relationships in which an increase in an independent variable is theorized to cause an increase in some dependent variable. The latter describes how a process works, including how one event gives rise to the next, temporally subsequent, event. Both variance and process theories are illustrated in later sections.

We emphasize two types of theories: middle-range theories, characterized by a limited number of constructs related to each other in specific, explained ways; and practice theories which are prescriptive, normative statements of goals and goal accomplishment processes providing models and implementation guidelines to create a specific change within an organization. Both types include explanatory logic underlying the various relationships specified by the theory. In both cases, a good theory is likely to be parsimonious, concrete, falsifiable, make an interesting contribution to current knowledge in related literature, and have practical applicability.

Basic Elements of Field Research

Within the above boundaries, we consider four basic elements of a field research project: (1) the research question; (2) data collection; (3) data analysis; and (4) the contribution to the literature. Although these elements are presented in this seemingly logical order, it is important to note that field research does not always follow such a sequential process. For example, the nature of the research question may emerge after some data are collected, or an intended contribution can help to shape the other three elements.

Research Questions

Good research questions in management research strike a balance between real-world significance and potential contribution to scholarly literature.7 They address practical organizational problems (e.g., encouraging the reporting of errors, making strategic decisions, or innovating on a routine basis) as well as gaps in the literature (e.g., untested assumptions, unnamed boundary conditions, unexplained mechanisms, or theoretical conflicts). This balance keeps research questions from being merely philosophical or esoteric, or simply pragmatic or mundane.

A good research question is also sufficiently specific to be studied systematically; specification is essential for ensuring that a project convincingly measures the constructs of interest. The question should be one for which the answer is not (fully) known. The art of clarifying and sharpening an answerable research question from a more abstract area of interest is not easily codified, though facility and precision in developing research questions are achieved with practice.

Data Collection

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A good research question calls for an appropriate methodology for data collection. At a high level, options for field research can be stated as seeking quantitative data, qualitative data, or a mixture of both. Qualitative strategies include case studies, ethnography, grounded theory and action research. Appropriate data collection methods include interviews, observations, and examination of corporate artifacts, documents, and records. Quantitative strategies include surveys and structured interview protocols. Appropriate data collection methods include newly designed survey instruments, appropriated existing instruments, structured interviews, or company documents. These sources provide numerical data that can be used for purposes ranging from creating simple descriptive tabulations to conducting complex statistical analyses.

Whatever the methods used, certain attributes of data collection build readers’ confidence in the findings. First, data collection should be transparent—carefully documenting every step along the way somewhat like a recipe that allows others to replicate the research. Transparency also allows readers to assess the appropriateness of the measures and conclusions. Second, data collection should be as thorough as it reasonably can be under the specific circumstances. Thoroughness starts with thinking through the implications of existing theory and then collecting data on as many variables as possible.

Third, any measures used should be both valid and reliable. Validity ensures that the measures are tapping the construct of interest, while reliability ensures that variance within the data is not due to measurement error. Finally, some, but not all, methodological choices require researcher bias to be minimized. For those that do assume a reasonably unbiased stance, bias is minimized by the use of independent measures of constructs, by collecting data from multiple perspectives, and by using independent researchers to collect certain data.

**Data Analysis**

Finally, data analyses are more easily evaluated when they are conducted in a systematic and internally consistent manner. Systematic, consistent analysis is discussed in numerous data analysis guides (e.g., Cohen & Cohen, 1983; Denzin & Lincoln, 2000; Nunnally & Bernstein, 1994; Tabachnick & Fidell, 1989). We will not attempt to cover the same ground as these classic methodological texts. However, it is important to note that the analytic choices researchers make must fit with the types of questions they seek to answer and the kinds of contributions they intend to make. For instance, when boundary conditions of a theory are being proposed and tested empirically, moderator analyses are appropriate.

Examples of this and other types of research question–data analysis fit are discussed subsequently. Additionally, as illustrated below, unanticipated findings can be explored as fodder for further theoretical development. This is most appropriate when adequate pre-testing was conducted to ensure that anomalous results are real rather than artifacts of poor research design and methodology.

Given the basic attributes for enhancing the quality of the separate elements of field research, the following sections address the demands of creating good research wholes. It should be noted that many details of effective research design—whether quantitatively or qualitatively oriented—are discussed thoroughly elsewhere (e.g., Cook & Campbell, 1979; Campbell & Stanley, 1963; Eisenhardt, 1989a; Glaser & Strauss, 1967; Keppel, 1991; Klein & Kozlowski, 2000; Miles & Huberman, 1994; Tabachnick & Fidell, 1989). Rather than attempt to cover such issues, this note focuses instead on

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how to achieve alignment among the different parts of field research in an internally consistent manner.

Contributions to Management Research Literature

We concur with Davis (1971) that the most interesting theories are those that challenge received wisdom, tacitly held assumptions, or common-sense heuristics and lay theories. However, the challenge of interestingness goes beyond the ambition of this note. Our aim is merely to suggest that the state of theory development in the area addressed by a given research question importantly relates to the question of which method is appropriate for its investigation.

In short, we suggest that there is a way in which particular questions “fit” particular methods. Our discussion is organized around the stages of theory development defined above—from nascent to intermediate to mature theory. Within each of these categories, we review factors that shape the nature of research questions, data collection and analysis, and contributions to the management literature. Illustrative examples within each category are used throughout. Exhibit MN1 summarizes the issues discussed below. We begin with mature theory because it conforms to traditional models of research methodology and thereby helps to build a conceptual foundation to compare with the other two categories.

Mature Theory and Precise Models

Well-developed constructs and explanatory models characterize mature theory. The basic underlying mechanisms often have been studied in different settings over the years by a variety of scholars. Extensive quantitative research may have tested and modified the theory, allowing the body of work to present a number of points of broad agreement that represent cumulative knowledge gained. This maturity attracts interest and presents challenges for new research that can then lead to further refinements within a growing body of related theories. For example, a research project may propose and test a new boundary condition of an existing theory.

Nature and Examples of Research Questions

Research questions in this group focus on elaborating, clarifying, or challenging specific aspects of existing theory. The researcher, for example, might seek to test a theory in a new setting, identify or clarify the boundaries of a theory, examine a mechanism that mediates two other variables, or provide new support for or against previous work. The research questions tend to be focused (or, at least by the time the work is published, they appear focused) leading to specific testable hypotheses.

Hypotheses are developed through logical argument that draws directly and extensively from prior work. Papers rely on the literature to argue both the need for the new research and to develop the logic underlying the hypotheses they will test. These predictions concern relationships between known constructs (variables) previously identified and developed in the literature. This hypothesis-testing approach examines specific co-variation between variables (i.e., an increase in some X is associated with an increase in some Y).

While the most compelling test of a theory may be experimental (e.g., Campbell & Stanley, 1963), field researchers rarely can manipulate independent variables randomly across units. Research questions and designs often rely on correlational analyses bolstered by logic to support causal
inferences (e.g., while a person’s sex may predict salary level, it would be nonsensical to assert the reverse). Examples⁹ in Table MN-A may help clarify the category.

**Table MN-A** Examples of Research Involving Mature Theory and Precise Models

<table>
<thead>
<tr>
<th>Authors</th>
<th>Date</th>
<th>Article</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruth Wageman</td>
<td>2001</td>
<td>How leaders foster self-managing team effectiveness: Design choices versus hands-on coaching</td>
<td><em>Organization Science</em></td>
</tr>
<tr>
<td>Greg L. Stewart and Murray R. Barrick</td>
<td>2000</td>
<td>Team structure and performance: Assessing the mediating role of intrateam process and the moderating role of task type</td>
<td><em>Academy of Management Journal</em></td>
</tr>
<tr>
<td>Tony L. Simons and Randall S. Peterson</td>
<td>2000</td>
<td>Task conflict and relationship conflict in top management teams: The pivotal role of intragroup trust</td>
<td><em>Journal of Applied Psychology</em></td>
</tr>
</tbody>
</table>

Source: Note authors.

A bias on the part of the first author is revealed in the selection of three team studies to illustrate contributions to mature theory. A benefit to this bias is that it shows distinct ways new contributions to theory can be made—even when drawing from closely related prior research. Moreover, the three studies are sufficiently different to illustrate distinct modes of mature theory research: (1) comparing relative importance and potential interaction effects of previously discussed input variables; (2) unpacking the nature of a previously observed relationship between input and output variables; or (3) identifying a boundary condition of a previously observed relationship.

**Brief Summaries of Each Study**

**Wageman (2001)**

Wageman (2001) studied self-managed work teams to investigate relationships between well-known variables—inputs of *team design* and *leader coaching behaviors* and the outcome of *team effectiveness*. By drawing on well-developed theory from literature on self-managed teams (Hackman, 1986), Wageman formulated specific hypotheses with the aim of sharpening our understanding of the relative impact of two important input variables.

Using a comparative non-experimental research design to study Xerox service teams, Wageman contrasted extreme cases (18 high-performing teams and 15 low performers) to maximize variance on the dependent variable. Although a more representative, or randomly selected, sample (companies, teams) in a study enhances the generalizability of findings (e.g., Keppel, 1991), resource constraints often preclude this, especially when data collection is time consuming or expensive.¹⁰

Wageman employed a structured interview protocol to obtain quantitative measures of team attributes. Her design incorporated data from different sources (supervisors and team members) to

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⁹ The examples, drawn from the reading list of DFRM, are not meant to represent best in category articles. Because the reading list evolves from year to year, the studies discussed here can be seen as capturing a particular moment in the course's history and as helpful in illuminating our arguments about fit in organizational studies.

¹⁰ This “weakness” can be seen as a strength in that finding strong effects despite the hurdle of a smaller sample suggests that relationships are robust (see Cohen (1988) for further discussion of statistical power).
strengthen the validity of the measures and to reduce concerns about common method variance explaining correlations between variables (see Podsakoff, MacKenzie, Lee, & Podsakoff (2003) for a comprehensive review of this topic). The study also used existing survey measures, developed by Hackman, to triangulate (or seek agreement across) measures, enhancing measurement validity.

With three graduate students, she coded team members’ and managers’ responses to interview questions. They categorized the qualitative data into meaningful groupings, mostly a priori theoretical categories (e.g., team design features), with a few others that emerged from the interviews (e.g., new categories of specific leader coaching behaviors). Some variables were coded dichotomously (e.g., team design features were coded as being present or absent). Others were coded into three categories (e.g., high, medium, or low levels of leader coaching behavior). The coding scheme was based on both team and managerial interviews, enhancing the accuracy of the measures.

The resulting quantitative data were analyzed using regression to test main effects, using one independent and one dependent variable (for an essentially equivalent result as would be provided by conducting simple correlations). Also, to compare the two groups (high and low performers) on the presence or absence of 11 key team design elements, Chi-square analysis, which checks for differences in proportions across categories, was appropriate.

The study contributes both empirical support for Hackman’s (1986) model and greater specificity about how team leadership and team design interact. Specifically, design mattered more to team performance than coaching (in this setting), while coaching led to self-management, higher quality team relationships, and more satisfaction, but not to better performance. Finally, the study demonstrated a novel positive interaction effect of coaching and design—showing synergy from doing both well. In sum, the contribution is a precise and convincing model that advances the literature on self managed teams.

Stewart and Barrick (2000)

Stewart and Barrick (2000) asked whether the relationship between team structure and team performance changes as a function of task type, and whether intra-team processes mediate the structure-performance relationship. The first question gave rise to hypotheses about moderators of the relationship between structural inputs and performance outcomes (e.g., when team task is conceptual, the curvilinear relationship between team interdependence and performance will be stronger than when the team task is behavioral). The second question led to a mediation hypothesis (i.e., the effect of team interdependence on team performance operates through intra-team processes).

They used a cross-sectional research design and a survey to collect data from 45 manufacturing teams. The focus of the study was on how well team input-process-output (IPO) models such as the one described above apply to conceptual versus behavioral tasks. The survey items drew from constructs and measures used in previous research, fostering a tight connection to the literature. Nine specific hypotheses about the relationships between team structure and performance were articulated and tested in the paper.

Preliminary statistical analyses ascertained whether data aggregation from the individual to the team level analysis was justified.11 Reliability analyses showed that multiple items were indicators of single constructs. Then, hypotheses were tested with regression analyses, and a quadratic term was used to test a hypothesized curvilinear relationship—that high levels of team performance would be

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11 Two commonly used statistics for determining whether it is appropriate to aggregate individual responses to team-level data include the intra-class correlation coefficient, or ICC (James, 1982) and $R^2_g$ (James, Demaree, & Wolf, 1984). Simons and Peterson (2000) also used the eta-squared statistic (Georgopolous, 1986).
observed at high and low levels of team interdependence, while low levels of team performance would be observed at moderate levels of team interdependence.\textsuperscript{12}

Specific techniques were appropriately applied to test for the moderator and mediation effects. In general, moderator analyses examine whether the interaction between an independent and moderator variable affect the dependent variable (DV).\textsuperscript{13} An interaction term is added to the regression analysis to assess whether increases in the independent variable (IV) are related to increases in the DV, when the moderator is also present. As Baron and Kenny (1986)\textsuperscript{14} noted, moderators provide information about when, or under what conditions, a relationship between variables occurs. In contrast, mediation hypotheses suggest that the effect of the IV on the DV occurs through a third, intervening variable. Thus, the nature of the hypotheses and questions a researcher seeks to test and answer determines which of these procedures is appropriate.

Stewart and Barrick’s (2000) results make a contribution to the literature by suggesting that the IPO model of team functioning is useful in explaining the relationship between interdependence and performance when team tasks were conceptual but less so when the tasks were behavioral. They thus identify a boundary condition—conceptual tasks—to suggest that the prior theory does not apply uniformly for all teams.

Simons and Peterson (2000) investigated what factors enable task conflict to remain independent of relationship conflict in top management teams. Prior research had demonstrated that task conflict could improve decision quality, but relationship conflict harmed it, which suggested encouraging the former and limiting the latter (e.g., Amason, 1996). At the same time, Simons and Peterson had found that task and relationship conflict regularly co-occurred, such that increasing task conflict to raise decision quality was a potentially self-defeating strategy. Simons and Peterson offered theory-based explanations for the strong relationship between task and relationship conflict, and from these inferred two potentially important moderators (intragroup trust and aggressive conflict management tactics) of the relationship between task and relationship conflict. These moderators gave rise to two specific hypotheses.

This study used a cross sectional design to collect survey data from 70 top management teams in the hotel industry. Two specific hypotheses were tested, focusing on whether the relationship between task conflict and relationship conflict would be moderated by (1) intra-group trust and (2) aggressive conflict management tactics.

As in Stewart and Barrick’s research, preliminary analyses checked whether individual-level variables could be aggregated to the group level, and regression was used to test the study hypotheses. This study also provides an example of necessary “data screening” (see Tabachnick & Fidell (1989) for a complete list of data checks to conduct), because the researchers found

\textsuperscript{12} Hierarchical regression analyses proceed by regressing the DV in step one, then adding the IV-squared term in step two. A significant increase in the amount of variance accounted for by the second equation (i.e., a significant increase in R-squared) supports the existence of a curvilinear relationship.


\textsuperscript{14} The process requires conducting three regression analyses: (1) regressing the mediator on the IV; (2) regressing the DV on the IV; and (3) regressing the DV on the IV and mediator simultaneously. The first two equations must show significant effects. In the third equation, the mediator should be significantly related to the DV, but the relationship between the IV and DV is no longer significant. Such a result supports full mediation, while a substantial reduction in the relationship between the IV and DV in the presence of the mediator suggests partial mediation.
multicollinearity\textsuperscript{15} in their data and thus centered\textsuperscript{16} it prior to conducting the substantive analyses. The study took an important step in clarifying the relationship between task conflict and relationship conflict, a central concern in theories of conflict in management teams. The study supported the notion that greater intra-team trust weakened the relationship between the two types of conflict.

**Summary**

Each of these papers provided sophisticated models and additional precision to enhance reasonably mature theory. The quantitative methods powerfully tested the hypotheses proposed. Contributions included clarifications of boundary conditions, mediating variables, more precise relationships, and practical implications. Hypotheses were grounded in prior theory, and proposed models built directly on the literature. This research enhanced existing theory by clarifying and quantitatively supporting targeted hypotheses. Table MN-B summarizes these common elements.

**Table MN-B** Illustrations of Fit in Mature Theory Research

<table>
<thead>
<tr>
<th>Nature of the Research Question</th>
<th>Wageman</th>
<th>Stewart &amp; Barrick</th>
<th>Simons &amp; Peterson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing theory-driven hypotheses about the contributions of team leader coaching and team design to the effectiveness of self managed teams</td>
<td>Testing theory-driven hypotheses about whether the relationship between team structure and team performance changes as a function of task type, and whether intra-team processes mediate the structure-performance relationship</td>
<td>Testing theory-driven hypotheses about whether intragroup trust moderates the relationship between task conflict and conflict management in top management teams</td>
<td></td>
</tr>
<tr>
<td>Primary Method of Data Collection</td>
<td>An interview protocol that yielded quantitative measures of leader coaching, team design and other established constructs in the team effectiveness literature</td>
<td>A survey instrument that yielded quantitative measures of team process, task type, and other established constructs in the team effectiveness literature</td>
<td>A survey instrument that yielded quantitative measures of task conflict, relationship conflict, trust, and other established constructs in the team and conflict literatures.</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Statistical tests: correlation and regression</td>
<td>Statistical tests: team agreement tests (ICCs) followed by correlation and regression</td>
<td>Statistical tests: team agreement tests (ICCs) followed by correlation and regression</td>
</tr>
<tr>
<td>Contribution</td>
<td>A precise model: team design affects team effectiveness more than team leader coaching; design and coaching interact to positively impact team effectiveness.</td>
<td>A precise model: task type moderates and team process mediates the effects of team structure on team effectiveness.</td>
<td>A precise model: trust weakens the relationship between task conflict and relationship conflict.</td>
</tr>
</tbody>
</table>

Source: Note authors.

\textsuperscript{15} Multicollinearity can arise for several reasons, such as assessing independent variables that are, in fact, highly correlated with each other, or researcher errors such as improperly coding dummy variables, using an IV that is computed from other IVs when all are included in the regression equation, or measuring the same variable twice with fungible operationalizations (e.g., distance in feet and distance in yards) and including both in the regression.

\textsuperscript{16} Centering (Cohen & Cohen, 1983; Aiken & West, 1991) ameliorates problems of multicollinearity among independent variables in moderated regression analysis by retaining the data distribution, but with a mean of zero.
Nascent Theory and Suggestive Models

This section explores the opposite end of the theoretical continuum, when extant theory either does not exist or else is insufficient to guide targeted hypothesis development and testing. This category encompasses research on a new phenomenon in the world—such as the emergence of the “virtual team” as referenced above—as well as on ordinary phenomena not yet addressed by organizational theory—such as how an organization can remain continuously innovative. In both cases, from the point of view of the literature, little is known about the problem or question that interests the researcher.

In contrast to the primarily deductive approach described above, working with new theory in this category is an inductive process, moving from the careful observation of experiences to the development of a coherent explanation of what was observed. The resulting theory should propose tentative answers to novel questions of how and why, perhaps merely suggesting new connections among phenomena.

Nature and Examples of Research Questions

The types of research questions conducive to inductive theory development may involve understanding a process, developing insight about a novel or unusual phenomenon, resolving a paradox, or explaining the occurrence of a surprising event or events. Interest in these problems can arise from unexpected findings in the field, from questioning assumptions or accepted wisdom promulgated in the extant literature, and from identifying and addressing gaps in existing theory.

These research questions tend to be more open-ended than those used to further knowledge in mature literatures. In these studies, researchers do not know what issues may emerge from the data. Since researchers seeking to create theory are intentionally open to being informed by the data, they avoid predicting specific relationships between variables in advance. The three studies listed in Table MN-C involved research questions designed to generate new theory—about intra-individual processes, team processes, and organizational processes.

Table MN-C Examples of Research Involving Nascent Theory and Suggestive Models

<table>
<thead>
<tr>
<th>Authors</th>
<th>Date</th>
<th>Article</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herminia Ibarra</td>
<td>1999</td>
<td>Provisional selves: Experimenting with image and identity in professional adaptation</td>
<td>Administrative Science Quarterly</td>
</tr>
<tr>
<td>Deborah Sole and Amy Edmondson</td>
<td>2002</td>
<td>Situated knowledge and learning in dispersed teams</td>
<td>British Journal of Management</td>
</tr>
<tr>
<td>Andrew Hargadon and Robert I. Sutton</td>
<td>1997</td>
<td>Technology brokering and innovation in a product development firm</td>
<td>Administrative Science Quarterly</td>
</tr>
</tbody>
</table>

Source: Note authors.

Brief Summaries of Each Study

Ibarra (1999)

Ibarra (1999) studied how individuals adapt during career transitions. Career research had well-developed theory and models explaining how individuals were influenced by organizational
activities such as socialization processes, but the mechanisms by which individuals themselves accommodated their new work roles were not articulated. Ibarra chose to investigate the experiences of people working in industries (consulting and investment banking) that had fairly clear and stable role requirements for people at different levels of seniority, and that had clear career paths. Before embarking on data collection, she conducted preliminary interviews in one consulting and one investment banking firm and found that issues surrounding image and identity were particularly salient to the role adaptation process required by promotions.

Ibarra studied individuals at a stage of their careers where promotions were likely, conducting in-depth interviews with 19 management consultants and 15 investment bankers. The interview protocol, reflecting the earlier discovery that image and identity were salient themes, asked about current roles, expectations for future roles, significant career experiences, personal strengths and weaknesses, and relationships that had significantly affected each individual's professional development.

Data analysis followed a grounded theory approach (Glaser & Strauss, 1967) supplemented with techniques for generating theory from case research (Eisenhardt, 1989). Ibarra identified evidence of key themes (identity and image issues) in the data and looked for similarities across individuals and organizations in how those issues were managed. She sorted the similarities into categories, then re-examined the data looking for variance within the categories, ultimately creating sub-categories of behavior.

The contribution to the literature included a suggestive process model of role adaptation with three iterative stages: observing role models, experimenting with one's own image, and obtaining feedback about the experimentations. Sub-categories within each stage (e.g., internal and external evaluation of feedback) contributed to a more refined model. Further, Ibarra labeled the different identities and images people tried on during the adaptation process as possible or "provisional selves," thus introducing a construct to help explain individual role adaptation. She situated her findings within the context of prior careers research to suggest future areas of research on career adaptations.

Sole & Edmondson (2002)

Sole and Edmondson (2002) investigated how teams learn when team members are geographically dispersed and cross-functional. The phenomenon of "virtual teams" was a relatively new one at the time of the study, and although prior research identified knowledge acquisition and use as particular challenges for such teams, how teams managed to cope with these challenges had not been studied.

Using a qualitative case study approach driven by observation and supported by interviews, Deborah Sole collected data from seven cross-functional, geographically dispersed development teams within a single multinational organization. These teams were selected based on key similarities (e.g., cross-functional work; projects in comparable stages of development) and differences (e.g., degree of geographic dispersion; nature of functional expertise required to solve problems) in accordance with a theoretical sampling strategy17 (Glaser & Strauss, 1967; Yin, 1994). Together, the elements of this strategy enhanced the researchers' ability to find and understand different team approaches to handling the learning challenges associated with varying degrees of geographical dispersion and cross-functional project complexity.

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Data collection included semi-structured interviews, project documentation, observation, and participation. The twelve months of data collection yielded extensive information about the teams in the company. To analyze the data, Sole and Edmondson began with an exploratory framework that directed attention to knowledge being shared across disciplinary and geographic boundaries, and drew from the data to suggest new concepts, which directed further data analysis.

These analyses resulted in a more precise description of the knowledge used by dispersed development teams. For example, early data from two teams suggested that the teams differentiated between two types of knowledge: occupational (or things known because of the specialized work one does) and situational (or things known because of where one is located). Subsequent analyses of data from the remaining five project teams were coded accordingly, with the aim of understanding how teams recognized and used situated knowledge and what facilitated team learning from situated knowledge. This inductive approach led to the introduction of a new construct (situated knowledge) to the literature and provided new suggestions for how cross-functional, geographically dispersed teams might successfully overcome the work challenges previous theory predicted would be present.

Hargadon & Sutton (1997)

Hargadon and Sutton (1997) examined how organizations can routinely develop innovative products. They used ideas from the literatures on social network position and organizational memory processes to frame their inductive journey. Despite a basic notion of what might be important to sustained innovation processes (ability to access, recombine, and store knowledge, for example), they remained open to the discovery of variables not identified in prior theoretical perspectives.

Their ethnographic approach involved understanding the internal functioning of one company as well as how the firm was situated within its broader external context. Interested in how organizations develop innovative products routinely, these researchers selected a firm that was well known for this capability. The firm was working on many product development projects at any given time, had strong ties to hundreds of companies in more than forty industries, and its products were observable mechanical solutions to customer challenges achieved through verifiable problem-solving processes.

Data collection included a combination of direct observation, semi-structured and retrospective interviews, informal conversations, archived company data, and publicly available articles about the organization. The researchers spent an extensive amount of time on site (a 6- to 8-hour visit each week over the course of 14 months), observing interpersonal interactions, work processes, and work product. To make sense of the vast quantities of data collected, Hargadon and Sutton used a grounded theory approach (Glaser & Strauss, 1967) and helpful displays to sort and make sense of qualitative data (Miles & Huberman, 1994). In this way, they used data to elaborate their ideas about how knowledge brokers (individuals who span projects and can import an idea from one for use in another) interact with organizational memory to produce innovation. Seeking similarities across different projects in the company, the researchers identified four process stages (access, acquisition, storage, and retrieval), and showed how technology brokering could facilitate innovation by increasing access to new ideas being developed in a wide variety of industries.

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Summary

Each of these studies provided suggestive models to contribute to the literature, using qualitative data that allowed promising themes to emerge and be given greater attention as more data were gathered. This process requires close attention to the data as it is collected and flexibility to modify the focus of the research accordingly. The data collection processes were long and involved, encompassing several techniques and extensive interaction with participants. Extant theory was used to reinforce and situate the researchers’ observations in the context of prior research streams.

The papers contributed suggestive new constructs—provisional selves, situated knowledge, and technology brokers—that could potentially be further developed in subsequent studies. All three present process models supported by an absence of variance across data sources (and/or across cases), thereby highlighting similarities of procedural stages across units. Each study thus provided not reasonably conclusive results, but rather suggestive theoretical insights to inform and inspire future research on new phenomena. Table MN-D depicts these common elements.

**Table MN-D** Illustrations of Fit in Nascent Theory Research

<table>
<thead>
<tr>
<th>Ibarra</th>
<th>Sole &amp; Edmondson</th>
<th>Hargadon &amp; Sutton</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nature of the Research Question</strong></td>
<td><strong>Exploring</strong> intrapersonal processes when young professionals undergo work transitions</td>
<td><strong>Exploring</strong> factors and processes that allow geographically dispersed development teams to learn and to accomplish challenging project goals, despite barriers</td>
</tr>
<tr>
<td><strong>Primary Method of Data Collection</strong></td>
<td>An interview protocol with open-ended questions that yielded <strong>qualitative data</strong> about the job, about mentoring, and about the job transition; used cross-sectional data</td>
<td>An interview protocol with open-ended questions, observation of meetings, and access to extensive archival <strong>qualitative data</strong> about different types of knowledge and methods for accessing and using the knowledge; used longitudinal data (approximately a year)</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>Iterative, exploratory content analysis</td>
<td>Iterative, exploratory content analysis</td>
</tr>
<tr>
<td><strong>Contribution</strong></td>
<td>A <strong>new construct</strong>—provisional selves—and a <strong>suggestive model</strong> of the adaptation process people undergo when adjusting to new work roles</td>
<td>A <strong>new construct</strong>—situated knowledge—and a <strong>suggestive model</strong> of how teams recognize and use situated knowledge for team learning</td>
</tr>
</tbody>
</table>

Source: Note authors.
Intermediate Theory and Provisional Models

Intermediate theory, positioned between nascent and mature theories, characterizes research that employs an only partially focused lens to study a particular issue or set of variables. Although the research questions often involve testable hypotheses, the constructs involved are usually still tentative, lacking extensive prior conceptual development and measures. Moreover, the research questions involve some element of exploratory work or tentative ideas.

This research may introduce new constructs to supplement existing mature theory, and/or present models that explicitly integrate theory from previously separate areas of research. They rarely sit squarely in the center of one literature. Another trigger for developing intermediate theory is the desire to re-investigate a theory or construct that sits within a mature stream of work to challenge or modify prior work.

While quantitative methods are appropriate for mature theory and qualitative methods are appropriate for nascent theory, intermediate theory often incorporates both to find support for its provisional models. Qualitative data help to elaborate a phenomenon; quantitative data provide preliminary tests of relationships between constructs. When appropriately applied, the combination —while potentially awkward or lacking the full advantages of either approach—forms a powerful blend of insight and rigor.

Nature and Examples of Research Questions

Research questions that lead to intermediate theory include both specific hypotheses and more open-ended inquiries, often in the same paper. A single study may describe patterns that suggest both variance and process theories, although effective papers tend to place relatively more emphasis on one or the other. Intermediate theory is often investigated with hybrid methods that include both qualitative and quantitative data. As with the previous two sections, we selected three published papers, listed in Table MN-E, to illustrate work involving intermediate theory.

Table MN-E  Examples of Research Involving Intermediate Theory and Provisional Models

<table>
<thead>
<tr>
<th>Authors</th>
<th>Date</th>
<th>Article</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathleen M. Eisenhardt</td>
<td>1989</td>
<td>Making fast strategic decisions in high-velocity environments</td>
<td>Academy of Management Journal</td>
</tr>
<tr>
<td>Robin J. Ely</td>
<td>1994</td>
<td>The effects of organizational demographics and social identity on relationships among professional women</td>
<td>Administrative Science Quarterly</td>
</tr>
<tr>
<td>Amy Edmondson</td>
<td>1999</td>
<td>Psychological safety and learning behavior in work teams</td>
<td>Administrative Science Quarterly</td>
</tr>
</tbody>
</table>

Source: Case authors.

Brief Summaries of Each Study

Eisenhardt (1989)

Eisenhardt (1989b) examined decision speed and firm performance—laying the groundwork for a new theory of the relationship between these two variables (variance theory). At the same time, she sought to illuminate how executive teams in rapidly changing competitive environments make fast
decisions (process theory). The study, grounded in prior theoretical work on strategic decision-making, challenged conventional wisdom that slower decisions were better decisions.

The research used a replication logic design (Yin, 1984), treating a series of eight case studies of microcomputer firms as a series of experiments (i.e., inferences drawn from each case were assessed against data from the others, continually testing the consistency of suspected processes or relationships). Eisenhardt chose companies navigating a fast-paced competitive environment in order to ensure the research context valued speedy decision-making. She relied primarily on qualitative data, including semi-structured interviews and direct observations, and on archival data from the firm and industry reports. She also collected quantitative questionnaire data on variables identified by prior research and theory as potentially important to the decision making process to supplement her inferences about decision speed and decision quality.

Data analysis involved the development of profiles and decision stories from each firm to suggest research propositions with limited (or suggestive) support from the study data (Eisenhardt, 1989a). In a process of pair-wise case comparisons, she created lists of similarities and differences based on key variables of interest (e.g., presence or absence of a counselor to the CEO) and formulated propositions. She then returned to the data from each site to determine whether the propositions held up. After several iterations between the data and the propositions, she incorporated extant theory to hone the propositions to their final form.

Quantitative analyses conducted in the study were mentioned but not provided in the article. To address the variance-based question she asked using the data she collected, Eisenhardt utilized firm performance data along with the strategic decision-making teams’ assessments of their decision (i.e., support, implementation, and subsequent emulation of the decision). The paper reported that sales trends were more positive and profits were generally higher in companies that made faster decisions (i.e., those that did not procrastinate making a strategic choice). These associations are presented as tentative and in need of future, systematic research.

The main contribution of this work was to challenge—but not definitively—conventional wisdom that slow strategic decisions were of a higher quality than fast strategic decisions. The paper identified key process variables that appeared to improve the speed of strategic decisions (e.g., using real-time information, generating multiple alternatives, seeking the advice of counselors), and generated six research propositions constituting a provisional model of strategic decision speed in high-velocity environments.

Ely (1994)

Ely (1994) was primarily concerned with how the proportion of women occupying positions of authority in organizations related to the quality of junior women’s relationships with female peers and superiors. Prior theory on the quality of same-sex work relationships relied on stereotypes of women as either competitive with or supportive of each other, yielding inconsistent results. Ely moved beyond traditional sex-role socialization theory to incorporate social identity theory and organizational demography in the development of five research hypotheses that focused on how the socio-structural context of the work environment was related to the quality of women’s same-sex work relationships.

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19 In multiple case study research, the goal is to establish the plausibility of a relationship, not to prove (e.g., statistically) that it exists. The multiple cases suggest associations, and the richness of the data helps to establish the plausibility of the associations (Eisenhardt, 1989b).
Ely (1994) studied law firms because status differences within them were easy to identify, clearly recognized by firm members, and similar across firms. For data collection purposes, she sampled law firms similar on many salient characteristics (e.g., size, type of work, form of hierarchy, proportion of junior female employees) and different on the key independent variable (relatively high versus low proportion of women in senior ranks). This sampling strategy resulted in 4 sex-integrated firms and 4 male-dominated firms, facilitated hypothesis testing, and allowed for a stronger inference of any effects of senior management gender composition by holding other variables relatively constant.

The study generated qualitative data (via semi-structured interviews) from 15 women in the sex-integrated firms and 15 women in the male-dominated firms. She also developed questionnaires based on respondents’ comments in order to obtain a different type of assessment of the themes that arose. Content analysis of the qualitative data suggested key themes (e.g., characterizations of women partners as (in)competent, as good or poor role models, and of peer relationships as supportive or competitive). Subsequent quantitative regression analyses tested for differences in women’s same-sex work relationships in male-dominated versus gender-integrated firms. Ely returned to examples from her initial interviews to provide additional context and explanation for her quantitative results.

This work contributed a different theoretical understanding of work relationship quality by moving beyond individual sex-role socialization processes to consideration of social identity theory and organizational demography. This integration of different theoretical perspectives not only helped explain contradictory results from prior research, but also introduced a new framework for understanding how context factors affect the way people construe their demographic group-based identity. Finally, this work suggested that having a more balanced representation of different group members at the top of a firm’s power structure may result in more positive work relationships for different identity group members across the organization.

Edmondson (1999)

Edmondson (1999) introduced and provided support for a new construct, team psychological safety, and investigated its role in team learning and performance. The work was grounded in two reasonably mature, but separate, theoretical perspectives—team effectiveness and organizational learning—and proposed eight testable hypotheses about factors that enhance or inhibit team learning and performance.

Data were collected in a company where teamwork and collective learning were salient and varied across teams. This variance was essential for addressing the research question of whether psychological safety predicts team performance. The study involved three stages, beginning with observations and interviews with eight teams to develop survey measures and deeper understanding of both psychological safety and team learning.

In the second phase, Edmondson developed a questionnaire and distributed it to members of 53 other teams (496 individuals) in the same firm. An additional survey was given to two or three internal customers of each team’s work to provide data on the teams’ learning behavior and performance. Edmondson (1999) also collected data from more than one source to build the readers’ confidence in the quantitative measures used. For example, a researcher, blind to the study’s

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20 See Alderfer and Brown (1972) for a full discussion of empathic questionnaire design. When results from qualitative and quantitative assessments of the same constructs converge, this supports construct validity. See Campbell and Fiske (1959) for a full discussion of the multitrait-multimethod assessment model.

21 Analyses of the qualitative data collected in phase 1 involved examining field notes and interview transcripts for the presence of variables of interest and for differences between teams on those variables.
hypotheses, collected additional structured interview data to generate independent quantitative measures of four team design variables for each team as a way of mitigating common method bias. The researcher interviewed managers familiar with one or more of the teams and their design. Lastly, Edmondson used an extreme case comparison technique, contrasting high and low learning behavior teams, to shed light on how teams differed in learning behaviors and how those differences affected team performance.

Standard statistical analyses were used to analyze the quantitative data. The results generally supported the hypotheses, while supplemental qualitative data helped explain the quantitative findings—shedding light on how those teams worked together. These comparisons allowed a more fine-grained analysis of what was occurring “behind the numbers” within the teams. This work contributed a new mediating variable—team psychological safety—to the literature and situated it within prior models of team effectiveness that had emphasized team structure as the cause of team performance.

Summary

As these studies illustrate, a hybrid research strategy—blending qualitative and quantitative methods—may either supplement qualitative work with quantitative data or the other way around. The former allows researchers to discern unexpected relationships, serves as a check on researchers’ interpretation of qualitative data, and strengthens confidence in qualitatively based conclusions when the two types of data converge (e.g., Eisenhardt, 1989a). The latter can help make sure that statistical relationships between variables are real phenomena rather than artifacts of the measurement approach, and provide deeper understanding of and rationale for a new construct. Hybrid strategies allow researchers to evaluate the robustness of associations between variables with quantitative data and to explain and illuminate the relationships with qualitative data (e.g., Fine & Elsbach, 2000).

These studies also suggest how theory in management moves from the nascent stage toward maturity. Scholars have long advocated cycling between inductive, theory creation processes, and deductive, theory testing strategies, to produce and develop useful theory (e.g., Cialdini, 1980; Fine & Elsbach, 2000; Weick, 1979). Researchers typically pursued the former through qualitative research and the latter through quantitative research. However, interest in mixed-methods research has grown substantially over the past 25 years, along with debate over whether qualitative and quantitative methods investigate the same phenomena, are philosophically consistent, and are paradigms that can be integrated within a study (Greene, Caracelli, & Graham, 1989; Morgan & Smircich, 1980; Sale, Lohfeld, & Brazil, 2002; Yauch & Steudel, 2003). Yauch and Steudel (2003) provide a brief overview of the current thinking on this topic.

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22 The four team design variables were the extent to which a clear goal was present, the team’s task was interdependent, the team composition was appropriate, and the amount of context support each team received.

23 For instance, she first assessed internal consistency reliability (using Cronbach’s alpha) and discriminant validity (using principal components factor analysis with a varimax rotation, as well as a multi-trait multi-method (MTMM) matrix (Campbell & Fiske, 1959) for group variables. Then, the use of group-level variables was substantiated using intraclass correlations (ICCs), following Kenny and LaVoie’s (1985) recommendation. Substantive analyses to test hypotheses used regression analyses, competing models comparisons, mediation analyses (following Baron and Kenny’s (1986) guidelines), and additional GLM analyses (two-factor ANOVAs with fixed and random effects) to test categorical and continuous variables simultaneously.

24 These authors suggest that increasing validity through triangulation (see also Jick, 1979) and generating greater understanding of the underlying mechanisms that produce quantitative results are two aims consistent with hybrid research projects.
In sum, these studies proposed provisional models that challenged, integrated or introduced theoretical perspectives to address both variance- and process-oriented research questions. Both qualitative and quantitative data were collected, with varying degrees of emphasis on one type versus the other. Contributions of this work included identifying key process variables, introducing new constructs, re-conceptualizing explanatory frameworks, and identifying new relationships among variables. Commonalities across the three studies can be found below in Table MN-F.

Table MN-F  Illustrations of Fit in Intermediate Theory Research

<table>
<thead>
<tr>
<th>Nature of the Research Question</th>
<th>Eisenhardt</th>
<th>Ely</th>
<th>Edmondson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating testable research propositions about how different variables are related to strategic decision speed; and exploring how firms make fast decisions effectively</td>
<td>Preliminary tests of theory-driven hypotheses about how demographic composition in a firm affects women’s work relationships with superiors and peers; and exploring in greater detail how women experience their relationships with other women in the firm</td>
<td>Supporting a new construct—psychological safety; preliminary tests of theory-driven hypotheses about how team structure and team beliefs affect team learning and performance; and exploring how psychological safety and learning behavior in teams are related</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Method of Data Collection</th>
<th>Eisenhardt</th>
<th>Ely</th>
<th>Edmondson</th>
</tr>
</thead>
<tbody>
<tr>
<td>An interview protocol with direct observations that yielded qualitative data about decision making in fast-paced environments; also used archival data and industry reports; quantitative data about firm performance</td>
<td>A semi-structured interview protocol that yielded qualitative data, followed by the creation of an empathically designed questionnaire used to collect quantitative data as a supplement</td>
<td>An interview protocol that yielded qualitative data, followed by the creation of an empathically developed questionnaire used to collect quantitative data used in main analyses, supplemented by new qualitative data to explain quantitative relationships</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Analysis</th>
<th>Eisenhardt</th>
<th>Ely</th>
<th>Edmondson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content analysis of qualitative data into profiles and decision stories; pairwise comparisons of stories between cases; quantitative analyses mentioned to have supported qualitative data</td>
<td>Content analysis of qualitative data for input to empathic questionnaire development; quantified qualitative data; statistical analyses as initial tests</td>
<td>Content analysis of qualitative data for input to empathic questionnaire development</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Eisenhardt</th>
<th>Ely</th>
<th>Edmondson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iteratively developed research propositions and a provisional model of how firms make fast decisions</td>
<td>Provisional model integrating theories of social identity and organizational demography to explain relationship quality at work</td>
<td>New construct incorporated into a provisional model with roots in a mature theoretical model, and new integration of theoretical perspectives</td>
<td></td>
</tr>
</tbody>
</table>

Source: Note authors.
Islands of Misfit Papers

This final section explores several common pitfalls in field research characterized by a lack of methodological fit. Other common pitfalls—those related to weaknesses within a given element of field research—are not discussed, despite being equally likely to account for papers being rejected for publication. Drawing from 75 manuscripts reviewed by the first author between 2000 and 2003, we identified recurring patterns, characterized by low fit that made certain papers less compelling than they might otherwise have been. These confidential data are heavily disguised in the ensuing discussion (i.e., study topics, units, and other details have been changed), and are used to illustrate problematic pairings of method and research question and/or intended contribution.

Island 1: Using purely qualitative methods to contribute precise models to mature theory

Many new researchers use qualitative methods in ways that do not play to the strengths of this approach. Below we list a few disguised real cases.

- A paper presents an exploratory qualitative study in well-trodden territory—e.g., predictors of team effectiveness—without providing a compelling rationale for the exploratory approach.
- A paper presents a brand new theory from archival qualitative data to account for a historical disaster that has been well accounted for theoretically in the extant literature, without pointing to any limitations of, or problems presented by, the old theory.
- A paper presents an exploratory qualitative study of four teams that differ on two distinct tangible dimensions (industry and project type) associated with differences in performance in quite predictable ways. Yet, the paper ignores this and seeks to support a new theory using a third, intangible dimension (mental models for coordination) to account for the differences in performance.
- A paper presents an exploratory study of six firms and uses variance on a single variable to propose a novel theory to explain performance, despite the fact that variance among the cases on other factors included in the study is highly consistent with existing mature theory explaining firm performance differences.

The first example is not meant to suggest that it cannot pay off to revisit well-trodden theoretical territory to develop a new, more careful understanding of relationships or mechanisms. However, to do so, this aim must be stated explicitly, and something surprising must be presented. This misfit pattern may be partly due to a lack of familiarity with relevant literatures, or alternatively it may simply be driven by enthusiasm for qualitative research that leads the researcher to choose this
approach whether or not it supports his or her substantive interests. The second example similarly may represent insufficient familiarity with the relevant literature.

The third and fourth examples illustrate the use of variance thinking where process thinking might be more appropriate. In both, the reader is immediately aware of and drawn to competing explanations that are either more plausible than the one offered by the authors, or constitute well-accepted theory and are not effectively refuted by the qualitative study presented. We might even argue that to refute an existing, mature theory necessarily requires a well-designed, careful quantitative study that includes the possibility that the other theory is right.

In contrast, very effective papers may present qualitative, exploratory studies that illuminate a mechanism previously misunderstood or assumed, and provide a rich, elaborated understanding of the processes through which effective performance (or whatever the dependent variable of interest might be) is realized.

**Island 2: Using quantitative data to suggest nascent theory**

This island typically encompasses research lacking sufficient theoretical development to justify the quantitative measures used. For example:

- A paper presents a quantitative survey study of job satisfaction in a novel setting (e.g., non-profit organizations) without explaining what it is about non-profits that calls for new theory.

- A paper positions itself as exploratory and uses a survey that implicitly presents (through its inclusion of certain measures) specific theoretical commitments made early in the study.

The first paper can perhaps be rescued by reframing the purpose of the study as hypothesis testing rather than exploration. The authors might return to the literature to ground the ideas and variables in relevant literatures (e.g., on non-profit management) and to develop a more careful argument about the expected differences from for-profit organizations. For example, the paper might explain why the non-profit setting is different in ways that would matter to theory, to better support an argument that the research provides a new contribution to theory. The second paper, similarly, should ground the measures used in relevant literatures, explain its a priori theoretical commitments, and propose hypotheses for testing.

**Island 3: Using purely quantitative data to support new constructs and intermediate theory**

On this island, the research lacks sufficient theoretical development to justify the quantitative measures used. For example:

- A paper introduces a new construct (dyadic relationship quality) and a corresponding new measure that are both strikingly similar to an existing construct (trust) and uses quantitative survey research to connect the new construct to a familiar dependent variable (perceived quality of collaborative work).

- A paper introduces several new constructs (emotional context) without explaining or defining them and uses them in quantitative survey research to support specific hypotheses and “new theory” without motivating the new hypotheses logically or situating them in the literature.

- A paper examines relationships between two variables from two distinct literatures, without acknowledging this as an explicit choice or as a key aim of the paper. The paper also does not
describe a mechanism (systems or behaviors) through which changes in variable A cause changes in variable B.

All three papers would be strengthened by qualitative data to flesh out, explore, and provide a compelling case for the need for their new constructs. The first paper may not be easily resolved into a compelling contribution due to the conceptual overlap between its new construct and the existing construct. The second paper introduces new constructs and measures without sufficient theoretical or empirical justification of them. These issues can be addressed in part through more careful review of the literature and explanation of the need for the new constructs. A fuller solution, however, would entail collecting qualitative data to illustrate the nature of the construct and to validate the new measure of it. The third paper has undeveloped potential, as the bridge it seeks to build may be of considerable interest to readers of both literatures.

Island 4: Hybrid methods to support nascent theory

Finally, although this particular misfit did not show up often, at least one paper drew on quantitative and qualitative data (hybrid methods) to propose nascent theory. This was a concern because the researchers generated the quantitative data themselves—using their own instruments and measures, as opposed to including archival quantitative data as part of casting a wide net.

- A paper claims to be presenting exploratory research and emergent new theory on innovation in a study of 15 organizations, using both qualitative and quantitative data, but the quantitative measures suggest *a priori* theoretical commitments.

Here, the fix may be to focus only on the qualitative data to do a thorough job of suggesting new theory or else to reframe the study as hypothesis testing, integrating across two or more streams of previous related work, to support an intermediate and provisional theoretical model. Thus, the paper would provide careful reasoning and rationale to justify the inclusion of the constructs.

Conclusion

This note discussed examples of field-based management research to focus attention on the importance of fit between research methods and intended theoretical contributions. Broadly speaking, we argue that the stage of theory development is a critical input to methodological fit and should shape the methods used and nature of new contributions developed.

At the same time, we acknowledge that fit is not the only input to high quality research products. Notably, the quality of the individual elements of research (including the review and understanding of related literature, effective techniques for data collection and analysis, understanding and following rules of statistical inference when applicable, and so on) matters greatly. Our argument is simply that *fit* is important and potentially overlooked by busy or inexperienced researchers, consumed by the details of their endeavors, who may fail to see larger patterns that give rise to inconsistencies between their stated aims and their methods.

We suggest that fit is achieved by logical pairings between methods and contributions. More specifically, as an area of theory in management becomes more mature, with greater consensus among researchers who study the issues, important contributions are likely to take the form of precise, more carefully specified theoretical models, tested with appropriate statistical analyses. Thus, the more that is known about a phenomenon, the more critical it is to be deeply familiar with the extant literatures if one is to make a new contribution. Conversely, the less that is known about a
process or a phenomenon, from the point of view of extant research, the more likely exploratory qualitative research will be a fruitful strategy. Here, novel contributions come from calling attention to a new or previously unexplored phenomenon and pointing other researchers in the general direction of interesting variables and potential relationships.

Quantitative data allow precise tests of relationships; qualitative data allow the identification of key themes and core processes, within boundaries set by the concepts and phenomena of interest. A blend can be used when both capabilities would be useful, such as for fleshing out a new construct, while also seeking to demonstrate the plausibility of a new relationship between the construct and other more familiar variables.

Careful consideration of the type of research questions—whether variance or process oriented—clarifies the type of data needed to address the question and points toward variables and factors that should differ as well as those that should be similar within the sample studied. This is also true when testing hypotheses that are grounded in the precise models of mature theories.

Mature theory is complex but informative, and allows a higher level of confidence in the findings than the other two categories. Intermediate theory points with some confidence toward promising new models that are reasonably likely to stand up to future testing. Nascent theory opens up new terrains for research with suggestive models that require exploration in new contexts. Although no research is without flaws, effectively managing the challenges of methodological fit helps to convey compelling results to an often-skeptical audience of reviewers and other academic peers. The nine papers discussed in this note illustrate how fit across the elements of the field research can be achieved across quite different contexts and theories. The key themes emerging from these examples were summarized in Exhibit MN1, presenting a concise summary of the ideas in the note. Through these case studies, we hope to inspire other researchers to consider the issue of methodological fit in their future efforts to contribute to our understanding of organizational phenomena.
References


### Exhibit MN1 Research Projects in Nascent, Intermediate, and Mature Areas of Management Theory

<table>
<thead>
<tr>
<th>Examples of research questions</th>
<th>Nascent Theory</th>
<th>Intermediate Theory</th>
<th>Mature Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do identities of young professionals shift during a role change?</td>
<td>Does management team decision speed enhance firm performance in fast-paced industries?</td>
<td>How are junior women affected by the portion of senior women in their firms?</td>
<td>What is the relationship between the antecedents of team design and leader coaching and team effectiveness?</td>
</tr>
<tr>
<td>How do cross-functional geographically dispersed teams share knowledge and learn?</td>
<td>How do cross-functional geographically dispersed teams share knowledge and learn?</td>
<td>Does psychological safety vary across teams, and does it predict learning behavior and team performance?</td>
<td>Does trust moderate the relationship between task conflict and relationship conflict?</td>
</tr>
<tr>
<td>How does a firm innovate routinely?</td>
<td>How does a firm innovate routinely?</td>
<td></td>
<td>Is the relationship between team design and performance moderated by task?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of data collected</th>
<th>Qualitative</th>
<th>Qualitative &amp; Quantitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection methods</td>
<td>Interview &amp; observation</td>
<td>Interview, observation &amp; survey</td>
<td>Interview &amp; survey</td>
</tr>
<tr>
<td>Constructs and measures</td>
<td>Typically new constructs, few formal measures</td>
<td>Typically one or more new constructs and/or new measures</td>
<td>Typically relies heavily on existing constructs and measures</td>
</tr>
<tr>
<td>Goal of data analyses</td>
<td>Pattern identification</td>
<td>Preliminary or exploratory testing of new propositions and/or new constructs</td>
<td>Hypothesis testing</td>
</tr>
<tr>
<td>Data analysis methods</td>
<td>Thematic analyses of transcripts or notes, categorizing and coding by researcher or research assistants, seeking patterns, insights, ideas</td>
<td>Often a mix that includes standard or exploratory statistical analyses and/or coding qualitative data for correspondence with quantitative measures</td>
<td>Standard multivariate statistical analyses</td>
</tr>
<tr>
<td>Contribution to the literature</td>
<td>A suggestive theory, often an invitation for further work on the issue or set of issues opened up by the study</td>
<td>A provisional theory, often one that integrates previously separate bodies of work</td>
<td>A precise theory, one that adds specificity, new mechanisms, or new boundaries to existing theories</td>
</tr>
</tbody>
</table>

Source: Note authors.