Technical note

Renaissance of case research as a scientific method

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ABSTRACT

Since the seminal article by Eisenhardt (1989), scholarly interest in case research has mushroomed in operations management and organization sciences. Volumes of methodological texts are matched with a massive amount of empirical research that seeks to apply and further develop case research as a scientific method. What is missing from this literature is a treatment of the *methodological diversity* of case research. In this paper, we seek to unveil this heterogeneity by describing three distinct methodological accounts of case study: theory generation, theory testing, and theory elaboration. Each approach has its own idiosyncrasies, in particular when it comes to the interplay between theory and empirics. A typical case research incorporates both existing theories and empirical data to varying degrees. In light of this heterogeneity, we re-interpret key aspects of extant contributions and discuss guidelines for future case research. We propose that ultimately, case research rigor is determined by attention to idiosyncrasy and transparency of reasoning. We conclude by arguing that we have witnessed in the past 25 years in organization research what amounts to *the Renaissance of case research*.

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1. Introduction

One of the fundamental characteristics of scientific research is *transparency*. In order to evaluate the merits of an argument, one must have access both to the logic that generates the conclusion and the premises that support it. Concerning case studies in operations management (OM), Barratt et al. (2011, p. 339) concluded that case studies generally "lack details in how the study is framed and how the analysis is conducted (thus compromising) the basic scientific mode of inquiry that would call for transparency..." We believe such lack of transparency may be one of the leading causes of misconceptions and misinterpretations surrounding case research (e.g., O'Reilly et al., 2012; Pratt, 2008; Yin, 2011).

The problem is not in any way peculiar to OM research. The current editor of the *Academy of Management Review*, Suddaby (2006, p. 633) noted that grounded theory (Glaser and Strauss, 1967) "is often used as rhetorical sleight of hand by authors who are unfamiliar with qualitative research and who wish to avoid close description or illumination of their methods." Ragin (1992), in turn, wrote that "[t]he term 'case' is one of many basic methodological concepts that have become distorted or corrupted over time." The word *case* is used colloquially in numerous settings, and even within scientific communities, its use is diverse (Yin, 2003).

Scientific research is a complex endeavor and our cognition both as authors and evaluators of arguments is bounded. The problem is conspicuous in case research, not because case researchers in particular are suspect, but because case study comes in many varieties and is underpinned by heterogeneous theoretical and epistemological premises. The goal of this paper is to clarify this heterogeneity. While our context is OM research, many of the points apply also to management and organization research and the social sciences more generally. In the end, we hope that we can come to a collective understanding that case research is about making informed and justified choices, not rule following.

In order to achieve our objective, we discuss three different methodological approaches to case research: theory generation, theory testing, and theory elaboration. All three seek formulation of theoretical insight that can be understood as the outcome of the interaction between a general theory the extant literature offers (e.g., socio-technical systems theory) and the empirical context at hand (e.g., interplay between the technically organized work units and social networking of workers). The three approaches differ chiefly in the relative emphases given to theory and empirics. In Fig. 1, arrow thickness denotes degree of emphasis.

To be sure, much has been written on case study both in OM (Barratt et al., 2011; McCutcheon and Meredith, 1993; Meredith, 1993; Voss et al., 2002) and in the general methods literature on organizations and social systems (Eisenhardt, 1989; Ragin and

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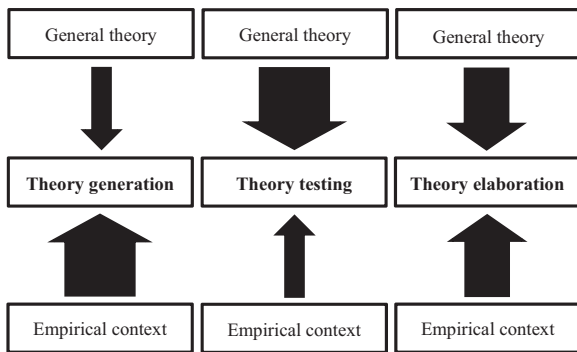
Fig. 1. Three modes of conducting case research.

Becker, 1992; Yin, 2003). Many of the technical details on issues such as case selection, within-case analysis, and cross-case analysis, have already been covered in sufficient detail. Both in contrast and in complement with existing treatments, the main focus in this paper is to discuss the general methodological heterogeneity of case research. In particular, we seek to:

1. Challenge the unnecessarily narrow view of case research as theory *generation* (cf. Barratt et al., 2011; Bitektine, 2008).
2. Focus on case research as a *scientific method*. Understanding the forms of scientific reasoning used in case research is thus of central importance. More generally, the actual reasoning practices of scientists are much more complex and idiosyncratic than what methodological texts may lead us to believe (Mantere and Ketokivi, 2013; Stanovich, 1999). Related to this, we argue that while a number of prescriptive guidelines can be formulated, case research is ultimately not formulaic. We highlight both the formalized (computational) and the more idiosyncratic (cognitive) aspects of case research.
3. Establish that case research is an end in and of itself. The aim of case research is *not* to produce theories for others to test. Theories produced in case research can certainly be subjected to further testing, but as an *extension* of the earlier case research rather than as its validation.
4. Establish that declarations such as "we followed the grounded theory process" tend to be detrimental to transparency. In 2006 the editors of the *Academy of Management Review* (Bartunek et al., 2006) voted Dutton and Dukerich's (1991) grounded-theory case research of the Port Authority of New York and New Jersey as the most interesting piece of empirical research on organizations. The first reference to Glaser and Strauss appears in the last paragraph of this article. Case research must be made transparent by demonstration of what one has done, not by declaration that a formalized process was followed (Holton, 2007).

Finally, while this paper focuses solely on case research, it is important to note that one of the strengths of OM research has always been the combination of different methodological approaches and research designs. Case research is one of the many available methods such as analytical modeling, problem-solving, survey, behavioral experimentation, and others. They are all both valid and indispensable approaches to OM research.

2. The three modes of case research

Conceptual clarity is essential. We highlight two concepts in case research, because they link to the fundamental question of what is and what is not case research: the qualitative–quantitative distinction and the duality criterion.

2.1. Qualitative vs. quantitative research

For most of us, quantitative research refers to either large-sample research that relies on statistical inference (i.e., empirical quantitative) or mathematical and stochastic modeling (i.e., analytical quantitative). In contrast, qualitative research has typically been considered through what it is *not*. Whatever is not quantitative is qualitative; what is not numerical data is textual (e.g., interviews); what is not deductive is inductive; et cetera. Therefore, it is not surprising to find that case studies in OM are typically labeled qualitative (Barratt et al., 2011).

We submit that such distinction is misleading. First, implicit definitions by negation are neither rigorous nor impartial. Second, many research approaches categorized as qualitative in the above sense make use of quantitative data as well. Instead of focusing on the nature of the data used, we recommend adopting definitions of qualitative and quantitative research based on the meaning of the words *qualitative* and *quantitative* (cf. Denzin and Lincoln, 2011).

Qualitative = research approach that examines concepts in terms of their meaning and interpretation in specific contexts of inquiry. Quantitative = research approach that examines concepts in terms of amount, intensity, or frequency.

In light of these definitions, much of the case research pegged as qualitative appears to adopt a fundamentally quantitative orientation. Consider Proposition 1 in Eisenhardt and Bourgeois (1988, p. 743): "The greater the centralization of power in a chief executive, the greater the use of politics within a top management team." The essence of the proposition is the association between two quantities that vary in intensity and covary with one another. For an OM example, consider Proposition 2 in Choi and Hong (2002, p. 488): "The cost consideration represents the most salient force that shapes the emergence of the supply network structure." This proposition, too, is based on the notion of measurable quantities. These are just two examples out of many. Indeed, it is not at all uncommon for many case researchers *to think quantitative*. While the quantitative approach often also involves actual measurement of the quantifiable characteristics (Nunnally and Bernstein, 1994), measurement is not a necessary condition: one can be theoretically quantitative without actually measuring anything. In the qualitative–quantitative distinction, what is central is one's fundamental theoretical orientation, not the data or the analysis method used. Indeed, in their classic introduction to grounded theory (the paradigmatic qualitative research approach), Glaser and Strauss (1967) devoted an entire chapter to showing how the grounded theorist can use quantitative data.

The quantitative orientation of case research can also manifest itself in research design. In a multiple case study, for instance, one engages in cross-case analysis by explicit comparison of cases in terms of measurable characteristics. Theoretical sampling of cases, in turn, often relies on quantitative criteria. Choosing *polar types* of cases (Eisenhardt, 1989, p. 537) presupposes an underlying dimension onto which candidate cases map. In multiple case research therefore, both sampling and comparative cross-case analysis are based on quantification.

To illustrate the qualitative–quantitative distinction, consider research on culture. What distinguishes the quantitative researcher from the qualitative is the way the researcher conceives culture as a concept. Hofstede (1980) approached culture through quantifiable dimensions such as *power distance* or *uncertainty avoidance*. A key ingredient of his theory is the notion that different cultures exhibit different degrees of these quantities. For qualitative researchers on culture, such as Geertz (1973) and other ethnographers, quantities, dimensionality, and measurement are irrelevant. Geertz's (1973) anthropological inquiry into Balinese cockfights is about symbols,

identification, and shared meaning. It relies on a methodology that Geertz (1973, pp. 3–30) labeled *thick description*. In sum, Hofstede and Geertz represent two rigorous, analytical, and empirical, but at the same time, profoundly different research approaches to culture.

2.2. The duality criterion of case research

The essence of case research, we submit, is found in the duality of being *situationally grounded*, but at the same time, seeking *a sense of generality*. Meeting both requirements satisfies what we label *the duality criterion*. Being situationally grounded means one remains empirically disciplined and pays heed to contextual idiosyncrasies *already in the data collection phase*. Seeking a sense of generality in turn involves an attempt to transcend the empirical context and seek broader theoretical understanding through abstraction (e.g., Gioia et al., 2013). A case study of Honda's supply network (Choi and Hong, 2002) cannot be just about Honda's supply network. There needs to be a more general question the research is seeking to address. Analysis of Honda's supply network, more generally, is about the structural patterns of value chains.

To clarify, the question of generality is not whether the results *generalize* to other empirical contexts or to other observational units. The question is rather about the extent to which a sense of generality can be found in terms of theory: why should someone who neither knows anything about nor is in any way interested in Honda be interested in reading the manuscript? Every empirical context is unique, but the essential subject matter of scientific work cannot be uniqueness. Contextual idiosyncrasy in case research must be balanced with an examination of the more general theoretical implications.

2.3. Different modes of conducting case research

Cases may be useful toward many ends (i.e., journalistic cases in articles in the Wall Street Journal or teaching cases published by Harvard Business Publishing), but case *research* is aimed at creation of knowledge. To this end, a critical requirement in empirical research is that some form of data be used as an integral part of a process of scientific reasoning—induction, deduction, and abduction[1]-by which the researcher proceeds from a set of grounds to a set of claims (Toulmin, 2003). Both the process (reasoning) and the outcome (claims) must be explicit and transparent so as to enable a meaningful evaluation of their logical consistency and plausibility.

The duality criterion can be satisfied in different ways in different types of case research. Central to understanding duality are the roles of theory and empirical analysis (see Fig. 1). We highlight three modes of conducting case research relevant to OM researchers. These three modes link to the fundamental research interest espoused by the researcher (e.g., Pratt, 2008, p. 502):

1. Case research as theory generation
2. Case research as theory testing
3. Case research as theory elaboration

Theory plays an integral role in all three, but in different ways, as depicted in Fig. 1. Our aim is to delineate these differences and to describe what kind of knowledge is created using each mode. Under each mode, we discuss the general premises, the scientific

reasoning process, and how the perspective meets the duality criterion. All these are crucial aspects in establishing transparency and methodological rigor.

3. Case research as theory generation

Also known as *inductive case study* (Eisenhardt, 1989), this variant is probably the most common and the most familiar case research approach. The premise is that whenever theory does not exist, there is the option of generating it using empirical analysis. While seemingly reasonable, it raises several questions: How do we determine whether theory exists? How often do researchers really face research situations where there is no applicable theory? Is it possible to frame a research question without being at least somewhat theoretical?

The question in theory-generating case research is not whether a priori theories exist. The researcher's concern is that when the research context is novel and unfamiliar, selecting an a priori theory through which the question is examined may create undue bias toward being theoretically conservative and directing attention to empirical observations that can be couched in the pre-selected theory (Martin and Eisenhardt, 2010). Therefore, the premise in theory-generating case research is that in the context of the specific research question and empirical setting, *explanation* (theory) derives from *exploration* (analysis).

3.1. Reasoning

In theory-generating research, multiple case research in particular, researchers look for both similarities and differences across cases and proceed toward theoretical generalizations. Central to this reasoning is *induction*, more specifically, Bacon's ([1620] 1901) *method of eliminative induction* and Mill's ([1843] 1882) *method of agreement and difference*, which give primacy to empirical observations. Of more contemporary methodological contributions, Glaser and Strauss' (1967) formulation of grounded theory research emphasizes empirical observations as the driving force. While theory is by no means absent, in a grounded theory approach the process of theoretical abstraction from data does not privilege *any one theory* (Holton, 2007).

In terms of reasoning, theory generation is often described as inductive (Eisenhardt, 1989). Two clarifications are needed, however. First, because there are many different types of inductive reasoning, considerable elaboration is needed to fully understand what is meant by induction (see Hawthorne, 2012). Second, reasoning in theory generation is not limited to induction from empirical data (see Fig. 1). In fact, the same holds for all case research approaches: all case researchers use all forms of reasoning, they just use them in varying proportions and toward different ends (Mantere and Ketokivi, 2013).

3.2. Meeting the duality criterion

In theory-generating case research, situational groundedness is straightforward. An essential feature of the theoretical insight is its contextual emergence and the idea that theory remain comparatively close to the data. The amount of abstraction remains comparatively low in comparison with the other two approaches discussed here (cf. Langley, 1999). This emergence gives primacy to empirical regularities obtained through observation and analysis of data.

Establishing generality is less straightforward, because the theory-generation process hinges so fundamentally on situational groundedness. However, incorporation of a general theory may help establish a sense of generality. It can be used, for instance, to establish the more general appeal of the emergent theory. Martin

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[1] These three forms of reasoning and their variants (e.g., eliminative vs. enumerative induction) are defined and discussed in detail in the context of organizational research by Ketokivi and Mantere (2010) and Mantere and Ketokivi (2013). Instead of reproducing the definitions here, we recommend those unfamiliar with the concepts to look at these two articles.

and Eisenhardt (2010) offer an excellent example of how general theory could provide an important vantage point for understanding the logic of the emerging theory. In their study, Martin and Eisenhardt developed a theory of cross-business-unit collaboration using a theory-generating approach. A crucial aspect of their analysis is comparison and contrast of the emerging theoretical insight with existing and established general theories of information processing (Galbraith, 1974) and transaction cost economics (Williamson, 1975).

According to Glaser and Strauss (1967), the end result of grounded theory research is not to be taken as speculative, pending confirmation of the hypothetico-deductive test. The criterion of generality is thus not whether or not the grounded theory lends itself to future testing in other contexts. The emergent grounded theory *has already been tested* by virtue of being grounded in empirical observation and analysis. To claim that a further test is required to confirm grounded theory rests on the questionable assumption that the only way to test a theory is hypothetico-deductive (Glaser and Strauss, 1967, p. 234). Even the architect of hypothetico-deductivism, Carl Hempel made no such claims. On the contrary, he explicitly acknowledged that hypothetico-deductivism is merely one possibility (out of many) to consider the question of explanation (Hempel, 1965, p. 412).

To clarify, case researchers can, if they so choose, generate theoretical propositions to be subjected to a hypothetico-deductive test. Indeed, the typical end result of many theory-generating case studies in OM is a set of propositions that could in fact lend themselves to such testing: just to name a few, see Choi and Hong (2002), Closs et al. (2008), Heikkilä (2002), Pagell (2004), and Salvador et al. (2002). However, the merits and contributions of theory-generating case research are not dependent on such tests. Therefore, we strongly disagree with Eisenhardt (1989, p. 546) who argued that the role of case research is to develop "testable hypotheses." While intuitively appealing, this criterion is difficult to enforce. What would be the *methodological* criterion for assessing the potential testability of a hypothesis? Fundamentally, if the hypotheses were developed through rigorous grounded theory, further testing would not be necessary.

4. Case research as theory testing

Barratt et al. (2011) observed that in OM research, theory-generating case studies clearly outnumber theory-testing case studies. They also point out the mechanics of conducting a theory-testing case study are not as well developed in the literature as those of the theory-generating case studies. However, there is nothing in the fundamental idea of case research that prevents a researcher from putting a theory to a test. The data are simply approached differently compared to theory generation, with more a priori theoretical discipline (see Barratt et al., 2011, for more details). We begin with a clarifying example.

4.1. Walker and Weber's study of the make-or-buy decision

Consider Walker and Weber's (1984) classic empirical study of the make-or-buy decisions of a total of 60 components in a division of a large U.S. automobile manufacturer. Statistical analysis using a structural equation model was used to test a number of hypotheses. In contrast to seemingly obvious appearances, we argue that the study exhibits the characteristics of a case study, because in addition to seeking a sense of generality, the study is clearly situationally grounded.

Situational groundedness is found, for instance, in Walker and Weber's Hypothesis 2: "Technological uncertainty increases the likelihood of a make rather than a buy decision." While the general logic of the hypothesis is couched in transaction cost economics (sense of generality), the justification for why specifically *technological* uncertainty matters is expressly contextual and situationally grounded.[2] This is further the reason why the authors collected data specifically on technological uncertainty. The relevance of situational groundedness arises here from understanding that technological change in auto assembly requires retooling and that tools are extremely expensive. Further, even though the tools are used by the supplier, retooling is actually paid by the buyer (Walker and Weber, 1984, p. 376). That the tools used by the supplier are owned by the buyer is an idiosyncrasy most other industries do not share: most firms own the specialized assets they use in production (Williamson, 1985). Context has become part of the theoretical logic of the hypothesis, and indeed, Hypothesis 2 cannot be understood without incorporating the auto industry context. Therefore, despite being a large-sample hypothetico-deductive study, the Walker and Weber study exhibits the situational groundedness of case research. The hypotheses to be tested are a combination of general theory (transaction cost economics) and contextual idiosyncrasies. It would make little sense to try to test the exact same hypotheses in another context. One could describe the Walker and Weber study as a test of *the contextualized logic* of transaction cost economics.

4.2. Reasoning

The driving force in conventional theory testing is *deduction*: explicit derivation of hypotheses from an a priori selected underlying theory. Theory-testing case research also follows this conventional hypothetico-deductive formulation. The difference in comparison with typical large-sample studies is that the context is incorporated in the deduction of hypotheses. As the Walker and Weber study demonstrated, contextual idiosyncrasies may become premises in deducing hypotheses. In theory-testing research, the general theory provides the basic logic for the propositions to be tested. In the context of case research, this general logic is augmented (not challenged) by contextual considerations and ultimately tested using data from the empirical context.

While the process of deriving propositions from theory is deductive, data analysis and drawing of empirical conclusions can exhibit inductive and abductive characteristics. In other words, theory-testing is *driven* by theoretical deduction, but not exclusively limited to it. For instance, if statistical inference is used, reasoning is *enumerative* (as opposed to *eliminative*) induction (Hawthorne, 2012).[3]

4.3. Meeting the duality criterion

In theory-testing case research, the researcher explicitly contextualizes the general theory before subjecting it to an empirical test. Propositions thus become situationally grounded, because the theoretically essential features of the context become part of the theory. In other words, the propositions come situationally grounded *already in the theory phase of research*. If this happened in the empirical phase instead (propositions were informed by

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[2] For comparison, consider the basic structural contingency theory proposition that *larger organizations tend to develop more decentralized structures*. This proposition is not situationally grounded, because its logic can be understood without incorporating an empirical context.

[3] Understanding the difference between enumerative and eliminative induction is critical. Generalization through enumerative induction is comparatively straightforward, whereas eliminative induction is a multi-step process that takes skill to execute. The pitfall in using eliminative induction in case research is that researchers may inadvertently arrive at a conclusion that simply confirms a pre-existing expectation. Therefore, remaining empirically disciplined is paramount.

empirical data), the research would start exhibiting the features of theory-generating research.

A sense of generality in theory testing is supported by the logic and the concepts of the general theory. Invoking a general theory establishes the examined relationships as having broader theoretical appeal. For example, the situationally grounded observation of technological uncertainty linking to the make rather than the buy decision (Walker and Weber, 1984) is made more broadly relevant in two ways. The first is by demonstrating that the observation can be examined in multiple empirical instances within the organization (i.e., 60 make-or-buy decisions), which enables empirical generalizations. The second is by showing how the mechanism by which uncertainty, associated with tooling technology, has implications to the attractiveness of using outsourcing as an option. This observation can be understood by invoking a more general mechanism based on transaction cost economics (Williamson, 1985) that links uncertainty to firm boundaries.

5. Case research as theory elaboration

Theory elaboration focuses on the contextualized logic of a general theory. In this regard, its underlying logic is similar to theory testing. The primary difference is that the researcher does not seek to test this logic, but rather, to *elaborate* it. While the researcher may be able to apply an existing general theory, it may be the case that the context is not known well enough to obtain sufficiently detailed premises that could be used in conjunction with the general theory to deduce testable hypotheses. Also, the researcher may wish to explore the empirical context with more latitude and serendipity, therefore, empirical data are used not only to test a theory but also to challenge it. Theory-elaborating case research also differs from theory-generating case research in that the researcher has identified a general theory that can be used to approach the empirical context.

There are many ways in which theories can be elaborated: one can introduce new concepts, conduct an in-depth investigation of the relationships among concepts, or examine boundary conditions (cf. Whetten, 1989). As an example, Ketokivi (2006) examined flexibility strategies in the context of a multinational metalworking corporation. The study was based on the general logic of structural contingency theory, but the contextual contingencies were not a priori identified, as in the Walker and Weber study. Instead, they were informed and shaped by empirical analysis. The contingencies did not *emerge* from the data, as in a theory-generating study.

5.1. Reasoning

In contrast to the other two approaches, successful theory elaboration hinges on the researcher's ability to investigate the general theory and the context *simultaneously*, in a balanced manner. Therefore, the aim of theory elaboration could be described as reconciliation of the general with the particular.

In theory elaboration, much like in theory testing, a general theoretical logic is applied. But unlike in theory-testing, the theory-elaborating researcher does not anticipate the empirical findings by a priori formulation of propositions. Merton (1957) in particular wrote about the importance of serendipity, which in theory-elaborating case research entails remaining open to unanticipated findings and the possibility that the general theory requires considerable reformulation (see also Alvesson and Kärreman, 2007). One can think of theory elaboration as disciplined iteration between *general* theory and the empirical data. This approach stands in contrast with the more familiar iteration between *emergent* theory and empirical data in theory-generating case research.

Efforts at elaboration emphasize *abductive reasoning* (Niiniluoto, 1999; Peirce, 1878). In case research, abductive reasoning involves modifying the logic of the general theory in order to reconcile it with contextual idiosyncrasies. By adopting the abductive reasoning approach, Ketokivi (2006, p. 223) found that in the process industry context, demand uncertainty and asset specificity, among other factors, emerged as the central contingencies. The empirical results thus partly reaffirmed the contingencies of original structural contingency theory (e.g., uncertainty), but also introduced new contingencies, such as asset specificity from transaction cost economics. The end result is not a test but rather, an elaboration of structural contingency theory. This elaboration can involve the combination of several theories, or introduction of concepts from another theory. Theory elaboration treats the general theory as malleable. In contrast, when a theory-testing researcher invokes some aspect of the context as a premise in theory testing, the logic of the general theory is not challenged, and new concepts are typically not introduced.

5.2. Meeting the duality criterion

In terms of both the role of general theory and the empirical context, theory elaboration lies in between theory testing and theory building (see Fig. 1). It seeks situational groundedness using a similar logic as grounded theory, with the exception that it engages in more theoretical abstraction. While categories and concepts are ultimately grounded in the data, this process exhibits less emergence as it is guided by a priori theoretical considerations.

In establishing a sense of generality, theory elaboration relies on general theory as well. The contextual idiosyncrasies are interpreted as empirical elaborations of more general concepts and categories. In the study by Ketokivi (2006), a sense of generality is established when concepts currently not incorporated in the structural contingency theory (e.g., asset specificity) are introduced to reconcile the theory with the empirical context.

6. Three research approaches as ideal types

The three case research approaches are based on different logics. Each perspective presents one possible way of thinking about the roles and interplay of theory, empirical data, and the context in case research. Different perspectives also use different strategies to meet the duality criterion. The perspectives are, however, best understood as *ideal types* (e.g., Doty and Glick, 1994) in that they may not be found in their pure forms in actual research. The approaches are not mutually exclusive, and it would be misleading to try to classify individual researcher endeavors as unambiguously belonging to one single category. For instance, Walker and Weber (1984) is a representative example of theory-testing case research not because it unambiguously belongs to this category but because it effectively illustrates, in particular, how a researcher can transcend the specific empirical context and seek generality using general theory.

6.1. Reconsidering the logic of extant case research approaches

Consider again the Eisenhardt and Bourgeois (1988) article. The study is framed as a theory-generating study, yet existing theories are invoked at several junctures. The authors' basic research questions are similar to research questions many other researchers of organizational politics have asked before: Why do organizational politics emerge? What is the shape of politics? How do politics affect performance? These questions are *not* novel. Similarly, many of the concepts used similarly coincide with concepts used in extant theories: centralization of power, stability of alliances, and demographic similarity. These concepts and the associated categories cannot possibly exclusively emerge from the data; instead, there must be more than pure data-driven inductive reasoning that

brings them to the researcher's attention. In terms of the results and emerging hypotheses, the authors discuss and interpret them by contrasting them with the predictions and observations from established theories on decision making. While the end result is a theoretical model of decision-making in a specific context, it has clearly been informed not just by the data but broader theories of decision making. Indeed, instead of theory generation, one could reasonably think of the study as theory elaboration: the research elaborates the general theories of organizational politics in the empirical context of rapid change. Alternatively, one could point out that whether or not theory is empirically grounded is not a yes/no issue, but a matter of degree.

Another example is offered by Choi and Hong's (2002) study of supply networks in the auto industry, which similarly exhibits features of both theory-generating and theory-elaborating approaches. While the general research design most closely resembles the theory-generating approach, the authors apply well-established concepts from structural contingency theory (Lawrence and Lorsch, 1967): formalization, centralization and complexity. Indeed, the entire research endeavor starts with characterizing the general structure of supply networks in these dimensions, definitions for which are taken directly from the organization design literature. In the empirical part, Choi and Hong contextualize these general characteristics in the supply networks of automobile center console assembly. For instance, formalization, in the case of Honda's supply chain, revolves around contracting, whereas in the case of DaimlerChrysler, platform and design issues are central. Clearly, while the focus of the study is not to elaborate the logic of structural contingency theory, features of the theory-elaborating approach can be identified.

The discussion of the Choi and Hong study aptly reveals that what the original authors intend and what the audience takes out of a case research study may or may not coincide. This is understandable, because every attempt at understanding a scientific argument is a sensemaking process. However, this is not to be construed as a shortcoming. On the contrary, the fact that different readers arrive at different interpretations can be a source of further illumination and insight. Equivocal interpretations are legitimate as long as they are rigorous. Equivocality becomes a problem only when it arises from misinterpretation due to lack of transparency.

6.2. Understanding and describing actual research designs

While the three approaches are best described as ideal types that are not found in their pure form in actual research applications, most case research efforts nonetheless tend to emphasize one type over the others. Using the typology can help case researchers position their work in methodological terms, much like how contingency theorists can empirically invoke the ideal types of *mechanistic* and *organic* organization structures (Burns and Stalker, 1961) to make sense of the structures of actual organizations.

To assist case researchers explicate their own thinking and research design, Fig. 2 contains a decision tree that presents the pertinent questions. Going through one's own research ideas using Fig. 2, case researchers may be able to describe and present their own style of case research in a tractable manner. Our intent is not to offer a mechanical process to designing a case study, but to offer a way of establishing transparency. The essence of the decision tree is that it challenges the researcher to examine in particular whether (and how) the duality criterion is met.

7. Discussion

This discussion section is organized around examining what we consider to be the three most elusive concepts: generality, transparency, and cognition. These concepts are examined from the point of view of advancing theories and explicating the link between theory and empirical analysis. The latter involves sensemaking and interpretation, both of which are cognitive activities and tend to be researcher specific and idiosyncratic.

7.1. Generality

Existing theories unavoidably play a role in all case research, and discussions of generality could be much improved if researchers examined and disclosed the role of existing theories and concepts in more detail. In many grounded research endeavors, it cannot be a coincidence that researchers end up with many of the same *core categories* (Glaser and Strauss, 1967) and the same concepts found in existing theories. This suggests that researchers always enter the data analysis phase conditioned by at least an expectation of some kind (O'Reilly et al., 2012, p. 250).

The inability to see and failure to acknowledge the implicit conceptual and theoretical dispositions is one of the most common pitfalls of case research. While many authors have acknowledged that it is impossible to conduct case research with a clean theoretical slate, they usually stop there and do not disclose how they dealt with this issue in their own research. If they do not start with a clean slate, what exactly is the starting point? We have an abundance of examples of inductive theory-generating case studies where the key concepts used in the emergent propositions coincide with concepts found in established general theories. In order to establish transparency, researchers must explicate how and why this happens.

7.2. Transparency

No matter how much we strive to be objective, we never are, and objectivity is never an actionable and operational methodological criterion (Stanovich, 1999). When we engage in a critical reading of a manuscript, we may think we ask "Is this research objective?" However, the question we are really asking is "Does this research make sense?" If so, to the extent we are able to make sense, research becomes inter-subjective, that is, we understand the author's argument.

Generally, reasoning can be divided into two categories: computational reasoning and cognitive reasoning. In the former, the process of reasoning proceeds in an inter-subjective manner through formalized, pre-determined rules and procedures. Induction and deduction are computational forms of reasoning (Mantere and Ketokivi, 2013). The role of cognition in computation is only instrumental: cognition is used merely to perform the computation. However, we also engage in reasoning that is both less formalized and more idiosyncratic (Stanovich, 1999, 2011), which puts us in the realm of cognitive reasoning. Here, the process of reasoning follows less formalized and less pre-determined paths. Cognition is no longer merely instrumental but becomes essential. Computers and algorithms do not engage in cognition. Because cognitive reasoning is not based on formal pre-determined rules and procedures, making it transparent presents a challenge. Abductive reasoning belongs to this category (Lipton, 2004, p. 210).

The resulting idiosyncrasy in scientific reasoning does not become transparent by declaration. When we state that our theory emerged from the data inductively and reference Eisenhardt (1989), we are implicitly suggesting an objective reasoning process was followed. Unless the researcher elaborates the reasoning process, the claim reduces to a mere rhetorical appeal to objective reasoning, which in turn constitutes a serious threat to
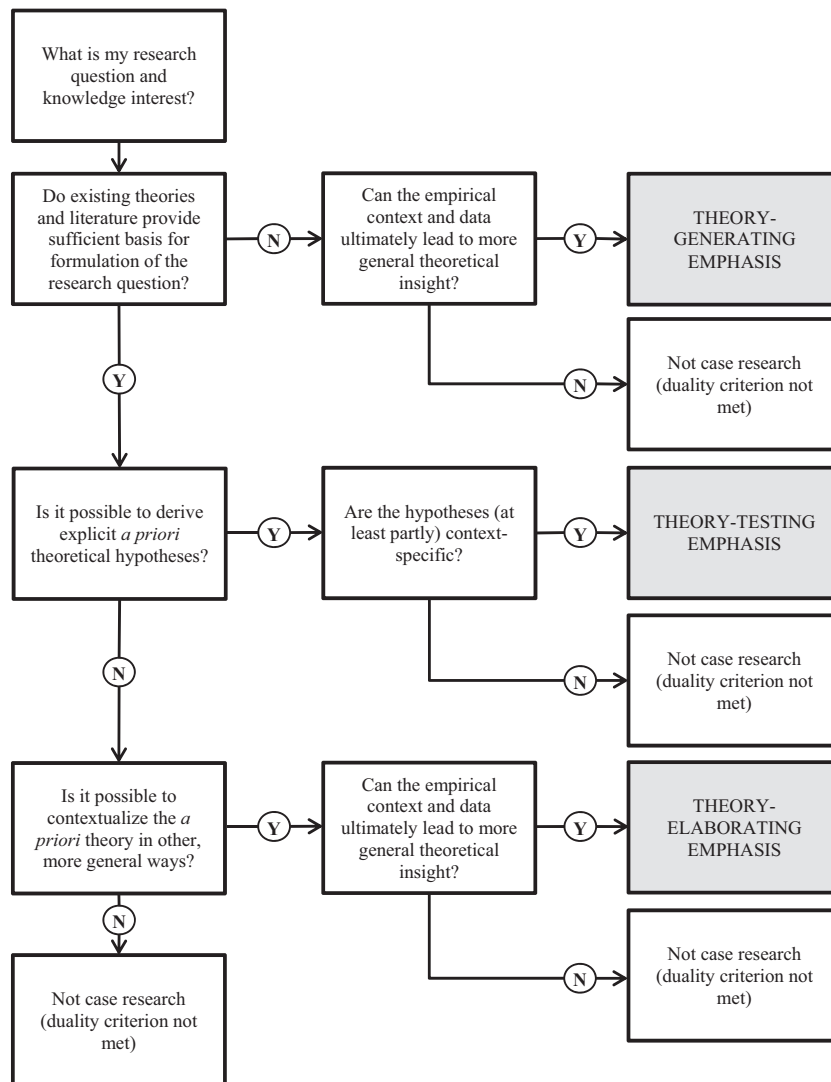
Fig. 2. Case research decision tree.

transparency.[4] Gioia et al. (2013) and Dutton and Dukerich (1991) are good examples of how transparency can be achieved by avoiding declaration.

7.3. Cognition

A common critique of case research, grounded theory approaches in particular, is that they fall prey to self-fulfilling prophesies (Barratt et al., 2011)—researchers see what they expect to see. However, self-fulfilling prophesies are not so much characteristics of case research as they are instances of *poor* case research, much like ignoring multicollinearity is not a characteristic of statistical analysis, but rather, sloppy statistical analysis. A key practice in *good* case research is to maintain a healthy tension between theory and empirical analysis. The idea of *fitting theory to data* (or vice versa) is ultimately misleading. Specifically, a rigorous

case researcher allows all theoretical predispositions and emerging theoretical insights to remain challenged by the data, and symmetrically, a theoretical predisposition can lead to novel ways of interpreting the data (Alvesson and Kärreman, 2007).

Serendipity entails remaining open to being *surprised* by the data and, once encountered, to make sense of these surprises through disciplined analysis. This specifically prevents researchers from simply confirming pre-existing dispositions. It also puts researcher cognition at center stage: theorizing using empirical data is more a dialog between theoretical explanation and empirical analysis than unidirectional reasoning from data to conclusions. Theoretical conclusions are not *discovered* from the data, they are *actively constructed* by the cognitive mind. If we are not surprised once by the data in the data analysis phases, the chances are we are simply seeing what we want to see. In Dutton and Dukerich's study, for example, organizational identity ultimately became the central concept, even though it was not what the authors originally intended to examine (Dutton and Dukerich, 1991, p. 525).

8. Concluding thoughts: renaissance of case research

Editorial policies call for research that is both methodologically rigorous and practically relevant. We propose that the combination of situational groundedness and establishment of a sense of

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[4] Theoretical explanations *cannot* arise solely by inductive reasoning from empirical data (Carnap, 1956). Indeed, a careful look at methodological texts on grounded theory reveal that while some parts – *microanalysis* and *open coding* – of the grounded theory method are inductive, the two subsequent, more theoretical phases – *axial coding* and *selective coding* – clearly exhibit abductive features (Strauss and Corbin, 2002). It is important to make all these phases maximally transparent.

generality espoused in case research can be an effective strategy in seeking to satisfy these criteria. We agree with Van de Ven and Johnson (2006) that relevance of academic research is likely not established merely by translating the research results into the language of the practitioner. The challenge is not knowledge *transfer* but more fundamentally knowledge *production* (Van de Ven and Johnson, 2006, p. 808). From this perspective, establishing relevance is not confined to an *ex post* activity but, instead, must pervade the entire research design.

Considering further the challenge of knowledge production, we observe an interesting tension between the intellectual foundations of modern science and those of contemporary case research (see Toulmin, 1990). Specifically, modern science tends to emphasize the universal over the particular and the general over the local. Indeed, with the advent of modern science, "general principles were in, particular cases were out" (Toulmin, 1990, p. 32). Tension arises because case research stands in many ways in opposition to these tenets of modern science. Yet, case researchers *are* scientists. How do we reconcile the tension in a way that makes case research commensurate with modern science? Or, do case researchers have to follow the tenets of modern philosophy of science in the first place? Science, yes, but *modern* science, not necessarily. There is a fundamental tension between, for instance, situational groundedness and the principles of formalization and generalization.

If we look at the times before the Scientific Revolution, we witness an almost exclusive focus, by scientists, on the particular, the local, and the timely (Toulmin, 1990). The knowledge interest was not abstract or universal, but rather, focused on the pragmatic demands of contemporary life. To be sure, scientists were meticulous in their observations and analysis, they were just less interested in theoretical abstraction. Scientific rigor is hardly a modern invention. Neither are induction, deduction, and abduction.

Perhaps the true intellectual foundation of case research lies not in modern science but the times of the Renaissance, when fields such as medicine, law, and engineering, even moral philosophy, were case-oriented in their approaches. Many of them still are, some to a great extent. Further, the knowledge interests in these applied fields clearly overlap with the interests of management researchers. A few prominent OM scholars have emphasized similar case-oriented nature of our discipline (e.g., Meredith et al., 2002). Echoing this sentiment, a casual glance at the introduction sections of scholarly articles reveals that many of us justify our research by directing attention to the particular, the local, and above all, the timely. Of course, the managers we converse with are concerned, exclusively, with the pragmatic demands of contemporary business. To them, relevance is the primary criterion.

Many criticisms levied against case research trace back, in one way or another, to the premise that all scientists should seek formalization, generalization, and abstraction (e.g., Pratt, 2008). However, we are quite justified in simply rejecting these premises. Promotion of formalization and abstraction are an expression of research policy, not methodology. To the extent that contemporary and future scholars want to address contemporary organizational problems and establish credibility in the eyes of the managers of their times, focusing on the formal, the general, and the abstract can be antithetic. We must not default to the formal, the abstract, and the general, consequently potentially undermining situational groundedness. To this end, we hope that what we have witnessed in the past 25 years are just the first steps in what constitutes nothing short of the *Renaissance of case research*.

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