What kinds of qualitative methods are adapted to doing research in which epistemological frameworks?

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Résumé :

Cette communication examine la question de la validité des recherches qualitatives dans différents cadres épistémologiques, dont notamment ceux du réalisme critique et du constructivisme pragmatique.

Elle offre un panorama des paradigmes épistémologiques fréquemment mobilisés dans la recherche contemporaine en management et met en évidence les raisons pour lesquelles certains types de méthodes de recherche qualitative sont adaptés à la conduite de recherches dans certains cadres épistémologiques alors qu'ils ne conviennent pas à d'autres. En outre, pour chaque tradition épistémologique considérée, au moins un type de méthode qualitative adapté à la conduite de recherches dans cette tradition est mis en exergue à des fins illustratives.

Les explications apportées concernant la manière d'assurer une cohérence entre méthodes de recherche et cadres épistémologiques constituent des repères utiles pour se repérer dans le maquis des différents types de méthode et des divers préceptes méthodologiques pour conduire des recherches qualitatives rigoureuses, disponibles dans la littérature. La communication offre également diverses indications précises destinées à aider le chercheur à prendre des décisions mutuelles cohérentes tout au long d'un projet de recherche qualitative, à partir du démarrage du projet jusqu'à la publication des résultats.

Mots-clés : recherche qualitative, validité, cadre épistémologique, réalisme critique, constructivisme pragmatique

"Underlying any form of research is a philosophy of science (…). It is better to choose a philosophy of science than to inherit one by default."
Van de Ven (2007, p. 36)

Introduction

Even though the amount of qualitative research being performed has soared over the last forty years, few qualitative papers end up being published in top tier academic journals. For instance, only 22 case-study based papers were published between 1995 and 2000 in AMJ, ASQ, and SMJ (Gibbert et al., 2008). Accompanying the development of qualitative research has been criticism concerning its rigor (Gibbert et al., 2008; Pratt, 2009). These critiques have generated reflections on how to improve qualitative research quality which, in turn, has sparked numerous contributions on how to rigorously conduct qualitative research. For instance, Avenier & Parmentier (2012), Dialogical Method; Charmaz (2006), Gioia (1994, 2010, 2012), Glaser (2004),Grounded Theory; Denzin & Lincoln (2003a, 2003b), Silverman (2011), Qualitative Inquiry; Lincoln & Guba (1985), Naturalistic Inquiry; Denyer et al. (2008), Pascal et al. (2013), Design Research; Eisenhardt (1989, 1991), Yin (1989/2009), Case Study; Schwartz-Shea & Yanow (2012), Interpretive research design.

As noted above, a great variety of methods are available including single case study, comparative cases study, grounded theorizing, interpretive studies, design studies, etc. This diversity is a source of richness, but it is also a source of confusion when it comes to deciding how to conduct a qualitative research project in practice. Here are a few examples of confusions that are frequently cited: mimicking quantitative research (Pratt, 2009); inappropriately mixing inductive and deductive strategies (Pratt, 2009); mistaking descriptive studies with grounded theorizing (Glaser, 2004; Suddaby, 2006); mixing guidelines offered by various authors (such as, in an example cited by Pratt (2009), striving to control for variance in an inductive narrative study). These confusions are often prejudicial to research internal consistency and, consequently, to the soundness of research results.

This variety of methods is also a source of difficulty when it comes to evaluating qualitative research (Pratt, 2009), because of the lack of evaluation standards it generates. This absence of evaluation standards stems not only from the diversity of methods but also from the variety of epistemological frameworks in which these methods can be carried out (Gephart, 2004 ; Langley & Royer, 2006 ; Pratt, 2009; Yanow, 2006). Indeed, any research project takes place with-

in an explicit or implicit epistemological framework (Van de Ven, 2007). If the research method mobilized is not consistent with the research epistemological framework, the research results will be limited and superficial (Gephart, 2004), if valid at all. However, scholars who develop research methods do not always explicitly specify the epistemological framework with which their method is consistent. Because of this lack in practice, it is fundamental and practically useful to investigate and clarify the consistency between research methods, quality criteria, and epistemological assumptions (Gephart, 2004; Langley & Royer, 2006).

This is the purpose of this current paper. More precisely, it aims at offering landmarks that can help researchers find their way around various kinds of methods and guidelines for doing rigorous qualitative research. These landmarks for deciding which specific method can be implemented in a particular qualitative research project are based upon explicitly setting forth the relationships between epistemological frameworks, research methods, and quality criteria.

The paper is organized in four parts. In the first part, we examine various classifications of the epistemological frameworks frequently mobilized in contemporary research. Then we discuss more thoroughly the one retained in this paper, which comprises the post-positivist tradition and the four epistemological paradigms associated with critical realism, radical constructivism, interpretivism, and constructivism as conceptualized by Guba and Lincoln. In the second part, we discuss the particular meanings that the two fundamental principles of research quality – namely reliability and validity – take on in these five epistemological frameworks. For each of them, we also provide at least one example of research method consistent with it. In the third and fourth parts, we successively discuss the theoretical findings of this methodological investigation and the implications for (research) practice.

1. Founding assumptions of contemporary epistemological paradigms

Referring to Piaget's (1967) definition of epistemology as "the study of valuable knowledge constitution", we define an epistemological framework as a conception of knowledge relying on a set of mutually consistent founding assumptions relative to the subjects that epistemology addresses. Hence these assumptions concern what knowledge is (epistemic assumptions), how it is elaborated (methodological assumptions), and how it is justified. Most epistemological frameworks also rely on founding assumptions that concern what exists (ontological assumptions).

To date, there is no general agreement among scholars on how to classify the epistemological frameworks frequently mobilized in contemporary research in management sciences. A traditional classification relies on a dualistic partition between positivism and anti-positivism (Wicks & Freeman, 1998). Other classifications distinguish between foundational, quasi-foundational, and non-foundational epistemological frameworks (Amis & Silk, 2007); between various currents within interpretivism and postpositivism (Cunliffe, 2011) in an updating of Morgan and Smircich's (1980) typology; between positivism, post-positivism, critical theory (and related theorizing), constructivism, participatory inquiry (Guba and Lincoln, 2005); and between logical positivism, relativism, pragmatism, and realism (Van de Ven, 2007). In the latter classification, Van de Ven further distinguishes two different traditions within realism, namely scientific realism and critical realism.

Amidst this lack of consensus, there exist a number of epistemological frameworks that rely on explicitly stated founding assumptions that are mutually consistent and shared within various communities of researchers (Avenier & Gavard-Perret, 2012). Hence these frameworks constitute *epistemological paradigms* using the term "paradigm" in Kuhn's sense of "the entire constellation of beliefs, values, techniques, and so on, shared by the members of a given community" (Kuhn, 1970, p. 175). These epistemological paradigms are those of logical positivism as developed within the Vienna Circle, critical realism (Baskhar, 1978), radical constructivism (Glasersfeld, 1984, 2001), interpretivism (Sandberg, 2005; Yanow, 2006) and constructivism as conceptualized by Guba and Lincoln (1989, 2007).

In this paper we will refer to this last classification rather than those previously cited, for the following reasons. Anti-positivism does not in itself constitute an epistemological framework. The various currents that Cunliffe (2011) singles out within interpretivism and postpositivism do not include the critical realist and pragmatic constructivist frameworks, two epistemological frameworks that have been more broadly diffused over the past 10 years. Guba and Lincoln's (2005) typology brings together theories of knowledge (like constructivism), research methods (like the participatory paradigm), and particular ways of studying phenomena (like critical theorizing that, as Guba and Lincoln (2005, p. 212) point out, can be conducted in various epistemological frameworks, particularly positivist, post-positivist, and constructivist ones). Besides, in their presentation of constructivism Guba and Lincoln omit discussing Glasersfeld's view that differs substantially for their own view. Critical realism and pragmatic

constructivism do not fit any of Amis and Silk's (2007) categories. Finally, Van de Ven's (2007) classification does not distinguish between two fundamentally different traditions in relativism, namely that which posits ontological relativism – Guba and Lincoln's (1989, 2007) constructivist paradigm – and that which does not posit ontological relativism – Glasersfeld's radical constructivism (1984, 2001).

Logical positivism *stricto sensu* is no longer mobilized in management research (Avenier & Gavard-Perret, 2012). However, most contemporary research in management sciences is carried out in an *epistemological tradition* that originated in logical positivism and is often labeled post-positivist or modernist (Boisot & McKelvey, 2010). As shown in the first column of Table 1[1], this epistemological tradition encompasses diverse views on knowledge and on how to justify its validity like that of Popper (Gephart, 2004) and of scientific realism (McKelvey, 1997; Hunt & Hansen, 2010). This tradition does not constitute an epistemological paradigm *per se* because the various views developed in this tradition are not mutually consistent. For instance, a research project aiming at theory-building carried out inductively from a multiple cases study in a post-positivist view of science is not compatible with a Popperian framework since Popper disallows induction. As another example, the statistical techniques used in scientific realism for testing hypotheses are not compatible with the assumption of complex ontology frequently made in management research. Indeed, these techniques rely on Gaussian probability distributions. Those are based upon an assumption of atomistic ontology which is not compatible with an assumption of complex ontology (Boisot & McKelvey, 2010).

The four last columns of Table 1 synthesize the founding assumptions of four solidly-argued epistemological paradigms that have developed since the mid 80's. These founding assumptions are precisely discussed in (Avenier & Gavard-Perret, 2012). Because of the increasing diffusion of these four epistemological paradigms in management research, we will concentrate on them in the current paper.

[1]The presentation of this column is based on the discussions offered by various authors such as Guba and Lincoln (1989), McKelvey (1997) and Van de Ven (2007).

Table 1: Founding assumptions and justification modes of alternative epistemological frameworks

	Post-positivist epistemological tradition (Based upon McKelvey, 1997 and Van de Ven, 2007)	**Critical realist epistemological paradigm** (Bhaskar, 1978, 1998 a, b, & d)	**Pragmatic constructivist epistemological paradigm** (von Glasersfeld ,1984, 2001; Le Moigne,1995,2001)	**Interpretivist epistemological paradigm** (Sandberg, 2005; Yanow & Schwartz-Shea, 2006)	**Constructivist epistemological paradigm in the sense of Guba and Lincoln** (Guba & Lincoln, 1989, 2007)
Ontological hypotheses	Reality exists independently from human attention. There exists a unique immutable "real-as-is".	Reality exists independently from human attention: there exists a unique but possibly evolutive "real-as-is". Reality is constituted of three overlapping domains, those of the *real*, the *actua*l, and the *empirical*. Generative mechanisms (GMs) reside in the real domain. Observable events occur in the actual domain. Experienced events lie in the empirical domain.	There exist flux of human experiences	Patterned human activity exists. The agreed meanings about situations constitute the objective, inter-subjective reality.	Relativist ontology: there exist multiple socially constructed realities not governed by any natural laws, causal or otherwise.
Epistemological hypotheses	Real-as-is may not be fully knowable (possible fallibility of measurement instruments).	The real domain is not observable. Events (actual domain) are observable. Experienced events (empirical domain) are knowable.	Human experience is knowable. In the knowledge process, whatever stems from a situation is inseparably intertwined with whatever stems from the inquirer. The intention of inquiring influences the inquirer's experience of the situation.	Lived experience is knowable. In the knowledge process, whatever stems from a situation is inseparably intertwined with whatever stems from the inquirer. Intentionality has a constitutive power on the meaning of reality that appears to us in our lived experience.	In the knowledge process, whatever stems from the studied situation is inseparably intertwined with whatever stems from the inquirer.
Goal of the knowledge generation process	Identify surface regularities and patterns. Possibly develop a systematized structure capable of both explaining and predicting phenomena (Hunt, 1991).	Identify the GMs that are responsible for the events and patterns of events observed, as well as the manner by which GMs are contingently activated.	Conceptualize researchers' understanding of their flux of experiences to offer actors functionally fitted and viable landmarks for thinking and acting in the world.	Describe how human beings make individual and collective sense of their particular world. Sometimes, also understand how the processes of meaning-making and engagement in situations plausibly operate.	Build reconstructions of the meanings that the various actors give to the situation studied, which sometimes coalesce around consensus.

	Post-positivist epistemological tradition (Based upon McKelvey, 1997 and Van de Ven, 2007)	**Critical realist epistemological paradigm** (Bhaskar, 1978, 1998 a, b, & d)	**Pragmatic constructivist epistemological paradigm** (von Glasersfeld ,1984, 2001; Le Moigne,1995,2001)	**Interpretivist epistemological paradigm** (Sandberg, 2005; Yanow & Schwartz-Shea, 2006)	**Constructivist epistemological paradigm in the sense of Guba and Lincoln** (Guba & Lincoln, 1989, 2007)
Form of knowledge	Representational conception of knowledge. Falsifiable statements	Representational conception of GMs, and pragmatic conception of the manner they are activated. Field testable statements concerning GMs and activable propositions	Pragmatic conception of knowledge. Activable propositions	Pragmatic conception of knowledge from a variety of perspectives (critical action, emancipatory action…). Thick descriptions and narratives	Knowledge viewed as informed and sophisticated construction that must lead to action on the part of participants. Thick descriptions and narratives
Reliability **Alternative designations**	—	—	—	Trustworthiness, Authenticity, Credibility Not applicable	Trustworthiness, Authenticity, Credibility Not applicable
Reliability of measurements	Repeated measurements should yield the same results	Not applicable	Not applicable		
Reliability of the research process	Explicitly describe how the empirical material was collected and all the operations performed in relation with the empirical material. Provide access to the research empirical material upon request. The specific ways of rigorously performing data collection and analysis depend on the epistemological framework chosen.				
	…/… (continued next page)				

Internal validity	Consistency of the research design throughout the research process				
Rigor	Rigor based upon the precision, quantity and variety of collected data, as well as on researchers' neutrality and objectivity. Statistical generalization	Rigor in the argumentation of the identified GMs' explanatory power. Abductive upward conceptual generalization	Rigor in the argumentation of the elaborated knowledge's functional fit and viability to think and act in the situation considered. Rigor is epistemically and pragmatically justified. Abductive upward conceptual generalization of flux of experiences	Rigor of interpretive inferences, which is justified via observations and dialogues with the various persons interviewed, and via reflective critique. Possible bottom up conceptual generalization	Specific attention to ethics and to giving equal voice to all actors concerned by the study, and to bring to light inconsistent and even conflicting findings. Thick descriptions of the diverse meanings that the various actors give to their world, and of the contextual conditions of this meaning-making
	Post-positivist epistemological tradition (Based upon McKelvey, 1997 and Van de Ven, 2007)	**Critical realist epistemological paradigm** (Bhaskar, 1978, 1998 a, b, & d)	**Pragmatic constructivist epistemological paradigm** (von Glasersfeld ,1984, 2001; Le Moigne,1995,2001)	**Interpretivist epistemological paradigm** (Sandberg, 2005; Yanow & Schwartz-Shea, 2006)	**Constructivist epistemological paradigm in the sense of Guba and Lincoln** (Guba & Lincoln, 1989, 2007)
Principles for justifying external validity	Falsification , corroboration (Popper, 1959) Justification of external validity via replications (statistical hypotheses testing, simulation…).	GMs' explanatory power Justification of GMs' validity via successive testing of the GMs' activation in the empirical field. This justification can be performed via pragmatic testing in qualitative studies and/or via quantitative methods.	Justification of external validity via pragmatic testing of knowledge's functional fit and viability for intentionally acting in the situations considered. This justification is carried out in qualitative studies.	When conceptual generalization is performed, there can be some pragmatic testing in further qualitative studies.	No generalization other than descriptive generalization.
Examples of qualitative research methods	(Eisenhardt, 1989, 1991) (Yin, 2009/1984) (Charmaz , 2006)	(Gioia,1994, 2010, 2012) (Glaser, 2004) (Denyer *et a*l., 2008) (Pascal *et* al., 2013)	(Chanal *et al*., 1997) (Gioia,1994, 2010, 2012) (Glaser, 2004) (Charmaz, 2006) (Avenier & Parmentier Cajaiba, 2012)	(Dyer & Wilkins,1991) (Sandberg, 2005)	(Lincoln & Guba, 1985) (Schwartz-Shea & Yanow, 2012)

The columns of Table 1 represent ideal-types. Within each ideal-type, there may exist diverse schools of thought that introduce various nuances and slight differences in certain assumptions, like, for instance, in critical realism the status of knowledge relative to generative mechanism – representational for some authors like Tsang (2006) or pragmatic for other authors like Denyer *et al*. (2008) and Pascal *et al*. (2013).

The diversity of currents within the post-positivist tradition generates richness. It also constitutes a weakness because of the possible risks of inconsistency within research projects carried out in this tradition. One way to overcome this weakness would be to pursue work similar to that done for the epistemological paradigms presented in the last four columns of Table 1. Namely, single out a number of epistemological paradigms in this tradition, each of them being based on explicitly stated and mutually consistent epistemic founding assumptions and principles for elaborating and justifying knowledge claims. As a matter of fact, this work has already started in the post-positivist tradition with the specification of "scientific realism" (Hunt & Shelby, 2010; McKelvey, 1997; Van de Ven, 2007).

Table 1 also highlights how the goals of the knowledge generation process (also called theory-building, Eisenhardt, 1989) differ across the various epistemological frameworks.

In the post-positivist tradition the goal is mainly to identify surface similarities and patterns between various instances of the phenomenon under study.

In the critical realist epistemological paradigm, the goal is to identify underlying structures and generative mechanisms that give rise to the flux of phenomena under study. The identification of generative mechanisms is usually performed as a two-step process: the first step aims at inductively identifying patterns. The second and main step consists of formulating conjectures on the plausible underlying generative mechanisms and the contingent manner through which they are activated, which would explain the observed patterns (Bhaskar, 1998a). To accomplish this, abduction appears to be the most appropriate mode of reasoning (Mingers, 2004; Van de Ven, 2007; Boisot & McKelvey, 2010).

In the pragmatic constructivist epistemological paradigm, the goal is to intelligibly conceptualize the researcher's understanding of his/her flux of experience about the phenomenon under study. This is basically achieved, as in the critical realist epistemological paradigm, through induction and abduction. The main difference between knowledge developed in the two epistemological paradigms concerns knowledge status. In the pragmatic constructivist epistemo-

logical paradigm, the conceptualization does not pretend to reflect world-as-functions, it aims at offering to actors functionally fit and viable landmarks for thinking and acting in the world.

In the interpretivist epistemological paradigm, the goal is to understand the diversity of actors' interpretations of the situation being studied and possibly how the processes of interpretation, meaning-making and engagement in situations plausibly operate.

In the constructivist epistemological paradigm conceptualized by Guba and Lincoln (1989), the goal is to build reconstructions of the meanings that the various actors give to the situation studied, which sometimes coalesce around consensus (Guba and Lincoln, 2005).

2. Justification of qualitative research validity in contemporary epistemological frameworks

The quest for research validity and reliability represent generic principles that are fundamental in any research project that intends to be recognized as rigorously conducted (Gibbert *et al.*, 2008). The spirit of these principles holds regardless of the research project's epistemological framework. But their specific meaning, and hence the way they are evaluated, depend on the research epistemological framework (Avenier & Gavard-Perret, 2012). To mark the difference of meaning this notion has in certain frameworks, the term "reliability" is often replaced by "trustworthiness" (Guba and Lincoln, 1989; Schwartz-Shea 2006; Schwartz-Shea & Yanow, 2012) and "credibility" (Charmaz, 2006). We prefer to use the same term (reliability) for all the epistemological frameworks, but underscore that this term takes on different meanings in different epistemological frameworks.

Validity has two different facets: internal validity and external validity. Internal validity depends on the rigor, reliability and internal consistency of the research process. Internal validity is a central issue in all epistemological frameworks and in any kind of research project – i.e. whether its main purpose is new knowledge generation and theory-building, or extant knowledge and theory testing.

External validity refers to knowledge validity claims beyond the empirical basis upon which these knowledge claims have been elaborated (i.e. in qualitative research, beyond the various cases studied). Justification of knowledge claims' external validity takes place first during the generalization process and then by putting these claims to statistical or pragmatic empirical tests.

Qualitative research is often presented as more favorable than quantitative research to the elaboration of knowledge relevant for practice, yet is considered as suffering numerous weaknesses when it comes to justifying the validity of the knowledge claims (Pratt, 2009), particularly generalizations made on the basis of a single or even multiple case studies (Gibbert *et al.*, 2008). In practice, internal and external validity are often questioned and subsequently used as scape goat in qualitative research.

In the next sections we successively examine the specific meanings the notion of reliability takes on in different epistemological frameworks; how internal validity is justified in different kinds of qualitative methods that have been specifically designed to suit different epistemological frameworks; and how external validity is justified and evaluated in various epistemological frameworks.

2.1 The notion of reliability in different epistemological frameworks

Rigor and reliability concern both data collection and data analysis. Internal consistency concerns the research design and the way it is implemented in practice.

In post-positivist epistemological frameworks, reliability particularly concerns phenomena measurement. Measurement needs to be performed with instruments (measurement scales, questionnaires, etc.) that are reliable in the following sense: if one measures the same phenomenon several times with the same instrument, one should obtain the same results.

The notion of measurement instrument reliability is not compatible with the founding assumptions of the other epistemological frameworks considered in this paper. Indeed, it is not compatible with the epistemic founding assumptions of the constructivist and interpretivist paradigms, or with an ontological assumption frequently posited in the critical realist paradigm. Indeed, in critical realism, social phenomena are usually considered as shaped by humans who act intentionally and can learn. This renders reliable measurement of them (social phenomena) difficult, but does not prevent scholars from attempting to understand the underlying reasons for their dynamics. Besides, social phenomena are considered as taking place within open systems whose artificial closure for experimentation purposes possibly generates important perturbations. This makes replication of social phenomena difficult (Baskhar, 1998b).

In the various epistemological frameworks, the principle of reliability also concerns the cognitive path that leads from the empirical material through to the research results: the researcher

has to give the reader the means to precisely follow the entire cognitive path (Schwartz-Shea, 2006; Schwartz-Shea & Yanow, 2012; Charmaz, 2006). Hence the researcher has to provide the reader detailed explanations of all the operations performed to collect the data, as well as, upon demand, access to the research data base[2]. More precisely, researchers have to show how they have controlled and checked their interpretations throughout the research process, from formulating the research question through analyzing the data obtained and reporting the results (Sandberg, 2005). In particular, they have to explain the way the analysis, and particularly the coding, was performed, as well as how the inferences were drawn. For an illustrative example in the pragmatic constructivist epistemological paradigm, see (Avenier & Parmentier Cajaiba, 2011), and for an example of grounded theorizing well suited to the critical realist paradigm see (Gioia et al., 2012).

If the requirement of rendering explicit the entire cognitive path holds in all the epistemological frameworks, the specific way to perform data analysis so that it can be considered rigorous by academic institutions – particularly academic journals – depends on the epistemological framework considered, leading to great differences between certain methods in qualitative research. Good examples of this are Eisenhardt's (1989) case study method and Glaser's (2004) grounded theorizing, as we shall see below. When the researcher is not aware of the fundamental reasons – namely the epistemological ones – for differences in the guidelines offered in the different qualitative research methods, s/he can be tempted to combine various guidelines that s/he finds appealing, but without having sufficient clues for properly adapting their meaning to the specific epistemological framework of the study. For instance, in a paper the first co-author recently reviewed, the authors explained that in their research project (conducted in the pragmatic constructivist epistemological paradigm), they had proceeded to cross-coding of the data base to ensure the objectivity of the coding, whereas, this paradigm's epistemic assumption precludes objectivity, and intercoder agreement could be used to foster the richness of the coding, rather than its objectivity. Not adapting methodological guidelines to

[2] Incidentally, this requirement is not specific to qualitative research methods. It likewise applies in quantitative research as Ulrich Lichtenthaler's story of published papers retraction shows – eight papers were retracted between 2011 and 2012 due to statistical irregularities in the reported empirical results. For the eight paper's retraction, the Editor-in-Chief of the *Journal of Business Venturing* explained that he thoroughly investigated the article and other preceding papers from the same database. On this basis, he made the decision to retract the paper. The grounds for retraction are an error in statistical analyses, an omitted variable bias, and a "new" measure that was not "new" because it was already used in a previous paper.
(http://www.sciencedirect.com/science/article/pii/S0883902607000584, last consulted on January 2, 2013).

the research's epistemological framework frequently leads to inconsistencies in the research design that can be interpreted as a lack of rigor (Gephart, 2004).

2.2 Internal validity justification in different kinds of qualitative methods

In this section the goal is not to review all the qualitative methods available in management research, but to illustrate how internal validity is justified using well-known recently developed research methods suited to different epistemological frameworks.

2.2.1 "Interpretive descriptive" case studies (Lincoln & Guba, 1985; Schwartz-Shea & Yanow, 2012)

These kinds of methods, among which is found the "natural inquiry" method (Lincoln & Guba, 1985), explicitly draw on various methodologies such as ethnomethodology (Garfinkel, 1967), hermeneutic methodology (Gadamer, 1976) and phenomenography (Marton, 1981). These methods are suited to Guba and Lincoln's constructivist epistemological paradigm and to the interpretivist one. We label them "interpretive descriptive" because they aim at understanding the worlds of situational actors from their perspective, by describing how these actors make individual and collective sense of their particular world.

These methods are usually conducted in unique case studies (Dyer & Wilkins, 1991). Researchers provide "thick descriptions" (Geertz, 1973; Schwartz-Shea, 2006) of the context in which the meaning-making and sense-making activities under investigation took place, and a narrative form of understanding based upon the beliefs and desires of actors (Bevir, 2006).

Glaser (2004) particularly underscores a crucial difference between the so-called "natural inquiry" method (Lincoln & Guba, 1985) and the "grounded theory" method (Glaser & Strauss, 1967): whereas "natural inquiry" is descriptive, "grounded theory" is explicative, as we shall see below.

In an interpretive epistemological framework, insights on how the processes of interpretation, meaning-making and engagement in situation may operate are sometimes offered. In this epistemological framework, researchers justify the rigor of their interpretive inferences essentially in two ways (Sandberg, 2005). Via dialogues with the actors in the field of study as well as with actors of academic communities interested by the topic, and via the reflectivity researchers exert upon their implicit assumptions and theoretical frameworks, as well as upon the possible irreducible contradictions and tensions that researchers perceive in the lived experience under investigation.

2.2.2 "Inductive descriptive" case studies (Eisenhardt, 1989, 1991).

This kind of method is suited to post-positivist frameworks, particularly the one described by Eisenhardt. We label these kinds of methods "inductive descriptive" because they aim at identifying surface patterns via inductive reasoning based upon multiple case studies, without specifically searching for underlying explanations of these patterns. This kind of method combines within case analysis with cross-case analysis. Within case analysis, serves to identify new concepts and/or new relations between concepts. Replication of the study to various different cases then enables cross-case search for patterns (Eisenhardt, 1989, p. 540). The goal is to show that the new relations observed under certain conditions between concepts or categories in the first cases studied is also observed in the other cases under similar conditions. Hence, here, replication aims at verifying that the pattern initially identified holds across cases.

In post-positivist epistemological frameworks, internal validity depends not only on the quantity, precision, and variety of data collected, it also depends on the quality of data analysis. For instance, whether theory triangulation – i.e. analyzing data from different theoretical perspectives (Yin, 2009) – has been performed.

2.2.3 "Abductive explanatory" case studies (Avenier & Parmentier Cajaiba, 2012; Gioia et al., 2012; Glaser, 2004; Tsoukas, 1989)

These kinds of methods are suited to research done in the critical realist and in the pragmatic constructivist epistemological paradigms. More precisely, in the critical realist paradigm, these methods aim at developing, mainly via abductive reasoning (Mingers, 2004), specific conjectures on plausible generative mechanisms underlying the phenomena being investigated. In the pragmatic constructivist epistemological paradigm, they aim at conceptualizing, via abductive reasoning, the researchers understanding of their flux of experience about the phenomena being investigated.

We have labeled these kinds of methods "abductive explanatory" because, in contrast to "inductive descriptive methods" that are concerned with directly observable surface relationships, in these methods, researchers are principally interested in abductively finding explanations to the regularities observed (critical realism) or understandings of the regularities experienced (pragmatic constructivism). For instance, Tsoukas' (1989) abductive explanatory conception of comparative cases study (that differs from Eisenhardt's (1989) inductive descriptive one),

aims at enriching the current view of generative mechanisms and of the manner they are activated, through a comparative analysis of different contextual conditions. In critical realism, comparative case studies shed light on the specific contingent conditions under which the postulated generative mechanisms combine and operate (Tsoukas, 1989).

In contrast with case studies carried out in a post-positivist framework, the internal validity of qualitative research conducted in the critical realist epistemological paradigm relies on the quality of inferences aimed at building plausible explanations for the phenomena being investigated.

2.2.4 Design studies (Chanal et al., 1997; Denyer et al., 2008; Pascal et al., 2013)

Design research aims at developing knowledge in the service of action, to respond to real-world challenges and solve actual problems. It builds design propositions that need to be grounded in the scholarly body of knowledge available in the literature *and* tested in practice (Romme, 2003; Van Aken, 2004). Design research also builds organizational or technological artifacts that are the tangible result of the design process and arise from contextualizing and applying design propositions to particular practices. However, according the epistemological paradigm mobilized more or less explicitly for the research, the internal validity of design research will be justified and evaluated differently.

For research developed in the post-positivist tradition, the evaluation of the artifact is crucial (Hevner et al., 2004). In this case, the evaluation concerns primarily the technological artifact and uses mainly quantitative evaluation methods. In the critical realist paradigm (Denyer *et al*., 2008; Carlsson, 2010; Pascal *et al*., 2013) and in the pragmatic constructivist paradigm (Chanal *et al*., 1997), the notion of testing used in the evaluation of the artifact refers to the common sense notion of field-testing (e.g., trying out whether it works), rather than to the more restrictive notion of statistical testing. Moreover, for any information technology (IT) artifact, the evaluation process cannot be limited to the artifact's technical performance. It also involves an evaluation of the artifact's performance relative to its intended socio-economic goals in its organizational environment. Such an evaluation requires an in-depth study and hence is usually performed using a qualitative research method.

The method for building design propositions is crucial in design research developed in the critical realist paradigm. Denyer *et al*. (2008) propose "design-oriented research synthesis" as a method for developing field-tested design propositions according to the so-called CIMO-

logic. CIMO-logic combines elements stemming from the scholarly and practitioner literature in a critical realist worldview, including the notion of generative mechanism, which explains what it is about the system that makes things happen. CIMO-logic involves four components: (1) a problematic *Context*, in terms of the surrounding (external and internal environment) factors and the nature of the human actors influencing behavioral change; (2) the problematic context suggests a certain type of *Intervention* that managers have at their disposal to influence behavior, (3) to produce, by way of particular generative *Mechanisms*, the processes that in a certain context will generate (4) the intended *Outcomes*. This method emphasizes the process of research synthesis which involves synthesizing knowledge that is typically available in the scholarly literature in a highly fragmented manner. Based on CIMO-logic, certain authors have adopted a broader view of the "synthesis step", which is more appropriate for designing innovative solutions (Pascal *et al*., 2013). In this case, there is generally limited or no scholarly and practical knowledge that is closely tied to the design goals at hand. The primary aim of the design process then is to enable a creative and collaborative learning process between academics and practitioners. Improved design propositions are progressively built by combining practical and academic knowledge. As such, creative design is different from a more path dependent design approach that emphasizes the role of research synthesis in building design propositions.

2.3 Justifying and empirically testing external validity via qualitative methods

External validity does not concern research done in the constructivist epistemological paradigm conceptualized by Guba and Lincoln (1989). Indeed, no generalization other than "descriptive generalization" (Lincoln & Guba, 2007) is envisioned in this paradigm, or as these authors express it humorously: "The only generalization is: there is no generalization" (Lincoln & Guba, 1985, p. 110). Hence, in this section we concentrate on the four other epistemological frameworks.

The initial justification of knowledge claims' external validity takes place during the generalization process. So the extent of external validity's justification depends on the research project's internal validity. Further justification can subsequently be sought by engaging in research projects aimed at putting these knowledge claims to empirical tests (that can be statistical or pragmatic). These research projects that aim at testing external validity have to be inter-

nally valid. This shows the strong links that connect external validity to internal validity, regardless of the research project's main purpose, be it theory-building or theory-testing.

Below we discuss whether, and how, empirical testing can be performed with qualitative methods in the various epistemological frameworks.

In post-positivist frameworks, putting knowledge claims to empirical testing is performed from a perspective of replication. Indeed, the principle of reproducibility plays a central role in this epistemological framework (Boisot & McKelvey, 2010). Since in social sciences identical replication through experimentation is rarely possible, knowledge claims' external validity testing is usually done via quantitative studies aimed at testing various theoretical hypotheses on samples representative of the population to which the knowledge claims have been generalized. In theory, qualitative methods can be used to falsify a theory, but in practice it is little used because it can always be argued that as theories are simplifications, we are almost always able to find instances in which a theory does not hold precisely; thus the difficulty is to convince the reader that the case study provides an important insight provoking the violation of the theory (Siggelkow, 2007).

In the critical realist epistemological paradigm, external validity as well as internal validity depends on the explanatory power and on the degree of abstraction of the explanatory model elaborated (Glaser, 2004). This means that criteria for the development of theories in social science "*must be explanatory and non-predictive*" (Bhaskar, 1998b, p. 225). The explanatory model can be relentlessly modified and enriched through testing in qualitative research that permits continual comparisons with more and more data (Glaser, 2004). Various methods discussed above can be used, such as comparative cases study (Tsoukas, 1989) and "design-oriented research synthesis" (Denyer *et al.*, 2008). This latter is used for testing prior knowledge claims like those developed in evidence-based management. Such testing is performed within comparative cases studies rather than through replication, yet in a conception of scientific activity as "*an ongoing irreducibly empirical open-ended process*" (Bhaskar x, 1998, p xii). Nonetheless, since Tsang and Kwan's seminal work (1999), certain authors (Mingers, 2006; Miller & Tsang, 2010) have strived to develop methods aimed at enabling a form of replication that is more modest than in post-positivist frameworks. Indeed in this epistemological paradigm, verification and falsification cannot be definitive. Failure to replicate prior knowledge claims regarding structures or generative mechanisms in another context

does not constitute a falsification in Popper's sense, since this failure may be explained by contextual conditions or counterbalancing generative mechanisms (Tsang & Kwan, 1999).

In the pragmatic constructivist epistemological paradigm, the empirical testing of conceptualized knowledge is performed by examining whether, in another context, the re-contextualization of the knowledge according to specificities of the new context provides functionally fitted and viable landmarks for a goal-directed intervention in the new context (Avenier, 2010). This pragmatic empirical testing is performed in case studies (Avenier & Parmentier Cajaiba, 2012) or in design studies (Chanal *et al.*, 1997). In case studies, it consists of examining whether the re-contextualized knowledge provides functionally fitted and viable landmarks for deciding and carrying out a goal-directed intervention in the situation being considered. In design studies, it consists of designing an artifact, such as a management tool, which embodies the knowledge to be tested, and then evaluating to what extent this artifact fulfills its function. This testing cannot be solely accomplished by researchers, even those acquainted with the setting, because knowledge activation in a particular setting demands local sense making and self-design by the practitioners involved in the goal-directed intervention (Tenkasi *et al.*, 2007) or, in the case of design studies, in the use of the artifact (Chanal *et al.*, 1997), as in critical realism.

Finally, in the interpretivist epistemological paradigm, when the knowledge generated is uniquely descriptive, external validity is not an issue. The only requirement is that the researcher provides thick descriptions that could facilitate the interpretation and the adaptation of this knowledge by readers interested in activating it in another context (Schwartz-Shea, 2006). When knowledge bears upon processes of interpretation, meaning-making, communication, engagement in situations, etc., empirical testing of its external validity is sometimes performed. This is done in case studies in the same ways as in the pragmatic constructivist epistemological paradigm, namely pragmatically through further case studies and/or participant observations (Sandberg, 2005).

3. Discussion

This discussion is organized around two main points, namely the role of mutual consistency between the research method and the epistemological framework in research validity, and the

similarities and disparities between research done in the critical realist and pragmatic constructivist epistemological paradigms.

3.1. The mutual consistency between research project epistemological framework and method: A prerequisite for research validity

In this paper, we have shown that the goal of theory-building and the form of research results depend on the research's epistemological framework, and that the validity of research results can only be justified in reference to a certain vision of what is knowledge, i.e. in reference to an epistemological framework. So, in this respect, our contribution is in agreement with Amis and Silk's (2008) view as well as with those of Morgan and Smircich (1980) and Cunliffe (2011). Besides, in the current paper, we supplement these authors' works in two ways: (1) we consider various epistemological frameworks that do not fit the classifications that they use; (2) for every epistemological framework considered in the current paper, we exhibit at least one kind of research method adapted to this framework.

Since we have already discussed the first point at the beginning of the paper, in the current subsection we focus on the second point.

In the main body of the paper, we have argued that the validity of research results depends on the fit between the method effectively implemented and the researches' epistemological framework. Certain kinds of methods have been specifically designed in reference to certain epistemological frameworks and fit them particularly well. For instance, "naturalistic inquiry" (Lincoln & Guba, 1985) was specifically designed in reference to the constructivist epistemological paradigm conceptualized by Guba and Lincoln (1989, 2007).

However, the relationship between kind of research method and kind of epistemological framework is not a one-to-one relationship. For instance, as seen above, the "grounded theory" method (Glaser & Strauss, 1967) can be used to generate knowledge in very different epistemological frameworks (Charmaz, 2006).

When researchers want to mobilize, in another framework, a kind of method that has been specifically designed in reference to a particular epistemological framework, they first have to make sure that the method is consistent with this other epistemological framework's founding assumptions, and then to interpret the method guidelines in reference to these assumptions and to the goal of theory-building in this epistemological framework. The way Miller and Tsang

(2010) suggest using quantitative methods in critical realism illustrates what we mean by interpreting methodological guidelines developed in one epistemological framework to adapt them to another framework.

In addition, certain methods' guidelines like those of the "case study" method (Yin, 2009) are presented as generic, implicitly holding in any epistemological framework. This is quite confusing since, as seen in this paper, the case study method is implemented in fairly different ways, depending on the epistemological framework of the research project.

Consequently, it is unfortunate that for certain research methods like the "Gioia method" (Gioia *et al.*, 2012), scholars who have done remarkable work in precisely designing or developing a research method do not indicate the epistemological frameworks in which the guidelines they provide hold, nor the fundamental – i.e. epistemological – reasons why these guidelines are specifically adapted to these particular frameworks. Providing researchers with this crucial information and explanations would considerably help them make sound methodological decisions and, furthermore, foster overall improvement of quality in qualitative research.

3.2. Convergences and divergences between knowledge elaborated in the critical realist and pragmatic constructivist epistemological paradigms

This paper brings to light that the methods for knowledge generation and for empirically testing knowledge external validity are fairly similar in the critical realist and pragmatic constructivist epistemological paradigms, even though these two paradigms have quite different founding assumptions. Indeed, as shown in Table 1, whereas pragmatic constructivism does not posit any ontological founding assumptions, critical realism posits very specific ones. These differences in founding assumptions induce differences in the status of knowledge in these two paradigms, even though knowledge claims may be developed with similar methods.

Indeed, in critical realism, knowledge developed about generative mechanisms is supposed to describe how these generative mechanisms function in various contexts. The higher the conceptual level of knowledge about generative mechanisms, the deeper the level of reality these generative mechanisms represent.

Whereas in critical realism knowledge aims at describing the deep reality as-is, and, hence, concerns ontology, in pragmatic constructivism, conceptual knowledge (developed about a certain phenomenon) consists of an intelligible conceptualization of the researchers' under-

standing of their flux of experiences (about this phenomenon). This knowledge concerns flux of experiences rather than ontology. The conceptualization built does not pretend to provide an adequate description of phenomena effective functioning; rather it aims at offering functionally fitted and viable landmarks for thinking and acting. Knowledge of higher conceptual level expresses a more synthetic conceptualization of understandings of the kind of phenomena being studied.

This difference in knowledge status induces important differences in the way knowledge can be used in practice. Since the knowledge developed in critical realism is supposed to provide descriptions of how the world functions, it offers solidly-argued grounds upon which to make decisions for intervening adequately in a situation, taking into account the role of the contexts in generative mechanisms' activation. Nonetheless, the knowledge developed remains explanatory and non-predictive. On the other hand, as pragmatic constructivism does not pretend to provide descriptions of how the world functions, but to solely express how humans understand that the world functions based upon their flux of experiences, this knowledge is to be used as landmarks to support open reflections and discussions on how to intervene adequately in a situation.

4. IMPLICATIONS FOR PRACTICE

The results of this study have multiple implications for research practice. Below we focus on three points.

4.1. From the very start of a research project, specify its epistemological framework

We have seen that underlying any form of research there is a philosophy of science – otherwise known as an epistemological framework – that remains more often implicit than explicit. Nowadays when undertaking research, since various solidly-argued epistemological frameworks are available, it is better to choose one deliberately than to inherit one by default (Van de Ven, 2007). Indeed, the epistemological framework of a research project influences not only the type of research questions that can be considered (Alvesson & Sandberg, 2011), but also the way the research can be rigorously conducted and the means by which to justify the validity of its results, as well as the status of the knowledge elaborated.

On what basis can one make this fundamental decision of specifying the epistemological framework of one's research project, a decision that impacts the entire project? We propose that the researcher choose from among the main epistemological paradigms that, nowadays, are solidly conceptualized – such as those presented in Table 1 – and mobilize in the researcher's epistemic community, one that properly suits his/her own view about knowledge.

4.2. A research design adapted to the research project's epistemological framework and main purpose

As already pointed out, the research design needs to be adapted both to the research's epistemological framework and main purpose (namely new knowledge generation or testing the external validity of extant knowledge). When the purpose is to generate new knowledge, the research design will keep evolving during the research project. So researchers need to be mindful to maintain the internal consistency of the research design, particularly its consistency with the research epistemological framework.

A number of references were offered as examples of kinds of methods specifically suited to various epistemological frameworks for conducting internally valid qualitative research aimed at generating new knowledge, namely (Eisenhardt 1989 ; Yin 2003) for the post-positivist tradition; (Denyer *et al.* 2008 ; Glaser, 2004; Gioia *et al.* 2012 ; Pascal *et al.* 2012 ; Tsoukas 1989) for the critical realist framework; (Avenier & Parmentier Cajaiba, 2011, 2012; Chanal et al., 1997) for a pragmatic constructivist framework; (Sandberg, 2005) for an interpretivist framework; and (Lincoln & Guba, 1985; Schwartz-Shea & Yanow, 2012) for the constructivist framework conceptualized by Guba and Lincoln.

4.3. Focus submissions on academic journals open to the chosen research epistemological framework

Scientific activity consists not only of carrying out valid research projects. It also rests on a set of institutions for collective critique, where the research project's quality and contribution are judged. Within these institutions, academic journals play a core role. Not all academic journals in management are open to all epistemological frameworks. For instance, certain journals mainly publish contributions developed in the post-positivist tradition. Hence, when a researcher decides to submit the results of a research project to an academic journal, it is advis-

able to target journals open to the research's epistemological framework. Indicating this framework explicitly is essential for the justification of the research validity (in this framework) by the researcher. This information is also crucial for the reviewers as well as for the institutions in charge of evaluating the work submitted. It enables institutions to identify reviewers competent for judging the quality of the research process and the results on the basis of the principles specific to the epistemological framework of the work submitted.

Conclusion

In this paper we make several theoretical and practical contributions.

On a theoretical level, we provide an overview of epistemological paradigms that supplements and enriches those views presented in diverse contributions (particularly, Amis & Silk, 2007; Cunliffe, 2011; Guba & Lincoln, 1989, 2007; Van de Ven, 2007; Wicks & Freeman, 1998). In particular, we explicitly discuss critical realism, joining Van de Ven (2007) who is the only other author among those cited above who addresses this subject. We also discuss the pragmatic constructivist epistemological paradigm while none of the contributions mentioned above do so explicitly.

Again on a theoretical level, we review a number of qualitative research methods, discuss the relationship between research methods and epistemological frameworks, and explain why certain kinds of qualitative research methods are adapted to certain epistemological frameworks while they are not consistent with others. In particular, for each of the five epistemological frameworks discussed in this paper, we exhibit at least one kind of qualitative method adapted to it (see Table 1).

On a practical level, Table 1 can help researchers identify at the start of their research project at least one kind of method that is consistent with the epistemological framework and the main purpose (theory-building or theory-testing) of their research project. It can also help researchers who have neglected to reflect about the epistemological framework of their research project at the start of the project, to catch up during the course of the project and specify one, and possibly adapt their research design to make it fully consistent with the epistemological framework being considered. Indeed, if the kind of research method they are using is cited in

Table 1, they can look up (using this Table) with which epistemological frameworks it is consistent and then adapt their design accordingly.

Besides, by explaining to researchers the fundamental reasons underlying the quality criteria of various kinds of research methods, we provide crucial clues for making sound methodological decisions, and more generally, for performing the indispensable reflective epistemological critique (Piaget, 1967) concerning the methodological decisions they have to make throughout a research project. These clues are also tactically useful when deciding which journals to target for submitting papers presenting their research results.

However, applying to the letter a particular kind of method that well suits the epistemological framework of the research project is not sufficient to guarantee the quality of the research. It is also crucial to behave ethically and to conduct, during the entire research project, a reflective critique (Piaget, 1967) on what we are doing, why, and whether this is justified in the research project's epistemological framework.

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