2 The Epistemology of Management: An Introduction

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Abstract

The epistemological foundations of management studies have been contested throughout the history of the discipline. In this chapter, we first introduce the core of epistemology – the problem of knowledge. The problem of knowledge

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includes, in fact, several interrelated problems that form a system, such as: What is knowledge? Who or what has the capacity of knowing? How much can be known? What are the sources of knowing? And what knowledge is considered best? We then cluster current epistemological positions in management studies by differentiating between four epistemological orientations that differ in how the scientific statements relate to empirical reality. We refer to these orientations as (1) epistemologies of representation, (2) epistemologies of interpretation, (3) epistemologies of imagination, and (4) epistemologies of intervention. These four orientations serve as a structure to the contributions of this handbook, and also offer a novel way of mapping contemporary epistemologies in management scholarship.

Keywords

Epistemology · Knowledge · Epistemologies of representation · Epistemologies of interpretation · Epistemologies of imagination · Epistemologies of intervention

Introduction

About fifty years ago, C. West Churchman, philosopher, management scholar, and the first editor-in-chief of *Management Science*, made an essential contribution to the epistemology of management. In his book "the design of inquiring systems," Churchman (1971) outlines how different epistemologies shape the design of systems that would be capable of securing knowledge about the world. More specifically, he proposes a taxonomy of five inquiring systems representing a rationalist (Leibnizian), empiricist (Lockean), phenomenological (Kantian), dialectical (Hegelian), and progressive (Singerian) epistemological tradition. Churchman shows how each design of an inquiring system helps us gain and impose limits on our understanding of the world. As he writes: "We can regard the history of epistemology (theory of knowledge) not as a description of how men [and women] learn and justify but as a description of how learning can be designed and how the design can be justified" (p. 17).

Since Churchman's early contribution, a lively discussion about the epistemological foundations of management studies has emerged (e.g., Johnson and Duberley 2000). While positivism, with its focus on observable reality, has dominated mainstream management research (Donaldson 1996), it has become popular to mark shifts in philosophical view as "turns." As a result, a wide range of epistemological approaches appeared in management studies, in the meantime. Positivistic assumptions were challenged in different ways. For instance, focus on mind-independent reality led to the realist turn (Reed 2005), emphasis on language to the linguistic turn (Alvesson and Kärreman 2000), on sensemaking to the interpretative turn (Yanow and Schwartz-Shea 2015), on action as a source of knowing to the pragmatist turn (Lorino 2018), and on radical indeterminacy to the postmodern turn (Chia 1995). Each view offers an epistemological orientation on how inquiry and learning can be understood, and how the research design can be justified.

In his historical analysis of scientific disciplines, Kuhn (1962) argued that discplines tend to be united (at least for certain periods) around one joint paradigm,

which provides researchers with shared assumptions as well as a set of problems and respective solution heuristics. However, while Kuhn grounds his analysis primarily in the study of disciplines from the natural sciences (such as chemistry or physics), his theorization of the structure of scientific revolutions has been criticized for being hardly applicable for the domain of the social sciences (including management studies). For instance, in his sociology of sociology, Friedrichs (1970) describes the social sciences as inherently multi-paradigmatic in character. In other words, while we can perceive in the natural sciences (such as physics) that single paradigms (such as the Newtonian or the Einsteinian) have been able to unify, by and large, a majority of scholars in a given discipline for a particular duration, in the social sciences multiple paradigms tend to coexist at the same time. Their relation is either described as competing (Rescher 1985) or as incommensurable (Kuhn 1962). The latter is the thesis that rival theories from different paradigms are partly incompatible and incomparable because of very different underlying assumptions. In this section, we propose to embrace the inherently multi-paradigmatic and pluralistic character of management studies as a social scientific discipline.

While each of the contributions to this handbook has a particular (tacit or explicit) epistemological commitment, it is not the purpose of this book to favor one position over the other. Instead, we offer an overview and systematization of very different positions on the epistemology of management and provoke debate and reflection on how research could be conducted that is consistent with a particular epistemological stance. This overview aims to demonstrate how epistemological views shape specific understandings and therefore offer the reader different positions to make better and informed choices and be aware of each approach's limitations.

The Problem of Knowledge

Epistemology addresses what has been traditionally called the "problem of knowledge" (Bunge 1996). In fact, what has been considered the problem of knowledge includes instead a number of interrelated problems or questions that form a system. The main questions here are: What is knowledge? Who or what has the capacity of knowing? How much can be known? What are the sources of knowing? What knowledge is considered best? Let us elaborate briefly on each of these five questions and outline critical positions that have emerged in relation to them.

What Is Knowledge?

The notion of what knowledge is has become a contested concept in epistemology and its application in management studies. Consider the following classical definition of "knowledge as justified true belief" (de Grefte 2021; Audi 1998). Scholars in favor of this definition have argued that not every outcome of a cognitive process should be called knowledge. Instead, an inquiry is a "belief-forming method" (de Grefte 2021) improving the reliability of our beliefs about the world. While

many management scholars have widely adopted this classical definition of knowledge as justified true belief (e.g., Nonaka 1994), it is problematic as a general definition of knowledge. Indeed, epistemology is concerned with how knowledge can be justified based on reasons, evidence, and/or practice and, as a result, may become more reliable. Yet, justified true belief is a specific form of knowledge. What may be considered as a well-justified solution to a problem for one group may be superficial to another. In fact, justification is a matter of degree, and it is community-bound. It ranges from well justified to poorly justified beliefs, and this justification depends on legitimate evaluation procedures shared by a particular scholarly community (Geiger and Schreyögg 2009).

Consider another problem related to this definition. Knowledge also comes in different forms. Think about the prominent distinction between tacit and explicit knowledge, introduced by several philosophers. For instance, James (1890/1950) and Russell (1918/1956) distinguish between knowledge by acquaintance (tacit knowledge) and knowledge by description (explicit knowledge). This distinction was taken up and further elaborated by Polanyi (1966), who argues that all knowledge has a tacit dimension, and became a mainstream issue in cognitive psychology. While there is some misunderstanding of the nature of tacit knowledge in management studies (for a discussion, see Reihlen and Ringberg 2013; Tsoukas 2005), tacit knowledge is usually considered as being partly inaccessible to deliberate evaluation and justification because it may not easily be expressed in language. Yet, we still consider it as (part of our) knowledge. In short, knowledge as justified true belief has to be regarded as a special case of knowledge. In a more general sense, we understand knowledge as the accumulation of learnt experiences, concepts, skills, and normative orientations available to a subject in order to generate actions, behaviors, and solutions for cognitive and practical problems. Yet, who or what can acquire the status of subject here remains to be clarified, and this leads us to the second question.

Who or What Has the Capacity of Knowing?

Across different epistemological traditions, we find four answers to who or what has the capacity of knowing: the lonely knowing subject, the embedded knower, the thought collective, and non-human artifacts. Let us briefly introduce each position.

Traditionally, epistemology has focused on the *lonely knowing subject* and his or her epistemic challenges in making sense of the world. For instance, Popper's (1962) epistemology of a continuous process of conjecture and refutation is ultimately individual-centric. He stresses how the individual researcher engages in critical investigations for the progress of science. More precisely, the notion of the knowing subject has been formulated as the *psychoneural identity hypothesis* inspired by the mind-body problem in the philosophy of mind, contemporary neuroscience, and biological physiology. Accordingly, all mental processes, whether emotional, cognitive, or volitional, are brain processes (Virues-Ortega et al. 2012). Thus, human cognition and knowing are controlled by the plastic neuronal supersystem, and

human mental or subjective life is a result and a collection of neural processes. Since the brain is a self-referential system, thought processes are regarded as "self-organized" and do not simply mirror reality. Thus, every piece of information, no matter how trivial it may seem, must be conceived of in relation to how it links up with the subject's self-referential system (von Glasersfeld 1995). Consequently, perceiving, thinking, feeling, and learning are mutually dependent and influenced by preexisting internal cognitive dispositions (Maturana and Varela 1980). Accordingly, the psychoneural identity hypothesis suggests that knowledge has a biopsychological operating system – the neuronal network – and knowledge does not exist in and of itself without a knowing subject (Bunge 1996; Rescher 1997).

While traditional epistemology has been individualistic in focus, the rise of *social epistemology* has helped to rebalance this distorted picture of the role of the individual in his or her social context. Since human epistemic situations are also shaped by social relations, networks, and institutions, the field of social epistemology has become a blooming discipline at the intersection between the social sciences and epistemology (e.g., Goldman and Whitcomb 2011). Two prominent positions have emerged on how the social shapes the human epistemic situation. The moderate position suggests that social communities influence the work of the inquirer through shared world views, methods, aims, research problems, and social networks. Social structures and resources of a learning community not only enable but also constrain inquiring practices. Yet, it is still the inquiring individual – as the agent of perceiving, conceiving, experiencing, testing, debating, and writing – who is socially embedded. As such, researchers and their teams interact with their environment, which provides resources such as funding, human resources, or legitimacy, and offers cognitive networks of orientation through which inquiring practices are enabled and constrained (Krohn and Küppers 1989; Goldman 1999). In short, this moderate position assumes that the knowing subjects as agents are the drivers of inquiry all along, from formulating research problems to implementing solutions. Yet, they are not free but socially embedded and constrained, not least by shared research approaches.

The strong position, on the other hand, "shifted the attention from the individual scientist to the activities of communities of scientists, and proposed that scientific facts are the collective accomplishment of communities" (Oreskes 2019, p. 29). Hence, this view moved knowledge processes from the embedded human knower to the collective mind of a social community. From this perspective, knowledge is accessible to individuals from socially situated practices (Gherardi 2001; Tsoukas 2005), shared activities (Blackler 1993), collective thought worlds (Dougherty 1992; Fleck 1979), and communities of practice (Brown and Duguid 1991). This strong position reflects the social constructionist thesis that social communities can be thought of as knowing entities. Consequently, every "fact" is socially constructed by a "thought collective" or a community of people united by a common "thought style" (Fleck 1979).

Finally, posthumanist researchers have suggested that focus on knowledge and knowing of the human subject does not reflect more recent advances and applications in technology. In modern times, technology has been applied as human

enhancement by changes of the human body ranging from technological artifacts like implants to augmented reality and artificial intelligence. *Posthumanism* "seeks to undermine the traditional boundaries between the human, the animal, and the technological" (Bolter 2016, p. 1556). Haraway, in her cyborg manifesto, questions the established distinction between humans and machines, and offers the picture of a cyborg as a "cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (Haraway 2006, p. 117). While technology has been used as enhancements of human cognitions for quite some time – just think about wearing glasses to correct farsightedness or using computer programs for statistical analysis –a very different approach is taken when machines such as computers are considered non-human knowers. More recent advancements in artificial intelligence raise exciting debates about whether machines have awareness, perceive, and think. Whether posthumanism will lead to a posthumanist epistemology, an epistemology of knowing or knowing-like for machines or other disembodied artifacts, is still disputed and remains an open question.

Is Knowledge Possible, and How Much Do We Know?

In principle, we can imagine three answers to this question: we know everything, nothing, or something (Bunge 1996; Reed 2002). The first optimistic answer implies that there are no limits to inquiry. This view does not mirror our human shortcomings because we face cognitive limitations and make errors even concerning the most obvious things. The second answer is pessimistic – we know nothing – and face complete ignorance or never know anything for sure. This position overlooks the fact that, despite making errors, we sometimes do get things right. Perhaps, for better or worse, the achievements of science and technology offer proof of this.

Therefore, Reed (2002) concludes that almost every contemporary theory of knowledge takes a more sensible middle ground position called fallibilism. This humble position suggests that whatever knowledge we have acquired, it always remains to some degree conjectural and fallible. More precisely, fallibilism is the thesis that no knowledge can ever be theoretically and/or empirically justified in a conclusive way. We simply have no assurance that our knowledge is reliable; hence, there always remain possible doubts about the truth or usefulness of our knowledge claims.

Consequently, being (moderately) skeptical about one's knowledge seems appropriate. For this reason, knowledge and knowing require continuous self-reflexivity and peer control, but this can only work if inquirers and their learning community show an openness to and tolerance of pluralistic diversity. Orientational pluralism fulfills what is probably the essential fundamental prerequisite for effective quality management of our epistemic business. Only by confronting one's knowledge with different and mutually contradictory perspectives does one succeed in questioning the validity of one's own position (Rescher 1993). As Popper (1965) aptly notes: "Without contradiction, without criticism, there would be no rational motive for changing our theories: there would be no intellectual progress" (Popper 1965, p. 266, translation by authors).

In short, the fallibilist thesis reminds us that we are far from perfect knowers and every piece of knowledge is worth improving.

What Are the Sources of Knowing?

Knowing has different sources, as represented by the four influential epistemological schools of thought – empiricism, rationalism, intuitionism, and pragmatism. We briefly introduce each of these here.

Empiricism is a doctrine which claims that the sole source of knowing, and the test of knowledge, is experience (Crotty 2003; Godfrey-Smith 2003). Empiricism comes in different degrees. Traditional empiricism, which is supported by famous protagonists such as Bacon, Locke, and Hume, and has also become a hallmark of several sociologists of science from Bloor and Knorr-Cetina to Latour, suggests that all knowledge is experiential, so there is no qualitative difference between scientific and ordinary knowledge. This view contrasts with positivism, which draws a clear borderline between science and nonscience. Auguste Comte, one of the founders of positivism, was committed to producing positive or reliable knowledge. For him, positive knowledge is created through scientific reasoning grounded in observations. The logical empiricism developed by the Vienna Circle and its offshoots in Berlin and Prague merged logical analysis with empirical testability (Oreskes 2019). This commitment to using observational knowledge to show whether a statement is true or false has become known as the "verifiability principle of meaning": something exists and is part of our world when empirically verified through sense-experience (Zimmerman 1962). In short, empiricism teaches the virtue and necessity of observation and induction in acquiring (reliable) knowledge.

Rationalism is an epistemological doctrine that recognizes that knowledge is created through ideation, in contrast to observation, and is founded on the authority of reason (Godfrey-Smith 2003; Bunge 1996). Trust in reason has been one of the hallmarks of the enlightenment: "if only men [and women] were to think and act rationally, the rest would follow" (Bunge 1999, p. 130). Accordingly, knowledge is acquired and assured if statements can ultimately be derived from indisputably true, evident principles of reason. That is, according to this view, our reason alone is a guarantor when evaluating our cognitions. Rationalism also comes in different versions. Moderate rationalism suggests that reason is necessary but insufficient to understand the world. Karl R. Popper can be considered a moderate (critical) rationalist. According to his view of science, experience and the principle of induction is insufficient "because inductive inferences cannot be justified based on any purely logical rule, and therefore cannot be established with logical necessity. Nowadays, this is referred to as the black swan problem" (Oreskes 2019, p. 27). Hence, observations cannot prove that a statement is true. We can only use evidence to (what he calls) falsify, or disprove it. For Popper (1962), science operates as a process of conjecture and refutation, and critical rationality is the appropriate foundation of inquiry. In a similar vein, Toulmin's (1958) theory of argumentation and Habermas' (1984) idea of rational discourse and the ideal of communicative

rationality share the position of moderate rationalists. Yet, radical rationalism is different. Descartes, Leibniz, and Spinoza proposed that reliable knowledge is reflected in the sole faith of reason unsupported by perceptions, experience, or actions. In sum, rationalism suggests that knowing is based on thinking and ideation, and that reason provides the yardstick used to judge our knowledge.

Intuitionism is the view that intuition is superior to reason, experience, and action. Intuition is the appeal to direct apprehension, gut feeling, and tacit knowing. It is a powerful form of cognition – as it allows immediate perception, imagination, synthesis, and evaluation – and, therefore, has played an essential role throughout the history of science and epistemology (see Bunge 1962). Various philosophers and social scientists have favored intuitionism. For instance, Dilthey (1957), one of the founders of the Verstehen school in social sciences, suggests that the aim of the social scientist is not to explain but to comprehend (*Verstehen*) social issues using empathy (*Mitempfindung*).

Similarly, Husserl, the founder of phenomenology, emphasizes what he calls *Wesensschau* (vision of essences), a mode of thinking that pertains to the pure awareness of essences. "Husserl," as Mohanty (1959, p. 222) argues, "is treating thought as a mode of disclosure, and not as a mode of construction or analysis [. . .]. In this sense, thought is intuitive, but it is not so in any other mystical sense." Intuitionism is also favored by poststructuralists such as Derrida (1979) and postmodernists like Lyotard (1986). Radical intuitionism leads to the rejection of reason. This has become the hallmark of irrationalism, which distrusts reason and rational debates in favor of intuition, and sees little value in empirical evidence produced through observations and experience. In short, intuition is a fruitful form of knowing, one that relies on "crystallized intelligence" and direct awareness.

Finally, we come to *pragmatism*, a doctrine that refers to action as the source and test of knowledge. Like the above schools of thought, pragmatism comprises a variety of somewhat different positions. Yet, what they all seem to have in common is that they prioritize experience and practice over theory, rules of practice over general principles or laws, trial and error over intuition, and common sense over ideology. Hence, despite differences within pragmatism, it seeks "knowledge that works" in particular practice fields (see Rescher 2016, p. 21). However, there are substantial differences between various pragmatists. For instance, Peirce's pragmatism is firmly cognitive, using the test of practice as a sensible standard to assess the truth of theories. Dewey and Mead, on the other hand, favor a community and social form of pragmatism. The search for truth and the removal of doubt has to be settled not by the individual but by a community of rational inquirers. Another stance was taken by James, who took a personalistic and psychological approach to pragmatism. While Dewey's community credo of pragmatism is "what works for us," James' individualistic view is "what works for me." A particular postmodern and relativistic position was proposed by Rorty, who suggests that there "is no method for knowing when one has reached the truth, or when one is closer to it than before" (Rorty 1982, pp. 165–166). In sum, "pragmatism," as Rescher (2000, p. 47) reflects, "has not managed to achieve a uniform stability but has come to be construed very differently

by different philosophers." Yet, what is shared across this diversity is the value of action as a source of knowing.

What Kind of Knowledge Is Best?

Each of the aforementioned epistemologies offers an answer to what knowledge is best in guiding our cognitive business and actions. Empiricists suggest that knowledge is best grounded in appearance and experience, rationalists argue that knowledge bound to reasoning and argumentation enjoys the best prospect of success in action, and intuitionists imply we should follow our gut feeling and tacit knowing, and pragmatists propose we follow knowledge that works grounded in practice to solve problems. While we consider that each position offers an essential grain of truth, we argue that a strong epistemological position draws on multiple sources of knowing and does not prioritize a priori either experience, reason, intuition, or action. Furthermore, inquiry as a guided learning process also has different purposes, such as understanding problems, designing solutions, or inspiring new ideas. What is best depends on best for what purpose. We, therefore, submit that the question of what kind of knowledge is best is evaluated across different epistemological traditions, yet with different emphasis, on three accounts: its truth value, its usefulness to tackle practical problems, and its novelty value to inspire new thoughts. These three values – truth, usefulness, and novelty – are quite distinct but can be related. For instance, a theory should offer true accounts of what it aims to explain and can also provide a novel way of seeing things.

Knowledge should be adequate, and one core value to assess the adequacy of our knowledge is whether it is considered true or false. Yet, the question of *truth* is a contested concept in epistemology (Bunge 1996). Radical skeptics deny that we can find any factual truth; yet, they also reject that we can know anything. A more optimistic view is adopted by realists, who embrace the correspondence theory of (factual) truth, suggesting that a statement is true if it matches the facts it refers to. For instance, the statement that an organization is in decline is only true when we have a theoretical definition of organizational decline and objective evidence that corresponds to and supports this claim. Alternatively, realists have also adopted a coherence theory of truth, which suggests that a statement is true when it shows coherence or close fit with some body of knowledge (Rescher 1973). A lively response to the correspondence theory of truth has been developed by protagonists of the hermeneutic and constructionist tradition. For them, truth is a social construction and convention. What is considered as truth is agreed upon within a particular community and is, therefore, community-bound. The consensus theory of truth by Habermas (1984) eloquently illustrates this. True is what finds agreement. Picking up our example above, the statement that a firm is in decline is true when agreed upon within a particular community. Finally, postmodernists have suggested an "anything goes" (Feyerabend 1975) attitude because, as they argue, there are no objective, universal criteria, and standards to evaluate the truth of a statement. Hence, assessing something as true is personal, contextual, and local (Sarup 1993).

In sum, while truth has become a paramount criterion to evaluate knowledge, there is little agreement across different schools of thought on what truth means and how one is to determine its existence.

Another criterion to assess the adequacy of knowledge is to consider its *usefulness*. Especially pragmatists have substituted truth for usefulness when seeking knowledge "that works." Yet, usefulness is a very different thing upon closer scrutiny because it reflects instrumental values (Bunge 1989). All technologies aim to produce knowledge that is useful in tackling practical problems. Technological designs, from new business models to new organizational forms, are useful to someone. Consider the digital business model of Google and Facebook based on surveillance capitalism (Zuboff 2019). Obviously, the digital business model is not true or false, but useful or harmful to someone – profitable for its owners, and potentially harmful for its users because of lax privacy practices. This is why the technological imperative should be "Do not design anything useless" (Bunge 1989, p. 259). In short, some knowledge is best because it is beneficial, from developing an effective vaccine protecting the public from infections to new organizational forms facilitating participation and democratic forms of governance.

Finally, knowledge can be considered superior when it is *novel* and offers more creative ways of thinking about specific problems. This position has become particularly influential in the social sciences and management studies and has been eloquently proposed by Davis (1971). In his article, he argues that a theory is not considered influential and impactful because it is true but because it is interesting. He then raises the question of what makes a particular theory interesting to its audience in contrast to those considered uninteresting. His answer is that "[a]ll *interesting* theories, at least all *interesting* social theories, then, constitute an attack on the taken-for-granted world of their audience. . . . If it does not challenge but merely confirms one of their taken-for-granted beliefs, [the audience] will respond to it by rejecting its value while affirming its truth" (Davis 1971, p. 311). Hence, "[a]n interesting proposition was always the negation of an accepted one" (Davis 1971, p. 311). This idea that superior knowledge should push novel thoughts instead of incremental improvements is also mirrored in Alvesson and Sandberg's (2011) problematization approach to generating research questions. A good research problem, as the authors suggest, is one that "problematize[s] assumptions in a way that generates novel research questions" (Alvesson and Sandberg 2011, p. 253). This may lead to an outcome that is more creative, has an interesting appeal, and provides novel thinking about a subject matter (Alvesson and Kärreman 2011). As Weick (1989, p. 525) emphasizes: "A disconfirmed assumption is an opportunity for a theorist to learn something new, to discover something unexpected, to generate renewed interest in an old question, to mystify something that had previously seemed settled, to heighten intellectual stimulation, to get recognition, and to alleviate boredom." In sum, while not undisputed (Bettis et al. 2016), it is fair to say that novelty became an influential value to assess knowledge in current social science and management studies.

Epistemological Orientations and Their Reflection in Management Studies

The setup of the Epistemology of Management section aims to reflect our understanding of management studies as a pluralistic and multi-paradigmatic discipline of the social sciences, as described above. For structuring this section and its chapters, we opted against relying on classical schools of thought, such as (post-)positivism, hermeneutics, and so on. Instead, we aim to familiarize readers with contemporary epistemology-related debates in the field of management studies. We do so by distinguishing four different epistemological orientations in the field, each differing in how scientific statements and empirical reality are interrelated.

More specifically, we differentiate between (1) epistemologies of representation, (2) epistemologies of interpretation, (3) epistemologies of imagination, and (4) epistemologies of intervention. *Epistemologies of representation* aim to advance scientific statements to best match, explain, or predict empirical reality. *Epistemologies of interpretation* relate scientific statements not to an objectively given reality but instead to one that is socially constructed in inter-subjective meaning-making and situated in practice. *Epistemologies of imagination* mobilize fictional scenarios, counterfactuals, and/or ideal-type thinking as scientific statements, with the aim to contrast them with empirical reality, also as a means for creative theory development and critique. Finally, *epistemologies of intervention* are concerned with how scientific statements enter and potentially alter empirical reality.

Taken together, these four main epistemological orientations cover the field of management studies in a pluralistic and comprehensive way. At the same time, we consider these orientations as a heterarchy; in other words, none of them is generally superior to the other – but, instead, they simply differ in their suitability for addressing different kinds of research questions. In that spirit, we encourage management scholars to embrace the epistemological pluralism that characterizes our field – rather than considering one paradigm in particular as the one-size-fits-all approach. In the following, we describe in more detail the four main epistemological orientations that form the main corpus of this section and briefly summarize and foreshadow the chapters that populate these different orientations.

Epistemologies of Representation

Epistemologies of representation assume that theories are to social reality what the map is to a territory. The better maps (i.e., theories) are those that represent the territory (i.e., social reality) more accurately. Yet, just like maps are not the territories, so theories are not the things they represent. Instead, theories offer an abstracted and simplified picture that represents its real counterparts only approximately. Ultimately, theoretical representations should give us cognitive orientation within our environment. As Rescher (2003: xvi) explains: “To know something, then, is not to be engaged in an activity but to have entered into a certain condition – a cognitive condition.” Not surprisingly, epistemologies of representation have been

deeply engaged with the question: under what conditions do scientific statements become better approximations of reality and can be considered true? As such, inquiry from a representational view seeks scientific statements that are appropriately and rigorously grounded, and establish an objective, accurate and reliable relation between the statements and the real objects they represent.

In particular, *positivism* and *realism* can be associated with epistemologies of representation in management studies. Unfortunately, they have often been confused with one another. In a first approximation, the former is the view that all knowledge is grounded in experience, and the latter assumes that most of the reality transcends the mind. While positivism, as Johnson and Duberley (2000) summarize, focuses "on the observable and the approach to the analysis of organizations assumes that their reality is objectively given" (p. 41), different versions of realism "are united by a rejection of the view that the world is created by the minds of human observers" (p. 149). Among many other differences, we would like to highlight two critical distinctions between these views. First, positivists and realists deviate from their reference point of what they consider as reality. Positivism suggests that only positive facts (experience) should be attended to when developing scientific statements. Hence, the real is related to phenomenalism or how things appear to someone. While positivism today has been interpreted differently by management scholars and has been modified by including Popper's (1959) principle of deduction and falsification, the focus upon observable facts and the development of theories that can be tightly related to those observables, most preferably through quantification, are typical hallmarks of positivist research. On the other hand, realism suggests that reality is more than how it appears to us and how we experience it because a large part of reality, from sensemaking to error cultures, is inaccessible to direct observations. Yet, these unobservable elements of reality have to be included in our theorizing for gaining a proper, more comprehensive understanding.

Consequently, positivism and realism deviate concerning the inclusion of unobservables in our theorizing. Second, both views also differ in how we best gain knowledge about (empirical) reality. While positivism is grounded on an empiricist epistemology following inductive and verification principles, and in its Popperian revision entailing an interplay between conjecture and refutation (Popper 1962), realists entertain a more complex relation between ideation and theorization on one hand and experience and empirical reality checks on the other. Since unobservable aspects of reality are beyond our senses, they have to be invented, as realists argue, and that means that realist inquiry goes beyond systematic collection and analysis of experience, but, in addition, entails creativity, invention, and "creating leaping" (Klag and Langley 2013). Realist epistemology is, therefore, a blend of rationalism and empiricism.

This section of the book includes two chapters. In ▶ Chap. 3, "Evidence-Based Management," by Mona Mensmann, Denise Rousseau, and Michael Frese, the authors focus on the tension between scientific knowledge and organizational reality. Traditionally, evidence-based management has been associated with a positivist epistemology. Yet, as this chapter and the previous contributions of the authors

make clear, evidence-based management is related to a critical realist position, thus shedding light on the multiple sources of knowledge that can and should inform action in organizations. The chapter discusses why abstract scientific knowledge and managerial expertise often appear incompatible in the context of organizational practice, especially when organizations have to act quickly under conditions of uncertainty and ambiguity. The chapter concludes by offering ways to reduce this tension, by making knowledge actionable and turning action into knowledge. The future of evidence-based management, as the authors argue, may help scholars to contribute to more scholarship-informed practice and allow practitioners to balance better scientific knowledge and reflective practice for more effective decisions and action.

▶ Chapter 4, "Realist Inquiry," by Markus Reihlen, Stefanie Habersang, and Natalia Nikolova offers a broader and more comprehensive introduction into how realism informs management studies. As the authors suggest, realism provides a particularly attractive way out of anthropocentrism and idealism in much contemporary research in management studies that detaches theorizing from its material conditions. This becomes especially problematic when understanding and handling the "Grand Societal Challenges" (George et al. 2016) intertwined with our material existence in the world. The chapter outlines three different versions of realism: empirical, critical, and scientific realism. Contrary to much of the contemporary literature in management studies that builds upon a Bhaskarian approach of critical realism, the authors suggest that management scholars could benefit from opening up to a broader diversity of realist positions, including scientific realism as proposed by Mario Bunge, in order to strengthen their philosophical stance and, at the same time, stimulate a debate on different directions of a "realist turn" in management studies. The chapter discusses specific consequences of a realist approach to management concerning its ontology, epistemology, and praxeology.

Epistemologies of Interpretation

Epistemologies of interpretation assume that there is a marked difference between the natural sciences and the social sciences. While the former deals with discovering the laws of nature, social science, including management studies, in contrast, inevitably is an interpretative science that is centered on the disclosure of individual and collective meanings. Social facts, unlike natural facts, involve interpreting people's actions, and this entails "'getting inside' the actors' world views: attributing motives, concepts, convictions, and beliefs to the actors in an effort to make sense of what they do" (Steel and Guala 2011, p. 143). Hence, social facts, as argued by protagonists of this view, are loaded with meaning. Reality is not "out there" to be discovered but is constructed individually by meaning-seeking agents and collectively through social practices shaped by common thought styles and paradigms. Consequently, epistemologies of interpretation reject the idea that social sciences should strive for knowledge that aims to represent reality (in the form of correspondence) and would reject the notion that inquiry should get us closer to "the" (one and only) objective truth. Instead, the truth of

a scientific statement is considered the result of social processes that reflect social conventions, a community consensus, or a "viable" orientation for actors within their environment.

Epistemologies of interpretation are represented by several different sub-streams covering constructivism, hermeneutics, phenomenology, symbolic interactionism, ethnomethodology, post-structuralism, and postmodernism. In particular, hermeneutics has become an essential inspirational source and foundation for a non-positivistic social science. While initially hermeneutics was considered the art and science of text interpretation, it was especially Wilhelm Dilthey (1957) who introduced the "hermeneutic turn" in the social sciences. Instead of considering hermeneutics merely as an auxiliary discipline, he proposed a new epistemological and methodological foundation for the social sciences that clearly set itself apart from the positivist claim of a universal science (Grondin 1997). Its central thesis is that social science does not explain but rather *verstehen* (i.e., to understand/comprehend) social reality. Accordingly, verstehen became the modus operandi for social scientists. Yet, the method of verstehen has been differently used by its protagonists. For Dilthey (1957), verstehen was associated with empathy, and for Weber (1922) it was the attribution of purpose to action. With Martin Heidegger's "existential turn," hermeneutics was no longer about the interpretation of a text, but human existence itself became its object.

Consequently, hermeneutics was transformed from an epistemological and methodological approach into an idealist ontological doctrine (Grondin 1997). In a similar vein, the rising interest in how language shapes organizations and society, as expressed by the "linguistic turn" (Rorty 1967), became an influential view in the social sciences and its reflection in management studies, which suggests that the world can best be understood as text or as a language game (Alvesson and Kärreman 2000). Derrida's famous statement expresses this well: "there is no outside the text" (Derrida 1976, p. 163). Accordingly, reality is viewed as constituted in and through discourse.

This section of the book features two chapters. In ▶ Chap. 5, "Interpretive Inquiry," by Blagoy Blagoev and Jana Costas, the roots of interpretative inquiry in the philosophical tradition of constructivism – and with relations to its sociological, historical, cognitive, and linguistic foundations – are reconstructed. For the authors, interpretive inquiry aims to understand how actors make sense and attach meaning to their actions and interactions, experiences, and phenomena. The authors emphasize the close relationship between interpretive inquiry and philosophical constructivism, with its multiple offshoots. Based on this overview, key research areas in management studies based on interpretive inquiry are outlined, such as research in organizational culture, organizational storytelling, rhetoric, discourse and communication, contemporary process and practice studies of organization and management, and, finally, work on the intersection between organizations and technology. The chapter highlights implications for the practicing researcher and concludes with a discussion of some common criticisms of social constructivism as a philosophical foundation of interpretative inquiry.

The second chapter of this section, ▶ Chap. 6, "A Posthumanist Epistemology of Practice," by Silvia Gherardi, contributes practice epistemology to the study of

management and organization. Using a practice lens to study how organizations know and learn has become influential in management studies. In this conceptualization, knowledge is constituted and transferred through practices and activities. The author argues that practice theories are particularly suited to answering the question of what managers do when they manage. For her, a posthumanist practice theory offers a rationale for looking at managerial work as collective and knowledgeable doing. Hence, knowledge is viewed as an activity rather than as an object. It is further elaborated while being used in practice. Yet, this application, as an ongoing practical accomplishment, is performed within materially heterogeneous practices. Following previous work on sociomateriality and actor network theory, Gherardi assigns agency not just to humans but also to non-human entities. She thus opens up new avenues for posthumanist conversations that seek to de-center the human subject. The relationship between the social and the material is understood as a form of "entanglement" where the separation between subject and object disappears, and agency is achieved within what she calls the *agencement* of practice elements. Following the footsteps of phenomenalism, reality is understood as things-in-phenomena and not as things-in-themselves. The chapter illustrates the applications of a humanist and posthumanist practice epistemology to show the respective implications of methodology. She sees the challenge of a posthumanist epistemology for future research by inventing post-qualitative methods based on the concept of entanglement of human and more-than-human elements.

Epistemologies of Imagination

Epistemologies of imagination generate scientific statements – in contrast with epistemologies of representation – not to *correspond* with a given reality but rather to *contrast* these statements with empirical reality and as a means for creative thinking and critique. With this section of the Handbook, we deliberately go beyond the typical canon of epistemological orientations in philosophy. More specifically, we highlight that the field of management studies is characterized by a broader range of scientific statements, some of which deliberately go beyond the ambition of "mapping" social reality – and, by contrast, these works use scientific statements to address inadequacies of that social reality critically and/or reveal its inherent alternativity.

This section of the book features two chapters. In ▶ Chap. 7, "Critical Inquiry," Dan Kärreman lays out the contours of critical approaches in management studies – those streams of research that use scientific statements to problematize institutionalized inequalities and power relations in managerial and organizational settings, based on an emancipatory understanding of the social sciences. In that sense, critical inquiry confronts empirical reality with normative statements (i.e., what the world *should* be like) and uses such statements as a backdrop for critical interrogations of the status quo of managerial and organizational realities. Kärreman structures his elaborations into three main commitments of critical inquiry (see also Fournier and Grey 2000): (1) commitments to

a negative ontology (i.e., the key assumption that society exists as a nexus of ideological practices, material conditions, and exercises of power – but that it could be different in principle), (2) an epistemology of denaturalization (i.e., the aim of revealing the inherent "un-naturalness" and irrationality of managerial and organizational settings), and (3) reflexive methodology (i.e., the need to be self-aware of the assumptions, vocabularies, and methodological techniques invoked by critical inquiry and to reflect upon their shortcomings and limitations). The chapter concludes by pointing out two possible avenues for future development of critical inquiry: a stronger engagement with critical realist assumptions about objective, naturalized realities and/or forms of engaged scholarship, and constructive critique that would be concerned first and foremost with imagining alternative realities (see also the notion of critical performativity in Spicer et al. 2009).

Beyond this critical and normative impetus, in the chapter on ▶ Fictional Inquiry, Dennis Schoeneborn and Joep Cornelissen map out those approaches in management and organization studies that generate scientific statements which deliberately deviate from actual empirical reality. In that sense, fictional inquiry opens up the epistemology of management studies to a broader range of ways in which scholars can use scientific statements in the area of management. The authors structure the heterogeneous works in this epistemological orientation by distinguishing between three main purposes of fictional inquiry: (1) juxtaposing fictional and counterfactual statements against empirical reality to enhance our understanding of that reality (e.g., through ideal-type thinking or figurative imagination); (2) juxtaposing fictional/counterfactual statements against other scientific statements to test and refine those statements (e.g., via counterfactual reasoning, thought experiments, or simulation); and (3) drawing on fictional realities as an object of inquiry in its own right. The chapter concludes with reflections on fictional inquiry and its particular fit to management studies as a field.

Epistemologies of Intervention

Epistemologies of intervention are concerned with whether, how, and under what circumstances scientific statements intrude upon, shape, and alter social reality. Social science theories can enter the lifeworld under investigation either tacitly, by what Giddens referred to as the "double hermeneutic" (Giddens 1993), or by deliberate design. According to the "double hermeneutic," there is a close entanglement between theories and social reality. While in the natural sciences (e.g., in physics or chemistry), the objects of study tend to be unaware of the fact they are studied, in the social sciences (e.g., sociology or management studies), the objects of study are themselves meaning-processing subjects. Therefore, one can expect for the social world a recursive hermeneutic process between the researchers (who aim to understand the social world) and those who are studied (i.e., who are able to take scientific theories into account in their behavior). As Giddens (1993, p. 13) writes:

"Lay actors are concept-bearing beings, whose concepts enter constitutively into what they do; the concepts of social science cannot be kept insulated from their potential appropriation and incorporation within everyday action."

Design, on the other hand, is based on deliberate intervention. The design function of management knowledge has been emphasized since its foundation as a discipline. Consequently, questions of design have been addressed by such approaches as action research, design science, mode 2 knowledge production (as explained further below), engaged scholarship, or evidence-based management to shape managerial decision-making and interventions (for a review see Kieser et al. 2015), as well as ▶ Chaps. 3, "Evidence-Based Management," by Mensmann et al., and ▶ 4, "Realist Inquiry," by Reihlen et al., in this handbook. The epistemology of design raises some specific questions. For instance, what is the relation between scientific knowledge and practical skills, or between scientists and practitioners, in solving a practical issue? How are design theories validated when their purpose is to change, and not to explain, practice? How are design theories translated into action? These and related questions frame problems of the epistemology of design.

This section is composed of two chapters. ▶ Chap. 9, "The Performativity of Theories," by Jean-Pascal Gond and Guillaume Carton, the authors explore this interrelation based on the notion of performativity (see also Gond et al. 2016). Scientific statements become performative if they (co-)constitute the very instances of social reality that they aim to describe (Marti and Gond 2018). In the same context, the authors newly introduce two ideal-type positions that can be seen as poles of a continuum of scholarship on theory of performativity: (1) *performativity as a mindset* and (2) *performativity as a social mechanism*. The notion of performativity as mindset primarily relates to performativity as an onto-epistemological lens – that is, how researchers perceive their own relation to the subjects they study. In contrast, the notion of performativity as a social mechanism instead emphasizes that researchers study performativity intending to reveal more general social mechanisms "out there" (and hence the ontological claims are less pronounced in this latter view). Gond and Carton specify the common core assumptions underlying both perspectives as well as their distinctive commitments to these assumptions. Based on their ideal-typical distinction, and the continuum between the two poles, they develop a research agenda for future performativity-sensitized research in organization and management studies.

In the second chapter of this section, "Problematizing the Relation Between Management Theory and Practice" by Benjamin Grossmann-Hensel and David Seidl, the authors shed critical light on the epistemological question of how theories of management interrelate, relate to, and become applicable in managerial and organizational practice. This issue has been the subject of a long-standing debate in the field about the status of management studies as an applied and practically relevant science. For instance, the field of management studies has been diagnosed as being in a trade-off between scientific rigor and practical relevance (e.g., Kieser et al. 2015). This debate reminds us of the distinction in philosophy of science between "Mode 1" knowledge (i.e., theory building and testing with the aim of

generating universal knowledge) and "Mode 2" knowledge (i.e., know-how that is targeted at the practical application in specific circumstances). In this chapter, Grossmann-Hensel and Seidl draw on the "descriptive" stream of the literature on practical relevance, especially Niklas Luhmann's (1990) sociology of science, to discuss the forms and conditions of management science's practical relevance in epistemological terms. In a nutshell, the authors argue that the very character of science as a social system of self-referential communication renders impossible the direct, linear transfer of research insights to practice. Based on this diagnosis, the authors discuss several humble, alternative ways in which management research can impact and "irritate" management practice (Kieser and Leiner 2009, p. 516).

Conclusion

The central thesis of this conclusion is that there is a close science-philosophy connection, and management research, in the light of philosophy in general and epistemology in particular, is likely to produce better – more novel, accurate, and useful – knowledge. Each of the four aforementioned epistemological orientations – (1) epistemologies of representation, (2) epistemologies of interpretation, (3) epistemologies of imagination, and (4) epistemologies of intervention – constitutes a research program with very different assumptions and implications of what management research is and how it should be conducted. Hence, each research program guides us on how knowledge is utilized to understand the nature of research problems and their solutions.

The question we have to ask is: are they equally valuable? On the level of the research field, plurality is an essential indicator of a vibrant knowledge field. The plurality of views and debates stimulates critique, novelty and creativity. Yet, for the individual scholar facing a particular research issue, the epistemic situation is different because not all positions would have equal merit for him or her to tackle a specific research problem. To adopt the most plausible position in order to understand a research problem, scholars have to make choices that involve rejecting positions they consider less valuable. In other words, they have to engage in valuations of what is best for the issue at hand (Rescher 1985, 1993). Perhaps the most basic yardstick to be applied is the "fertility criterion." Accordingly, "*[b]y their fruits ye shalt know them: Tell me what your philosophy is doing for the search for truth or the good, and I will tell you what it is worth*" (Bunge 2012, p. 182, italics in original). We hope that this section will spark stimulating debates about different epistemological directions in management studies, so that scholars can reap its fruits in the future.

Cross-References

► A Posthumanist Epistemology of Practice
► Critical Inquiry

► Evidence-Based Management
► Fictional Inquiry
► Interpretive Inquiry
► Problematizing the Relation Between Management Research and Practice
► Realist Inquiry
► The Performativity of Theories

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