



Journal Organizações & Sociedade

2021, 28(96), 54-72

© Authors 2021

DOI 10.1590/1984-92302021v28n9603EN

ISSN 1984-9230

www.revistaos.ufba.br

NPGA, School of Management

Federal University of Bahia

Received: 12/29/2017

Accepted: 02/06/2020

From Kant to Popper: Reason and Critical Rationalism in Organization Studies

Felipe Fróes Couto^a

Luiz Alex Silva Saraiva^b

Alexandre de Pádua Carrieri^b

a Universidade Estadual de Montes Claros, Montes Claros, Brazil

b Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Abstract

The objective of this essay is to revisit the theoretical construction of Critical Rationalism, starting from the philosophy of Kantian reason contained in the works *Critique of pure reason* and *Critique of practical reason* to discuss their respective influences over the work of Karl Popper. We aim, with this exercise, to shed light on the critical-rationalist approach in Organization Studies. Our argument is that Kantian thought has been conducive, on the one hand, to a negative philosophy that considers idealism prior notions and *a priori* knowledge fundamental to the creative conception of knowledge and, on the other hand, to a hypothetical-deductive science that seeks to bring us closer to truth through criticism. The basis of critical rationalism lies in the search for reason and transcendental truth. This is a call not only for the production of theories, but for dedication to test their validity – a problem that has not received much attention from researchers in the field of organization studies.

Keywords: Immanuel Kant; Karl Popper; reason; critical rationalism; organization studies.

Introduction: reason between transcendentalism and empiricism

Reason lies in the facts and actions of our everyday existence – be it reading this text, practicing our writing, solving complex problems, or exercising the ability to make plans to fulfill our

most basic needs. We perform those actions because we believe in their purpose, in the sense that we believe that taking a particular course of action will lead to a certain outcome, which may or may not interest us. Understanding and vindicating the concept of universal reason is a task that has seduced many philosophers and scholars since the dawn of human civilization. Plato (427-347 BC) was one of the first philosophers to pose notions of reason. His “Allegory of the cave” is taught to this day in undergraduate courses so that students have the opportunity to grasp the transcendental nature of knowledge, accessible only to those who are able to disentangle themselves from the currents of experience in order to witness true knowledge, a privilege granted exclusively to the most enlightened philosophers, the ones capable of engendering universal discourse and ideas.

Plato’s philosophical constructions come, as Châtelet (1994) points out, from the realization that men are unhappy, and that they are unhappy because they suffer and commit injustices while finding no empirically obtainable remedy able to overcome the pain caused by injustice. In dealing with reason, Plato’s proposal is to make it a remedy for unjust human action. Reason, in this sense, would be a universal discourse, or a coherent, well-organized set of statements, legitimized in their process of development, so that any bona fide individual is forced to accept them as valid. Such a discourse would be able to answer every question man is able to ask and, to this end, its every word ought to have a correspondence in the real world. One needs to make sure that their discourse is not a hollow shell, that there is something that corresponds to it, and that there are consistent data to support it. Thus, for Plato the driving force of discourse is the Idea, which corresponds to a transcendental abstraction wherein man is able to find the matrix of true knowledge, freeing himself from sophism (Châtelet, 1994).

The idea, for Plato, is an archetype. The world of appearances presents itself to us as the real, and this appearance of the real may be the object of a great diversity of interpretations or opinions (this diversity Plato called *doxa*), guided by each individual’s passions, interests, desires and circumstances. Plato considers that “each one sees the real as it suits him, and calls ‘reality’ all of that which corresponds to his subjective dispositions” (Châtelet, 1994, p. 37, our translation). Yet, universal discourse, the true reality, is composed of ideas that are unchanging, unlike appearances, which change incessantly. The knowable reality is nothing more than the product of these ideas, an imperfect imitation. Understanding reality is the task of the philosopher, who presents himself as a legitimate idealist (Châtelet, 1994).

Aristotle (384-322 BC), however, believed that the philosopher’s formation should be based on what he is, on the sensible world in which he believes, because certainties are built from **experience** – from concrete views and beliefs. Since experience has true existence, as Aristotle thought, human beings are able to formulate discourses and build theories that are convincing insofar as they correspond to reciprocal experience. This is because “adherence [to a discourse] is not only a sign that the discourse is well constructed, but is also proof that the recipient is convinced and sees things in the same way as the emitter of the discourse” (Châtelet, 1994, p. 44, our translation). We refer to this kind of thinking as common sense, which unveils the real as the **what it is** (*to ti esti*) of a thing. In other words, the real is the essence of appearance (Châtelet, 1994).

This clash between the notion of knowledge as originating in the world of ideas (idealism) and knowledge as originating in the world of life (materialism) has yet to be overcome by either philosophy or the social sciences. The question of what is real is still one of the great human

dilemmas. This divergence concerns not only the ontology of the real, but also the epistemological position of researchers who choose to affiliate with one theoretical line or another.

Immanuel Kant (1724-1803) is one of the great representatives of the idealist movement, and one of the great metaphysical thinkers of the 19th Century. The aim of this essay is to revisit the theoretical construction of Critical Rationalism, starting from the philosophy of Kantian reason contained in the books *Critique of pure reason* (1781/2012) and *Critique of practical reason* (1788/2015) in order to discuss their respective influences on Karl Popper's work. With this exercise, we aim to shed light on the critical-rationalist approach to Organization Studies. Our argument is that Kantian thought has been conducive, on the one hand, to a negative philosophy that considers idealism, pre-conceived notions and a priori knowledge as fundamental to the creative conception of knowledge and, on the other, to a hypothetical-deductive science which aims to bring us closer to the truth through criticism. The basis of critical rationalism lies in the pursuit of reason and transcendental truth, a pursuit that calls not just for the production of theories but also for dedication to testing their validity.

Science and philosophy, according to Friedman (2001), have been closely related throughout our intellectual history. In addition to being born together in Greece between the 6th and 3rd centuries BC, they flourished together in the Medieval Period, the Renaissance, and Modernity (13th to 17th centuries). Its historical development gave rise to the philosophy and modern sciences we practice today – even though there was no strict distinction between these concepts until the end of the 17th century. Philosophy, as a form of transcendental inquiry, is not only different from all empirical sciences, but also from the a priori theoretical constructs we have devised to explain reality (such as geometry, epistemology itself, etc.). What matters to philosophy is the distinction between objects and reality, and reason is, in Kantian terms, a model for the cognition of these objects, insofar as it is possible to know them a priori (Friedman, 2001).

The duty of philosophy, in Kant's own words (1781/2012), was "to abolish the semblance arising from misinterpretation, even if many prized and beloved delusions have to be destroyed in the process." (p. 100). The goal of philosophy, in this sense, is the logical clarification of thoughts; philosophy is not a doctrine or body of dogmas, but an activity. Thus, a philosophical work consists essentially of elucidation (Friedman, 2001; Wittgenstein, 1992). For Kant (1781/2012), pure reason is such a perfect and reliable unit that it would be able to answer any and all questions submitted to it. This is because "[h]uman reason has the peculiar fate ... that it is burdened with questions which it cannot dismiss, since they are given to it as problems by the nature of reason itself, but which it also cannot answer, since they transcend every capacity of human reason." (Kant, 1781/2012, p. 99).

Kant rejects the foundation of reason in experience, and instead chooses to rely on the distinction between phenomena and things-in-themselves. That is, he considers that the object of cognition is not fully comprehensible only by empirical means, since, no matter how much human knowledge inevitably begins in the course of experience, it is endlessly questioned until even its last refuge in the use of experience is conquered. Kantian reason, in this sense, is grounded in principles that are ultimately transcendental and have little relationship with empirical praxis, considering their high level of abstraction, breadth and generalization – the reason why these principles are called metaphysical.

The task of Kantian metaphysics, therefore, is “to discover the inner forces of things, the first causes of the laws of motion and the ultimate constituents of matter” (Beiser, 1992, p. 31). And not only that, but also to extract from this knowledge the universal principles that govern human knowledge of reality. Unlike empirical physics, in which the mechanics of nature and the laws of motion are analyzed, Kantian metaphysics provides us with rational knowledge of the intelligible world (Beiser, 1992). The basis of Kantian metaphysics is to distinguish between two faculties of knowledge, sensibility and rationality. Sensibility, in this sense, is the receptivity of the subject, through which he is affected by experiential objects. Rationality, on the other hand, is the subject’s activity, through which he creates a priori representations that have not been obtained sensorially. These concepts, rather than derived from experience, are expressed by mathematical formulas, for example, which stem from man’s reflection on a particular object – i.e., from one’s ability to theorize. According to Wartenberg (1992), what Kant presents is “an account of the use of theoretical concepts in the development of scientific theories under the rubric of the ‘regulative use of reason’” (p. 228).

Our premise in this essay is that understanding Kantian reason means not only analyzing our own ability to theorize, but also seeking to approximate thought, ideas and critical reflections on the empirical world. In regards to the latter, we apply the critical rationalism of Karl Popper (1902-1994). His view on the falsifiability of theories and hypothetical-deductive science attributes great potentiality to Kant’s writings, structuring a way of conceiving scientific knowledge in accordance to the metaphysics of real knowledge.

We propose, therefore, to reconstruct this theoretical movement so as to explain the foundations of pure reason and critical rationalism, transposing these constructions into the field of organizational studies. To this end, we will first revisit historical aspects related to the figure of Immanuel Kant, his main arguments about transcendental reason, his influence on Karl Popper’s critical rationalism and, at last, draw our final considerations.

About the philosopher of the Enlightenment Immanuel Kant (1724-1803)

Several authors have dedicated their academic trajectory to analyze Immanuel Kant’s thought. His texts, although loaded with embroiled language often characterized by redundancy, pose the essence of an idealistic thought that values man’s capacity for inspiration and reflection more than empiricism. Guyer’s (1992) biographical essay on Kant narrates the story of a professor walking the narrow alleys of his place of birth, a small town called Königsberg which no longer exists, having been destroyed in World War II and replaced by the Russian naval base of Kaliningrad. Kant’s career as an academic begins with his entry into university at the age of 16, following a preparatory education financially supported by the family’s pastor and supplemented by classes that were not able to ensure much more than a life of relative poverty. Only in 1770, at the age of 46, was Kant appointed to the chair of metaphysics, after a decade of continuous publication. Having assumed this long-sought position, Kant fell into a decade of silence “which must have persuaded many that his long wait for a chair even at such a provincial university had been fully deserved.” (Guyer, 1992, pp. 3-4).

From the monotony of solitary studies, however, emerged one of the great philosophical authors in history, of a kind rarely witnessed before. Beginning in his 57 years of age, Kant published

a great work almost every year for over a decade and a half (Guyer, 1992). His most mature works are from this period, especially the three famous critiques: *Critique of pure reason* (1781, revised 1787) offered new foundations for human knowledge by deconstructing the main aspects of traditional metaphysics; *Critique of practical reason* (1788) inextricably linked human freedom with morality while reconstructing the foundations of metaphysics on practical rather than theoretical bases; *The critique of the faculty of judgment* (1790) ostensibly discussed the topics of aesthetics and teleological judgment, but also struggled to refine and even revise some of his earlier basic conceptions of practical and theoretical reason (Guyer, 1992).

Beiser (1992) subdivides Kant's career into four phases: **the first phase (1746-1759) is the period of obsession** with seeking a proper ground for metaphysics and developing a rationalist epistemology able to justify the possibility of the knowledge of God and of the first causes of nature; **the second phase (1760-1766) is the period of disillusionment**, in which Kant breaks with his early rationalist epistemology and bends to skepticism, ultimately rejecting the possibility of a metaphysics that transcends the limits of experience; **the third phase (1766-1772) is a period of partial reconciliation**, in which Kant returns to metaphysics in the belief that he could finally provide it with a solid foundation, and finally **the fourth phase (1772-1780) is the period of divorce**, as Kant comes to realize that his renewed reliance on metaphysics could not solve a fundamental problem: how would a priori synthetic judgments of experience be valid if they have not been derived from experience itself? (Beiser, 1992). From 1772 onwards, he devotes his life and philosophical studies to formulating a mature critical doctrine on the possibility of metaphysics (Beiser, 1992).

Like many philosophers since the time of Rene Descartes and Thomas Hobbes, Kant tried to explain both the possibility of new scientific knowledge and the possibility of human freedom, believing that "the validity of the laws of the starry sky above, as well as the moral law within, had to be sought in the legislative power of the human intellect itself" (Guyer, 1992, p. 2). Kant's proposition, according to Guyer (1992), is that we can be right in regards to the foundations of physical science because we ourselves impose on nature at least the basic form of the scientific laws that are given to us by our senses; it is precisely for this reason that we are free to observe the world from the standpoint of rational agents – whose actions are the result of choices and not simply predicted according to deterministic laws. In other words, **we interpret and define the laws of the universe on the basis of our ideas; we are free because nothing prevents us from coming up with other ideas to interpret the world, and there is no deterministic law that prevents us from reframing reality.**

However, Kant never understood human freedom as complete. For the author, although it is possible to legislate on the most basic forms of the laws of nature and, in effect, bring these laws ever closer to the particularities of nature by means of concrete concepts, we can only do so incompletely, as there is an insurmountable distance between human perception and experience and the reality of nature, given its infinite extensionality and the vastness of space and time. In this sense, we will never have full knowledge of nature, nor will we ever realize its true dimension (Guyer, 1992). Therefore, it is important to note that Kant's philosophy understands that while we may seek to legislate towards establishing rational laws for our actions, we must always seek to understand nature not only as an external reality, but also as internal to our own reason – which we constitute and are constituted by.

. . . Kant radically and irreversibly transformed the nature of Western thought. After he wrote, no one could ever again think of either science or morality as a matter of the passive reception of [an] entirely external truth or reality. In reflection upon the methods of science, as well as in many particular areas of science itself, the recognition of our own input into the world we claim to know has become inescapable. In the practical sphere, few can any longer take seriously the idea that moral reasoning consists in the discovery of external norms – for instance, objective perfections in the world or the will of God – as opposed to the construction for ourselves of the most rational way to conduct our lives Of course not even Kant could have singlehandedly transformed the self-perception of an entire culture; but at least at the philosophical realm of the transformation of the Western conception of the human being from a mere spectator of the natural world and a mere subject in the moral world to an active agent in the creation of both, no one played a larger role than Immanuel Kant. (Guyer, 1992, p. 3)

For Châtelet (1994), Kant did not share the Cartesian program of dominating nature, but was ambitious about man, since he believed that mankind could improve itself. For Kant, through pure reason, man is able to assign meaning to and legislate over nature. Many of his constructions arose in answer to David Hume's, a philosopher who takes up John Locke's ideas of knowledge as stemming from experience. The Kant-Hume relationship is very similar to Plato's and Aristotle's, since both believed in the dichotomy between the enlightenment of man versus natural reality as important for the discovery of truth. For Hume, merely analyzing or reflecting on natural reality is not enough if we are to find necessary causes and connections between objects; only controlled experimentation allows humans to realize that nature obeys sometimes simple, sometimes complex laws (Châtelet, 1994). In this sense, it is nature, as we discover it through experimentation, that must command, not thoughts resulting from preconceived reflections.

Guyer (1992) similarly understands the development of Kant's philosophy as contrary to the dreams of every rationalist philosopher since Descartes, since it claimed that philosophy could not appropriate the same methods as mathematics. While mathematics could start from definitions and then prove possible outcomes by constructing objects according to those definitions, "philosophy, however, could never begin with definitions but only with 'certain primary fundamental judgments' the analysis of which could lead to definitions as its conclusion, not its commencement." (Guyer, 1992, p. 8). For Kant, empirical statements about cause and effect relations, substance, and action could only serve as starting points for philosophy; however, the deeper the relationships between the objects are, the broader the philosophical activity, and thus we can never completely understand the complexity of the real world only through experience, without the reflective exercise that is the attribution of reason.

In the words of Deleuze (1985), the Kantian definition of philosophy is to be "the science of the relation of all knowledge to the essential ends of human reason" (p. 1). Deleuze acknowledges that Kant wages a double struggle: one against empiricism, and another against dogmatic rationalism. For empiricism, reason is not the faculty of ends, because all ends refer to a primordial affectivity, to a 'nature' capable of establishing them. Thus, the originality of reason consists in a certain way of accomplishing ends that are common to man and nature. The supreme ends of reason, according to Deleuze (1985), are to form the system of culture; in Kantian philosophy, this

means that “[t]he final end is not an end which nature would be competent to realize or produce in terms of its idea, because it is one that is unconditioned” (p. 1).

And it is through the exercise of metaphysics, in the words of Kant himself (1781/1998), that a science of perfectly designed reason is made possible, in such a way that posterity will have nothing left to do except didactically adapt it to our purposes, without however expanding its contents at all. Because reason “is nothing but the inventory of all we possess through pure reason, ordered systematically” (Kant, 1781/1998, p. 104). This is because the knowledge sought by reason consists of pure concepts – without anything from experience or even from a particular intuition (which should lead to a particular experience) having any kind of influence to extend it (Kant, 1781/1998). Understanding reason and its limits is fundamental for understanding the theorizing of reality, as well as the possibility of overcoming and improving man’s knowledge; this subject will be further discussed in the next section.

Reason in Kant: a *priori* knowledge, principiology and critical rationalism

Kant’s great treatises on reason are *Critique of pure reason* (1781/1998) and *Critique of practical reason* (1788/2015). In these works, the author began to delineate the framework of his metaphysics and discuss the underlying ideas of Newtonian physics (Friedman, 2001). Knowing these fundamentals allows researchers in organization studies to rethink organizational theorizing as a function of reflection on experience. Some of the ideas of these two seminal works will now be analyzed more closely, though not exhaustively.

Two major elements constitute the driving force of human science: curiosity and reason – the latter is crucial because of the impossibility of using faith as a valid scientific source of knowledge. Kant (1781/1998) understands that insofar as reason must be present in the sciences, something in them has to be composed of *a priori* knowledge, and such knowledge must establish a relationship to its object in two ways: (1) by conceptualizing the object, or (2) by giving it concrete form. The first kind of knowledge Kant called theoretical knowledge; the second he termed practical knowledge. The pure part of both, according to the author, is that through which reason determines its object in an entirely *a priori* manner, and must be presented alone, beforehand, without contamination from other sources. It may seem difficult at first glance to understand the difference between both types of knowledge, but Kant seeks to further explain this proposition in the following passage:

When Galileo rolled balls of a weight chosen by himself down an inclined plane, or when Torricelli made the air bear a weight that he had previously thought to be equal to that of a known column of water, or when in a later time Stahl changed metals into calx and then changed the latter back into metal by first removing something and then putting it back again, a light dawned on all those who study nature. They comprehended that reason has insight only into what it itself produces according to its own design; that it must take the lead with principles for its judgments according to constant laws and compel nature to answer its questions, rather than letting nature guide its movements by keeping reason, as it were, in leading-strings; for otherwise accidental observations, made according to no previously designed plan, can never connect up into a necessary law, which is yet what reason seeks and requires. Reason, in order to be taught by nature, must approach nature

with its principles in one hand, according to which alone the agreement among appearances can count as laws, and, in the other hand, the experiments thought out in accordance with these principles - yet in order to be instructed by nature not like a pupil, who has recited to him whatever the teacher wants to say, but like an appointed judge who compels witnesses to answer the questions he puts to them. (Kant, 1781/1998, p. 108)

Knowledge, for Kant (1781/1998), comes from within the individual, not from external sources, as previously thought. The author rejects the proposition that our knowledge must be regulated by objects; on the contrary, he posits that objects must be regulated by our knowledge, in agreement with the possibility of prior knowledge. Knowledge, to the same extent, is not composed of experience, but of ideas; this is because “since experience itself is a kind of cognition requiring the understanding, whose rule I have to presuppose in myself before any object is given to me” (Kant, 1781/1998, p. 111), and is expressed in a priori concepts to which all objects of the experiment will have to adjust. In other words, experience presupposes understanding; this, in turn, is founded on prior knowledge arising from the fundamental ideas we make of an object (Deleuze, 1985; Wartenberg, 1992).

After inductively arriving at the a priori faculty of knowledge, Kant is disturbed to conclude that we can never use this faculty to surpass the limits of our experience of phenomena, so as to know the “thing in itself” – which is, however, the most essential interest of science (Kant, 1781/1998). Epistemology, or the science of knowing, translates Kant’s thinking well: it is not possible to understand *how* we know, but we can speculate in regards to the ways in which we make our knowledge real, and from these ideal constructions we can derive the means by which we articulate our convictions.

However, for Kant, there is no doubt that all our knowledge begins in experience; for it is by stimulating our senses that our faculty of knowledge is awakened. These senses, while producing representations for themselves, set in motion the activity of our understanding, leading us to compare them, connect them, separate them, and thus transform gross sensory matter from impressions into a knowledge of objects (Kant, 1781/1998). Nevertheless, argues the author, even if our knowledge begins with experience, it does not arise exclusively from experience. This is because all knowledge could be a composite of what we feel plus what our own faculty of knowing or interpreting produces by itself. Kant states, however, that there is a type of knowledge that is independent of experience or sense impression:

For it is customary to say of many a cognition derived from experiential sources that we are capable of it or partake in it a priori, because we do not derive it immediately from experience, but rather from a general rule that we have nevertheless itself borrowed from experience. So one says of someone who undermined the foundation of his house that he could have known a priori that it would collapse, i.e., he need not have waited for the experience of it actually collapsing. Yet he could not have known this entirely a priori. For that bodies are heavy and hence fall if their support is taken away must first have become known to him through experience. In the sequel therefore we will understand by a priori cognitions not those that occur independently of this or that experience, but rather those that occur absolutely independently of all experience. Opposed to them are empirical

cognitions, or those that are possible only a posteriori, i.e., through experience. Among a priori cognitions, however, those are called pure with which nothing empirical is intermixed. Thus, e.g., the proposition "Every alteration has its cause" is an a priori proposition, only not pure, since alteration is a concept that can be drawn only from experience. (Kant, 1781/1998, pp. 136-137)

For example, if a proposition is thought of simultaneously with its necessary outcome (or necessity), it is an a priori judgment: "when I eat, my hunger is satisfied." However, if, in addition, this proposition cannot be deduced from any judgment other than a judgment that is valid as a necessary proposition in itself, then it is called an absolutely a priori proposition: "Eating satisfies hunger." In this sense, Kant understands that experience never assigns its judgments a true or strict universality, but only a conditional and comparative one. In other words, experience defines what we have perceived, so far, as devoid of exceptions: "Until proven otherwise, eating satisfies hunger." Therefore, when a judgment is thought to be strictly universal, it has not been deduced from experience, but rather from an a priori judgment. Empirical universality "is therefore only an arbitrary increase in validity from that which holds in most cases to that which holds in all" (Kant, 1781/1998, p. 137).

To ensure the robustness of knowledge, investigations must be careful about the foundations of a given object. Kant understands that speculative reason is the spring of the rapid production of a great amount of knowledge, but he also admits that the greatest work of reason consists in the decomposition of our current concepts, since this provides us with a variety of knowledge and, while no more than a clarification of what we already thought through our existing concepts, allows us to broaden our view on the subject matter (Kant, 1781/1998).

Metaphysics, for Kant (1781/1998), is an indispensable science because of the nature of human reason; it must contain a priori knowledge and, therefore, does not deal only with the decomposition or analytical clarification of our concepts of things. In this sense, there is a need for principles that compound the given concept with something that was not previously contained in it, principles that are so far-reaching that experience itself cannot accompany them. Principles, in the Kantian sense, are the purest expression of knowledge, that is, propositions about a particular object that are known a priori and in the purest manner; so pure that they could only be established by a pure sense of reason, but which does not define objects as things in themselves, but rather to the extent our experience allows us to have knowledge about such objects.

Reason, in this sense, becomes "the faculty that provides the principles of cognition a priori. Hence pure reason is that which contains the principles for cognizing something absolutely a priori." (Kant, 1781/1998, p. 19). Thus, science is a mere judgment of pure reason, its sources and limits – a kind of propaedeutic to a system of reason. Such a science would not have to be called a doctrine, but **a critique of pure reason**, and its use would be strictly negative, i.e., it would not be directed to the expansion of knowledge, but rather to the purification of reason, so as to keep it free of error (O'Neill, 1992).

Knowledge becomes transcendental when it is not concerned with objects more than with cognition itself, to the extent that this is possible a priori (Deleuze, 1985). Kant's transcendental philosophy is "the idea of a science for which the critique of pure reason is to outline the entire plan architectonically, i.e., from principles, with a full guarantee for the completeness and certainty of all

the components that comprise this edifice.” (Kant, 1781/1998, p. 150). Principles are the generic and pure maxim of a priori knowledge, from which knowledge applied to empirical reality is derived. In the author’s words:

I would therefore call a "cognition from principles" that cognition in which I cognize the particular in the universal through concepts. Thus every syllogism is a form of derivation of a cognition from a principle. For the major premise always gives a concept such that everything subsumed under its condition can be cognized from it according to a principle. Now since every universal cognition can serve as the major premise in a syllogism, and since the understanding yields such universal propositions a priori, these propositions can, in respect of their possible use, be called principles. (Kant, 1781/1998, p. 388)

Reason, according to Kant, “is driven by a propensity of its nature to go beyond its use in experience, to venture to the outermost bounds of all cognition by means of mere ideas in a pure use, and to find peace only in the completion of its circle in a self-subsisting systematic whole.” (1781/1998, p. 673). Pure reason’s sole purpose lies, therefore, in its negative use as a means to refine the knowledge we acquired on the basis of speculative or hermeneutic reason, in order to arrive at the principles governing the experiential limits of cognition – axioms. Knowledge, thus, becomes subjectively historical; this is because wherever knowledge is assumed as natural or ahistorical, it will nevertheless be subjected to scrutiny by the critique of pure reason.

According to Wartenberg (1992), adopting a Kantian perspective of reason means believing that the use of ideas in scientific theorizing implies rejecting an instrumentalist conception of science. Theoretical ideas, in this sense, constitute a basis for questioning nature, since these ideas provide scientists with specific instructions on what to look for when they return to the field of experimentation. This view of scientific practice raises experimentation to a high level of importance, while delimitating that experiments will always take place in the light of theoretical ideas. For Wartenberg (1992), “Experiments are not simple observations of the phenomenal world, but directed interrogations of nature that take place in accordance with goals set up by the practice of science itself.” (p. 243). Such ideas, therefore, are legitimized by discoveries and can constitute the perfection of knowledge – as limitless as the potential of ideas.

Given these premises, we believe that in establishing his transcendental philosophy, Kant idealized a true **critical rationalism** (Châtelet, 1994; Deleuze, 1985), whose purpose is the regulative use of reason, applicable to the knowledge generated by research practice.

We must still approach the relationship between pure reason and practical reason as applied to conventional research. If the theoretical use of reason concerns the faculty of knowledge, the practical use of reason must be concerned with the determinant foundations of the will, which means the investigation of the faculty of producing objects corresponding to representations, or the faculty of determining their causality (Kant, 1788/2015). Here, Kant notes, reason in its practical sense must address the question of the interest behind the scientist’s representations – since Kantian thought doesn’t regard knowledge as neutral. Pure reason, as opposed to practice, wants to strip individual subjectivity from the cognition of objects, since reason is mediated by interest:

In practical cognition – that is, cognition having to do only with determining grounds of the will – the principles that one makes for oneself are not yet laws to which one is unavoidably subject, because reason, in the practical, has to do with the subject, namely with his faculty of desire, to whose special constitution the rule can variously conform. A practical rule is always a product of reason because it prescribes action as a means to an effect, which is its purpose. But for a being in whom reason quite alone is not the determining ground of the will, this rule is an *imperative*, that is, a rule indicated by an “ought,” which expresses objective necessitation to the action and signifies that if reason completely determined the will the action would without fail take place in accordance with this rule. (Kant, 1788/2015, p. 17)

Pure practical reason, according to Kant, concerns universal will, which, without the interference of individual interests and appetites, would prevail in all cases because they are imperative for individuals (Kant, 1788/2015). The maxims of science would be the **hypothetical imperatives** when they concern casuistic relationships between elements and **categorical imperatives** when they determine practical laws that determine will. Hypothetical imperatives are specific, intentional practical precepts, but they are not laws, since laws must determine will in a generic, pure way (Kant, 1788/2015).

In other words, the critique of practical reason is the search for imperatives that can strip the human will of individual appetites that constitute hypothetical imperatives. In making his critique, Kant recognizes that neither philosophers nor scientists can be neutral in the production of their knowledge, since they aim, first of all, at happiness itself, at well-being in seeking knowledge. Understanding the will behind cognition becomes an important task to purify knowledge. Thus, pure reason purifies impure knowledge; pure practical reason seeks to understand that the knowledge generated was established with legitimate motives, directed not at the philosopher’s welfare but at higher intentions towards pure knowledge, the essence of truth contained in the thing itself. These laws Kant termed moral laws – laws that are directed towards a higher good (Deleuze, 1985) and that constitute a superior will or the categorical imperatives governing such a will.

Kantian thought is idealistic due to being centered around the notion of pure good. Theorizing is a reflexive act that turns to the criticism of everything that destroys the purity of knowledge, be it the experience and hermeneutics of the empirical or the will of the individual. As an idealistic philosopher, Kant believed in man’s potential to transcend his own humanity. While establishing a philosophy by which we must constantly seek to refine our knowledge, he recognizes that the object itself, even though it has true existence and reality, will always be unreachable – we always have more to know about things in themselves. The task that remains to us is, through reason, to question knowledge and the way knowledge is generated.

Kant’s influence on Popper: critical rationalism in organization studies

One of Kant’s great legacies was the possibility of approaching cognition from an idealistic standpoint, strictly based on a priori knowledge, negative reason and the ability to revise knowledge. Sir Karl Raimund Popper (1902-1994) was one of the great heirs of Kant’s critical thinking, and his ideas originated the philosophy of critical rationalism as we know it today

(Chiappin, 2008; Ferrarin, 2016). In the penultimate section of this article, we will explore critical rationalism as a democratic attitude, marked by intellectual autonomy and modesty, as well as a necessary research approach to contemporary organizational studies – whose corpus is characterized by the large-scale production of justificationist studies (Thomas, 2010).

Popper, like Kant, believed that all men and women are capable of sound reasoning, making them potential philosophers. The author starts from the Kantian assumptions that cognition of the truth is unreachable, and that no induction is genuine; in this sense, he emphasizes the idea that pure observation, in which the researcher's mind must be free of assumptions and hypotheses, is but a philosophical myth. Therefore, all observation is made in the light of a theory, as this would be the only possible way to make inferences (Chiappin, 2008; Popper, 1934/2005). Thus, "every observation is always guided by theoretical, conscious or unconscious expectations. That is, our body of theories and expectations about reality guide what in the perceptual field we shall highlight as relevant for observation" (Castañon, 2007, p. 280, our translation).

Karl Popper was largely responsible for the decline of logical positivism – which stood for the pursuit of indisputable universal laws. He not only contradicted, but also refuted all the main positions of logical positivism, and criticized the principle of verification as a demarcation criterion, replacing it with the almost diametrically opposite concept of falsifiability (Castañon, 2007; Popper, 1934/2005). Popper was also largely responsible for the fall of the inductive method, replacing it with its opposite, the hypothetical-deductive method, in the defense of a perfectible science that completely rejected positivist anti-metaphysics, establishing metaphysics as a granary of scientific ideas (Galván, 2016; Thomas, 2010).

In short, Popper considered falsifiability as a key criterion of the demarcation between science and pseudoscience, and argued that a theory would be more or less credible in terms of the number of times it was able to stand its ground against attempts of denial. Thus, the justification for maintaining a theory would lie in its ability to withstand the tests of *ratio negativa* [negative reason] (Popper, 1934/2005). Initially, his view was considered a form of "intellectual conservatism," given that in Popper's framework the attachment to the falsificationist impulse would be greater than the desire for a wider variety of theoretical thoughts and views about the real object (Castañon, 2007; Thomas, 2010). However, such criticisms have succumbed to the consistency of his view that the exercise of reason lies in problem-solving and in an uninterrupted effort to detect and eliminate errors.

Falsificationism is, for Critical Rationalism, the new criterion of demarcation between scientific and unscientific assertions. It replaces the weakened criterion of verification in the demarcation of scientific propositions. This implies a major shift in the scientific outlook, poised to become absolutely vital to scientific claims: it is not the direct observation of certain phenomena that should provide us with testable hypotheses – rather, these hypotheses could be created in any way whatsoever. What will allow their integration into the field of scientific knowledge is whether they are able to generate falsifiable predictions. This is because hypotheses stand at the beginning of the process, not at its conclusion. A hypothesis is falsifiable if there is any logically possible proposition of observation that, if established as true, would imply the rejection of said hypothesis as false. (Castañon, 2007, p. 281, our translation)

The Popperian framework is therefore a universal theory of criticism and error. Popper's critical rationalism is radically opposed to any kind of classical rationalism (which translates into contemporary forms of instrumental, substantive, or communicative rationality, for example), as these must be provincialized as something that derives from the subject, and not from truth itself. The crux of Popper's critical argument is that the exercise of classical rationalism is, in essence, authoritarian and unilateral, because it imposes a view as real from justifications anchored in observations carried out by a subject and interpreted in the light of this subject's experience. Now, if all reason is negative (refutation), all rationality assumes a positive bias (construction) based on some kind of justification (this movement has been called justificationism). If the premises of Kant's and Popper's rationality are correct – and knowledge is influenced by previous theories and the subject's practical perception – any justificationist attempts to support a theory are unilateral, authoritarian, and presume that theoretical constructs are a priori entities, always correct and true – which is unacceptable within the framework of pure reason (Thomas, 2010).

Well, what justifies that organizations should be profitable? What justifies capitalism as an economic system? What justifies that the best form of labor organization is the division of tasks? What justifies the mainstream theories of organization studies? For Popper, nothing justifies knowledge other than the beliefs and constructions that humans impose on their peers. In this sense, there is no way to speak of a "scientific administration" or even a "science of organization studies" that treats prescriptive models and assumptions as objective knowledge and data. Every assertive statement about organizations is fallible and might be proven invalid when viewed from the scientific lens of reason.

"What do I know about organizations? I know that I know almost nothing." In positing this kind of statement, I assume, as a researcher, an anti-authoritarian stance on what organizations are, and in no way do I impose my perspective on others by confirming it by subjecting the data to tests and experiments (Thomas, 2010). Empirical data, therefore, can never be used to confirm theories, but only to refute them, since there is no validity in induction (Chiappin, 2008; Galván, 2016). This view brings true inspiration to skeptical, humble, and democratic conduct by researchers, as it conditions them to be less pretentious in their claims, and more focused on their rational duty to challenge and provoke thought towards its cognizable limits. In this sense, no knowledge is definitive, and no premise can be presupposed as true.

What would the world look like if the attitude of critical rationalism were widely adopted? It is a peculiar attitude because it accepts that some statements and theories may be true and some may be false – but at the same time it contends that no one will know which is which with certainty. Critical rationalists would have to exercise their personal autonomy, adopting what is in effect a critical preference in accepting a basic statement, or a theory, but that critical preference has no necessary permanence. (Thomas, 2010, p. 30)

Following Thomas (2010), our understanding is that traditional theories of knowledge in organization studies seek their source in justificationism. In this sense, we understand that the field of organization studies has been permeated more by classical rationalism than by critical reason. This is because "classical rationalism installed the authority of the intellect, whereas empiricism installed the authority of the senses" (Thomas, 2010, p. 13).

In this sense, we affirm that functionalist, hermeneutic, radical structuralist and even classical humanist studies have been based more on the erudition/eloquence of arguments structured upon quali-quantitative data than on a negative dialectic that submits theories to logical tests aimed at falsification. This inevitably leads to the advancement of pseudoscience through: (1) the “argument of authority,” that is, the power exerted by certain actors to profess what is right (and what is not) in science, commonly done through blind-review evaluations, and (2) the infinite tautological regression of justifications, because every justification used to defend an argument is based on other assumptions that are not necessarily true, and also require justifications. The result is a tangled chain of justifications based on paradigms that are themselves falsifiable (Thomas, 2010).

The problem with authority arguments is that, once again, they rely on the unilateral views of actors who are guided by the justifications of their beliefs in their affirmation of “what is” – an inadmissible attitude in the rational domain (Popper, 1934/2005). Similarly, to publish scientific papers, we are required an extensive web of theoretical arguments to assign “validity” to our thoughts. Each choice made throughout the work has to be justified: the authors’ selection criterion, the data sampling criterion, the epistemological paradigms in which we are anchored, among so many other choices that are potentially exposed to criticism of various kinds.

All these choices are subject to scrutiny by the “authority” of someone who inevitably verifies the adequacy of the article to the field of study according to previous beliefs, largely justified by pre-conceived notions, without taking care to critically assess whether there is any logical sense in the proposed argument or whether any idea therein has already been refuted. For Thomas (2010), justificationism is an invitation to relativism and conservatism that legitimizes the knowledge of those with social recognition in relation to alternative ideas that emerge from less celebrated researchers.

Such a paradigm does not correspond to the form of scientific inquiry upheld by Kantian reason. Popper argued that “enlightened authorities” were nowhere to be found, while justificationist philosophies would not have the power of scientific veridiction, but rather (a) the power to propel man’s creativity into grasping new ideas in order to scientifically test them, and (b) the power to describe the prevalent perceptions about the object according to different disciplines. Knowledge, in this sense, would be too human and too flawed not to be prone to error, individual whim, and arbitrariness (Thomas, 2010).

According to Kantian reason and Popperian critical rationalism (Galván, 2016), all knowledge that assumes itself as true is criticizable. In critical rationalism, we find no synthesis whatsoever, since every conjecture or interpretation is merely temporary; likewise, the Popperian interpretation does not organize what comes from the world, since it is already organized by the theories invented by scientists, which derive them from their observations of the world. What the Popperian view does is engender a separate moment from the moment when knowledge is actually constituted – a closed, juxtaposed moment in which all empirically obtained knowledge is put to the test of logic. What is sought is the conclusive verification of generated knowledge (Chiappin, 2008; Galván, 2016). Table 1 provides a synthesis of potential objects of critical analysis, considering the premises hitherto analyzed.

Table 1

Possible objects for Popperian criticism

| Object of criticism | Object description |
|---|---|
| Critique of a Basic Statement | All observation is impregnated with theories, since every belief is constituted by a theoretical view. In this sense, there is no independent or neutral point from which we can objectively observe the world, grasping its reality. |
| Critique of a Scientific Theory | Every scientific theory comprises universal empirical statements about the structure of the world and is therefore logically falsifiable – and thus subject to the hypothetical-deductive method. |
| Critique of a Universal Empirical Statement | Popper distinguishes falsifiability from falsification. Falsification is to accept basic statements that contradict a universal empirical statement, a skeptical conduct of the researcher who strives to subject any statements whatsoever to critical reasoning. Importantly, no argument, even a logical refutation, is conclusive or final. |
| Critique of a Pure Existential Statement | Popper understands that purely existential statements can be criticized, even if they can be refuted neither logically nor empirically. |
| Critique of an Instrument | An instrumental theory is subject to criticism as much as any scientific theory, to the extent that it fails to solve the problems it intends to address, or to the extent that it implies unintended consequences. |
| Critique of a Philosophical Doctrine | The criticism of justificationist theories serves to demonstrate that it is possible for a non-empirical philosophical doctrine to be criticized. |
| Critique of a Problem Situation | Popper believed that some problem situations are nothing more than pseudo-problems, created by a lack of conceptual clarity in the discussion of a particularly relevant situation. |
| Literary critique | Poetry and science are related by blood, since they both derive from creative work. In this sense, some principles of the production of art and literature are as objectionable as scientific theories. |

Source: Adapted from Thomas (2010).

Based on the ideas of Immanuel Kant, Karl Popper was able to develop a strongly cohesive system of thought, creating a systematic philosophy in the great tradition of the centrality of the subject. His primary concern would be to separate science from pseudoscience, upholding reason as an end in itself, an ethical duty of human beings to provide themselves with transcendental truth (Ferrarin, 2016). In this sense, critical rationalism can be seen as the rational action of seeking truth through argument and compromise; in the same sense, based on its premise that all knowledge is transient and falsifiable, critical rationalism enables a posture of openness to dialogue with different views (Popper, 1934/2005; Thomas, 2010).

For the organization studies field, the approach of critical rationalism may be interesting as a way to question the models and beliefs brought to the field on various fronts. In this article, some examples of critical objects have been discussed. We argued that the Popperian spirit, based on Kantian reason, is first and foremost the researcher's commitment to a professional stance, not an unrestricted adherence to the hypothetical-deductive method. We understand that the basis of critical rationalism lies in the pursuit of reason and transcendental truth. This is a call not only for the production of theories, but rather for further dedication to testing their validity – a task that has not received enough attention from researchers in the field of organization studies, who have

nevertheless devoted a significant amount of effort to producing research that brings theories to the most varied empirical situations.

Finally, we understand, following Thomas (2010), that the critical rationalist posture is necessary for contemporaneity. The rationalist is “one who holds everything – including standards, goals, criteria, authorities, decisions and especially any framework or way of life – open to criticism” (Thomas, 2010, p. 27). Such a stance, ironically, demands faith. An irrational faith in reason, which comes to be seen as the only true path to the transcendence that brings us, as human beings, closer to the truth.

Transitional considerations

The aim of this essay was to revisit the theoretical construction of the concepts of reason in Kant’s work and to delineate their influence on Popperian Critical Rationalism. Some points may be helpful to summarize our findings as well as the discussion of Kant’s work proposed in this article: (a) Kantian philosophy values creativity and idealism, stimulating the production of a priori ideas and knowledge that contribute to the refinement of our way of thinking and interpreting the world; (b) equipped with these ideas, it falls to reason to do its negative work of eliminating errors in our thinking; (c) pure reason is undisputed truth that cannot be fully attained due to being on a metaphysical plane of knowledge, meaning that human knowledge will always have flaws; (d) practical reason is the basis of the interests and motivations that constitute the desire for discovering new knowledge, and varies according to individuals – therefore, our production of knowledge is not neutral, influenced as it is by our ideological and subjective biases (passions, demands, appetites); and, finally, (e) human beings have a moral duty to engage in perfecting knowledge in order to achieve transcendental status.

Each of Kant’s contributions to philosophy had implications in Karl Popper’s work, which we also summarize here for the purpose of organizing the proposed arguments: (a) every theory is imperfect and falsifiable, and the scientist’s job is to persistently and continuously subject his views to attempts at falsification; (b) the inductive method is not the most appropriate because it is affiliated with classical rationalism and justificationism, which are guided by the persistent task of committing to a theoretical view and defending its potential to explain phenomena in the field; (c) justificationism falls short since, to support a particular theoretical view, there is no need to speak of “authority” or to assess the consistency of the complex network of theoretical justifications; (d) the hypothetical-deductive method would be an interesting way of constituting tests of theoretical validity; (e) there is no object that cannot be falsified, and this creates a wide variety of validity-testing possibilities.

Both authors’ respective contributions provide a comprehensive picture in which science assumes a noble function as the driving force of human self-improvement through knowledge. It allows researchers to exercise self-criticism regarding their role in society: what are we building science for, and for whom? What kind of truth(s) are we seeking in our research work? To what extent are we open to criticism of the validity of our theoretical views? What are the mechanisms we create to keep our own lines of thought alive in the scientific field? Nowadays, these are relevant provocations, especially in a context in which a large portion of the work published in the field of

Organization Studies has been devoted to merely transposing theories into different empirical contexts, without questioning their local validity.

We hope, with these considerations, to draw attention to the duty of researchers to resort to reason in the development of their scientific roles. The multiplicity of existing theoretical views in the field of Organization Studies constitutes a rich field for studies that adopt the critical rationalist approach. We therefore need to take into consideration our real power of veridiction: we cannot affirm what something *is*, rather, we can only affirm what something *is not*. This is scientist's work and the vocation of intellectuals who are adept to the Kantian tradition.

References

- Beiser, F. C. (1992). Kant's intellectual development: 1746-1781. In P. Guyer, *The Cambridge Companion to Kant* (pp. 26-61). Cambridge: Cambridge University Press.
- Castañón, G. A. (2007). Cognitivism e racionalismo crítico. *Psicologia Argumentativa*, 25(50), 277-290. Retrieved from <https://bit.ly/3qNv9rR>
- Châtelet, F. (1994). *Uma história da razão: entrevistas com Émile Noël*. Rio de Janeiro, RJ: Jorge Zahar.
- Chiappin, J. R. (2008). Reconstrução racional da concepção popperiana de ciência: o racionalismo crítico como um termo médio entre o dogmatismo e o relativismo. *Khronos*, (1), 149-191. doi:10.11606/khronos.v0i1.97241
- Deleuze, G. (1985). *Kant's Critical Philosophy: The Doctrine of the Faculties*. Minneapolis: University Of Minnesota Press.
- Ferrarin, A. (2016). Reason in Kant and Hegel. *Kant Yearbook*, 8(1), 1-15. doi:10.1515/kantyb-2016-0001
- Friedman, M. (2001). *Dynamics of reason*. Stanford: CSLI Publications.
- Galván, M. (2016). Critical rationalism and interpretation. *Ideas y Valores*, 65(160), 239-251. doi:10.15446/ideasyvalores.v65n160.44191
- Guyer, P. (1992). Introduction: the starry heavens and the moral law. In P. Guyer, *The Cambridge Companion to Kant* (pp. 1-25). Cambridge: Cambridge University Press.
- Kant, I. (2015). *Critique of Practical Reason* (2nd ed.). Cambridge: Cambridge University Press. (Original work published 1788)
- Kant, I. (1998). *Critique of Pure Reason*. Cambridge: Cambridge University Press. (Original work published 1781)
- O'Neill, O. (1992). Vindicating reason. In P. Guyer, *The Cambridge Companion to Kant*, (pp. 280-308). Cambridge: Cambridge University Press.
- Popper, K. R. (2005). *The Logic of Scientific Discovery*. Abingdon: Routledge.
- Thomas, R. (2010). What is the relevance of Karl Popper's critical rationalism to management studies and practice? *Philosophy of Management*, 9(1), 5-38. doi:10.5840/pom20109116

Wartenberg, T. E. (1992). Reason and the practice of science. In P. Guyer, *The Cambridge Companion to Kant* (pp. 228-248). Cambridge: Cambridge University Press.

Wittgenstein, L. (1992). *Filosofiska undersökningar*. Stockholm: Thales.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Acknowledgments

To Professor Kettle Duarte Paes, whose provocations and discussions culminated in the inspirations and necessary questions for the development of this article. To the reviewers, who contributed with provocations and questions that allowed the article's proposal to mature.

Authorship

Felipe Fróes Couto

PhD in Administration from the Federal University of Minas Gerais (UFMG). Professor of the Graduate Program in Economic Development and Business Strategy (PPGDEE) at the State University of Montes Claros (Unimontes).

E-mail: felipe.couto@unimontes.br

ORCID: 0000-0002-4928-9920

Luiz Alex Silva Saraiva

PhD in Administration from the Federal University of Minas Gerais (UFMG). Professor of the Graduate Program in Administration (Cepead) at UFMG.

E-mail: saraivalas@gmail.com

ORCID: 0000-0001-5307-9750

Alexandre de Pádua Carrieri

PhD in Administration from the Federal University of Minas Gerais (UFMG). Professor of the Graduate Program in Administration (Cepead) at UFMG.

E-mail: aguiar.paduacarrieri@terra.com.br

ORCID: <https://orcid.org/> <https://orcid.org/0000-0001-8552-8717>

Conflict of interests

The authors have stated that there is no conflict of interest.

Authors' contributions

First author: conceptualization (lead), investigation (lead), methodology (lead), project administration (lead), resources (lead), writing-original draft (lead), writing-review & editing (lead).

Second author: conceptualization (supporting), formal analysis (supporting), methodology (supporting), supervision (equal), validation (equal), visualization (equal), writing-review & editing (equal).

Third author: conceptualization (equal), formal analysis (equal), investigation (supporting), methodology (equal), project administration (equal), resources (equal), supervision (lead), validation (lead), visualization (lead), writing-review & editing (supporting).

Plagiarism check

O&S submits all documents approved for publication to a plagiarism check, using specific tools.

Data availability

O&S encourages data sharing. However, in compliance with ethical principles, it does not demand the disclosure of any means of identifying research participants, fully preserving their privacy. The practice of open data seeks to ensure the transparency of research results, without requiring research participants to disclose their identity.

O&S is signatory to DORA (The Declaration on Research Assessment) and to COPE (Committee on Publication Ethics).



Creative Commons Atribuição 4.0 Internacional