



Roberto Gronda: *Dewey's Philosophy of Science*. Cham: Springer Nature, 2020, 218pp., €96,29 (Hardcover), ISBN: 978-3-030-37561-4

Danilo Gajic¹

© The Author(s) 2023

Recent years have witnessed a renewed interest in pragmatism and, specifically, in the work of John Dewey. This trend notwithstanding, little attention has been paid to Dewey's philosophy of science. According to Roberto Gronda, the author of *Dewey's Philosophy of Science* (2020, Springer Nature), this is a shortcoming for at least two reasons: not only is Dewey's philosophy of science—or, to be more precise, his theory of inquiry—pivotal to his philosophical project as a whole, but it may also contribute systematically to ongoing debates in contemporary (analytical) philosophy of science. Against this backdrop, Gronda's book aspires to offer “a comprehensive study of Dewey's philosophy of science” (p. viii). Without a doubt, this is an important project, and Gronda's study is rich in material, as are its bibliographic sources. The author puts together bits and pieces from many of Dewey's writings of different phases, and he establishes connections to both Dewey's contemporaries and more recent approaches in analytical philosophy of science. The richness and complexity of the covered topics, however, makes it at times difficult to follow Gronda's line of thought. Despite the elaborate and explicit structure of the book and the author's metacommentary, it is not easy to identify the substantial claims, discern them from theoretical detours and delimitative remarks, and to put them together in a coherent, broader picture. Hence, while the book is worth reading for scholars interested in Dewey's philosophy of inquiry, I am looking forward to Gronda's subsequent publications that may clarify some of the questions the monograph gives rise to.

Gronda's approach to Dewey's philosophy of science is exceptional and interesting. Neither does he take on Dewey in a purely historical manner, nor is his approach systematic in the sense of assessing Dewey's views in the light of recent scholarly debates (although, one must say, that he does both these things, too). Rather, the author purports to “present Dewey in his own terms—or, at least, in terms that are as close as possible to his own self-understanding” (p. viii). So, in general, Gronda's project is (or is claimed to be) hermeneutic and immanent: of (re)composing both Dewey's substantial writings on inquiry as well as

✉ Danilo Gajic
danilo.gajic@hfpf.de

¹ Munich School of Philosophy (HFPF München), Kaulbachstr. 31/33, 80539 Munich, Germany

scattered remarks and arguments about science as to present an integrated, larger picture of Dewey's philosophy of science (for a critical remark on this approach, see below).

Gronda's general interpretation of Dewey's philosophy of science can be characterised as follows. Firstly, he offers a *semantic interpretation* of inquiry and science. Gronda reads Dewey's account of inquiry "as the process through which the significances of common-sense objects are enriched by the meanings of the concepts that are introduced and articulated within the best scientific theories available" (p. ix). This semantic interpretation does not contradict Dewey's naturalistic overall project, because Gronda understands meaning and significance in terms of activity, behaviour and practice (see below, Chap. 2). Given this, however, it is odd that the author claims that such semantic interpretation should be given primacy over a naturalist interpretation—he claims it is "more fundamental" (p. ix). One would expect it to be the other way round, and, actually, Gronda's further elaboration is perfectly in line with a naturalist position.

Secondly, he supposes a continuity of Dewey's meta-philosophical decisions that affect his philosophical and science-philosophical commitments. This is not controversial: Dewey's meta-philosophical assumption is that of "the *primacy of activity*" (p. xi) with regard to which all reflective activity—scientific and philosophical—is secondary. In fact, it could be argued that, with Dewey, the line between metaphilosophy and philosophy is hard to draw, for philosophy is a form of inquiry, and the theory of inquiry is, at the same time, both *meta-philosophical* (in that it reflects on the conditions and structure of philosophical inquiry) and *philosophical* (in that it is a theory of something, e.g., reflection, inquiry, science, grounded in the philosophical tradition).

Thirdly, and coherently, Gronda reads Dewey's philosophy of science "as a philosophy of scientific practices [...] couched in the language of experience and centered around the idea of inquiry as a semantic process of reconstruction and enrichment of the significances of objects that are used by the agent in her transactions with the world" (p. xiv). Hence, if we want to understand Dewey's conception of science, we should ask: What kind of activity and practice does Dewey think inquiry is? What do we *do* when we engage in scientific endeavours? How do scientific practices endow objects with meaning and significance? While we today may be accustomed to this way of approaching science (or scientific activities), it was, for Dewey's time, and before the rise of Science and Technology Studies (STS), quite an uncommon take on the matter.

The book consists of an introduction, where Gronda explains and justifies his approach, followed by five substantial Chapters. Chapters 1 and 2 are preliminary, while Chapters 3 through 5 present Gronda's views on Dewey's philosophy of science proper.

In the first Chapter, Gronda explores Dewey's notion of experience as it is laid out especially in *Experience and Nature*. The concept of experience is a reasonable starting point for the present study. It is not only Dewey's fundamental metaphysical category, meant to capture the interaction of organism and environment that precedes all analysis, but it is also the case that Dewey spells out scientific activities as a particular kind of experience: as secondary experience that includes reflection and, at least in case of science proper, the experimental method. Gronda elaborates on these different aspects of experience. First, he reconstructs the holistic character of Dewey's understanding of experience (cf. pp. 4 ff.) by means of defending the view that, within experience, "there is no semantic break between objects and our concepts of those objects" (p. 4; for a critical remark on this idea, see below). He then discusses the difference between experience and other natural processes (cf. pp. 15 ff.) and the question of what experience as a method means (cf. pp. 23 ff.)—in con-

trast to experience as a fundamental concept in Dewey's metaphilosophy (and metaphysics). The Chapter closes with a discussion of different forms of experience, that is, distinctions regarding experience, that Dewey uses: primary and secondary experience, experience had and experience known and cognitive and non-cognitive experience (cf. pp. 31 ff.). Gronda holds it, and I think correctly so, that these distinctions do not coincide, for the distinction between primary and secondary distinction denotes "a more substantial difference between two kinds of life-behaviours" (p. 32), or, one could say, the categorical difference between two modes of activity.

The second Chapter deals with Dewey's account of language. Unquestionably, language, linguistic signification, and symbolic processes are at the heart of scientific practices. Language is the prerequisite for meaning (whereas Gronda distinguishes two senses of the term, cf. pp. 47 f.). Gronda sets off his discussion of Dewey's philosophy of language by pointing out that he moves "from a representationalist account of reference to an account based on the different functions carried out by different modes of behavior" (p. 57), hence advocating for a functionalist conception of language as practical activity. Within this paradigm, symbols and linguistic entities are tools that are employed in activities, and they are special tools in that they enable agents to move from proto-normative behaviour to fully normative action (pp. 58 ff.). Consequently, the author argues that in Dewey's philosophy of language, meaning is objective both in the sense that neither it is "set and established by a decision of the speaker" nor does it consist in "private, inner mental states of the speaker" (p. 66). Rather, it is established in practice and requires some degree of intersubjective agreement (cf. pp. 65 ff.). The final two sections of the Chapter are devoted to discussing Dewey's notion of concepts (pp. 71 ff.), and to the difference between scientific and common-sense concepts (pp. 81 ff.). The author proposes what he calls a "weak articulative reading" (p. 81) of Dewey's concept of concepts. According to such expressivist interpretation, concepts or the content of linguistic symbols are neither eternally fixed (so that they are just to be retrieved) nor arbitrary. Concepts acquire meaning gradually and they undergo a "process of refinement" (p. 78) through linguistic and experimental practices. Against this backdrop, Gronda concedes that common-sense and scientific concepts are at the same time continuous and gradually different. This is why primary experience and common sense provide a "common ground in which human beings—no matter how different their scientific education and expertise may be—find a shared semantic frame" (p. 87).

In the third Chapter, Gronda takes on the reconstruction of Dewey's account of inquiry proper. He begins by arguing that, according to Dewey, "inquiry is ultimately made possible by the biological endowment of human organisms" (p. 91), which the author regards as prerequisite for a naturalistic understanding of inquiry. Apart from such external conditions, he goes on to argue, inquiry follows internal conditions, that is, conditions that arise from its temporal structure and teleological organization. Gronda states, correctly in my opinion, that for Dewey inquiry is derivative with regards to primary experience and practical ends (cf. p. 104). Along these lines, one can say that inquiry emerges in the context of an indeterminate situation (in which our action is blocked, and our habits cease to function, but we do not really understand what is happening). Through the process of inquiry, the situation is articulated as a problematic situation (elements are isolated, hypotheses are formulated, and causal mechanisms are established as to determine the problem(s)) with the goal of achieving its transformation into a harmonic situation (where the problem is solved, the blockage lifted, and we have acquired new habits of dealing with it successfully). When inquiry is

successful (and Gronda, along with some of other Dewey scholars, quite counterintuitively thinks that there can be no unsuccessful inquiry for conceptual reasons (cf. p. 111)), “there is no need of further reflection, and [...] no need to continue to abstain from action” (p. 122). In order to understand this closing of inquiry, the author introduces the distinction between proposition and judgment: while they may share a linguistic form, they differ in that a proposition has a preliminary theoretical status and an instrumental function while a judgment is definitive and closes inquiry (cf. pp. 123 ff.). In Gronda’s reading, for Dewey judgement is relative to the end of inquiry in a specific context—which is why warranted assertibility (and truth) for Dewey is a matter of practical consequences and potential action, and less so of theoretical justification.

In Chapter 4, Gronda provides an analysis of the linguistic elements and the constructivist traits of Dewey’s theory of inquiry. First, he contrasts Dewey’s notion of the articulative process of inquiry with Kant’s understanding of synthetic judgements (pp. 135 ff.), and argues that, for Dewey, “judgment cannot be severed from the broader context of inquiry from which it originates” (p. 146). Hence, he claims that the validity of judgment, as already developed in the previous Chapter, may only be “grounded” (p. 146) contextually. In what follows, Gronda elaborates on how such grounding works, especially in the case of scientific inquiries, which are, as said above, continuous with and more refined than common-sense inquiries (cf. pp. 147 ff.). Although evidence “accrues on an immediate quality” (p. 151) and, hence, is not arbitrary, it is constructed in the sense that giving evidence is relative to the end of the particular inquiry and implies a selective process of highlighting specific qualities whilst ignoring others. After elaborating on the relevance of universal propositions within the process of inquiry—universal propositions understood as practically a-priori, and, from the perspective of the inquirer, unquestionable, postulates—Gronda concludes the Chapter by discussing the notion of objectivity. For Dewey, he says, “objectivity is *by definition* what is constructed in the judgment that ends inquiry” (p. 170, italics orig.). According to the author, the Deweyan point is to understand objectivity as a logical notion—that is, insofar as it is a functional part of the activity of inquiry. Such understanding of objectivity, according to Gronda, paves the way for a radical scientific pluralism: Dewey “rejects both methodological and substantial unity of science” (p. 175) and accepts as science all such activities that are characterized by a “scientific *attitude*” (p. 175, italics orig.), that is, the enjoyment of the doubtful (cf. p. 175).

In Chapter 5, Gronda deals with the question of whether Dewey is committed to an instrumentalist or a realist position regarding the existence of theoretical entities. Realists hold that non-observable entities that are postulated in scientific theories properly exist. Instrumentalists, on the contrary, argue that such non-observable entities are not real in the sense of existing independently: they are ‘mere’ postulates that serve a scientific purpose. Gronda claims that, while pragmatism, and Dewey in particular, have been identified with instrumentalism, Dewey in fact is a realist, although of a specific kind (cf. pp. 177 f.). In order to show this, he discusses the Dewey-Reichenbach debate in which the latter charged the former with instrumentalism (cf. pp. 179 ff.). Gronda presents Dewey’s defence against Reichenbach, in which he relies on the assertion that “scientific objects are relations” (p. 188), and that such relations are as real as things and qualities (cf. pp. 186 ff.). Gronda then goes on to explore whether Dewey should be read as a structural realist. Although there are some similarities, he claims, between Dewey’s view and contemporary ontic structural realism (cf. pp. 191 ff.), Gronda argues that Dewey’s conception “entails a radical transforma-

tion of the philosophical framework within which to articulate the notion of structure” (p. 195). This transformation, if I understand Gronda correctly, lies in the Deweyan distinction between (existential) connections and (symbolically established) relations (cf. p. 196). The author claims that, for Dewey, “scientific objects are the *articulative* formulation of the existential connections directly experienced in our primary transactions in the world” (p. 198, italics orig.). Such formulations are real in the sense that they have “explanatory power” (p. 202) and change the possibilities of interaction with the given material—hence, Gronda concludes that Dewey’s realism is a “*practical realism*” (p. 204, italics orig.).

As should be clear, Gronda’s study covers large ground and deals with a panoply of relevant problems. It also opens various threads of discussion which might be worthy of further investigation. For example, the conclusions Gronda indicates regarding Dewey’s radical scientific pluralism seem promising. However, while sections of the book are informative and well written, this study has some important shortcomings. I would like to raise three of the main issues: a philosophical difficulty regarding one of the author’s specific interpretative proposals, a methodological consideration, and a problem concerning the general scope of the study.

The first, slightly exegetical, issue pertains to Gronda’s “semantic identity thesis” (pp. 4 ff.) as developed in Chapter 1 (see above). As I understand it, this thesis supposes that agents will not make a distinction between an object proper and their concept of it since the latter predicates the meaning and behaviour of the former (cf. pp. 6 ff.). I think this is a sound point to make regarding primary experience: within primary experience, agents do not have reason to doubt their concepts. It is only when problems or blockages irritate the flow of action or (life-behaviour) that the agent is afforded to reflect. And it is within such reflection—or inquiry—that object and concept are separated. Such reflective processes are what the notion of secondary experience is about, and what a theory of inquiry in general, and of science in particular, must account for. Hence, I think that by expanding the semantic identity thesis to experience in general, Gronda forecloses the actual Deweyan point which he relies upon later in the book: That it is a constitutive operation of inquiry in general and scientific inquiry in particular to introduce the reflective distinction between concept and object. It is true that in the process of inquiry not all elements can be doubted at the same time, for inquiry, too, implies habitualised and unproblematic forms of action: it cannot be doubted all the way down. This (in fact: Peircean) anti-skeptical point notwithstanding, it is precisely problematization and the introduction of *semantic difference* what characterizes inquiry (or, at least, its onset).

The second problem is connected to the study’s methodology. I concede that methodical decisions involve a degree of preference, and of philosophical style. However, I think that the study forsakes the very methodological decision which it relies upon—with the unwanted effect of losing philosophical weight. Recall that Gronda, instead of historically reconstructing or systematically assessing Dewey’s works, purports to present him “in his own terms” (see above). He justifies this as follows: “On the one hand, I think that a historical approach is much needed but that it has to be preceded by a detailed and accurate reconstruction of Dewey’s philosophy of science. On the other hand, I believe that any possible translation of the latter into contemporary terms requires the distinctive features of Dewey’s position to be ascertained and properly assessed” (p. viii). I doubt that such justification is sound, as assessment always implies a degree of translation, which, if done properly, requires historical understanding. Even if it were sound, however, the book falls short of realising the author’s methodological intentions. He repeatedly

engages with both Dewey's contemporaries (see, e.g., the discussion of the debate with Reichenbach) and more recent positions in the philosophy of science (e.g., the debate on constructivism or realism). And where he does not, he introduces his own interpretive distinctions, which, as far as I understand, are derived from current analytical debates in the philosophy of science. This methodological self-misunderstanding has a problematic consequence: While the author sways to and fro between historical contextualisation and systematic assessment, the methodological decision seems to prevent the author from properly committing to either of them.

Lastly, there is a rather general difficulty possibly resulting from the richness in the study's material: For large parts of the book, it is hard to identify an overarching idea. Therefore, the status, coherence, and relevance of the manifold considerations (individually sometimes compelling and sometimes controversial) often remain unclear. The book does have a general objective (namely, to offer a "comprehensive study", see above) and a remarkably refined structure. It remains unclear, though, what holds together the panoply of aspects, and what picture they are supposed to form in sum. It seems that, in Dewey's terms, the problem which the book poses a response to is not properly specified. Consequently, it is hard to assess the relevance for the audience(s) it addresses: What is it exactly that the contemporary debate in philosophy of science—or the recent scholarly discussion about pragmatism—can learn from Dewey's philosophy of science or from this interpretation of it? Perhaps, a concluding section addressing this question and synthesizing the author's findings while clarifying the study's outcomes would have enhanced its overall impact. In its current form, it may give the impression of reading a collection of papers. Consequently, there remains a noticeable gap between the broad assertion that, for Dewey, it is "activity all the way down" (p. 204), and the author's numerous detailed remarks on very specific questions.

Funding Open Access funding enabled and organized by Projekt DEAL.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.