

# Editorial: Can Radical Constructivism Become a Mainstream Endeavor?

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**> Context** • Despite many obvious advantages (radical) constructivism seems to have over other philosophies – such as a dynamical understanding of knowledge, the inclusion of interdisciplinary aspects, and practical applications such as tolerance and pluralism as well as active learning – it has failed to become a mainstream philosophy that is widely taught and discussed. **> Problem** • What are the reasons for this failure? Can we identify attributes that make it difficult for scholars to accept and even embrace radical constructivist ideas? What is the best way to characterize, explain, and eventually refute objections? **> Method** • By collecting articles from both proponents and opponents of radical constructivism, the editors of this special issue have tried to present a range of answers to these questions. **> Results** • Some problems are due to known objections to radical constructivism, in particular the idea that being responsible for one's own constructions opens doors to a "whatever" attitude. Another important insight is that constructivism seems to resemble a river delta with ever branching new sub-disciplines that become increasingly incompatible with each other. Its practical aspects seem to find wider acceptance than its philosophical assumptions. **> Implications** • The insights gained from the contributions to this issue may lead to a re-orientation of (radical) constructivism, which will include fewer misunderstandings among its critics, and to a higher acceptance of radical constructivism in the academic community. **> Key words** • Scientific movements, philosophy of science, society, anything goes.

## Introduction

Radical constructivism (RC) was first introduced in 1974 by Ernst von Glasersfeld and subsequently defined in the form of two basic propositions (Glasersfeld 1989):

- 1 | Knowledge is not passively received, but is learnt through a process of active construction by the knower.
- 2 | The function of this process of learning is adaptive, and serves the knower's organization of her own experiential world, not the discovery of an objectively existing ontological reality.

Since the late 1980s, RC has been receiving quite some attention in educational science, in the literature and media sciences, and in psychotherapy, not least due to the boost it got in German-speaking countries, where it was amalgamated in the 1980s (Schmidt 1987) with the second-order cybernetics of Heinz von Foerster and the work of Humberto Maturana and Francisco Varela, which is thought to be grounded in biology. Today, however, the literature is populated by a large number of different theories, which are often in mutual disagreement, that all label themselves as some vari-

ety of "constructivism" (cf. the contributions of Schmidt and Kenny in this issue). They all seem to agree with proposition 1, but to a much lesser degree with proposition 2.

Despite the apparent popularity of constructivist thought and its unconventional answers to many traditional philosophical and scientific problems, RC has never succeeded in mainstream philosophy (see Müller's article in this issue for historical arguments). So we started to wonder: "Why isn't everybody a radical constructivist? Why hasn't radical constructivism become a mainstream endeavor?"

There is a long list of advantages that speak in favor of RC. Many of these attributes are central to philosophical and scientific discourses (but are also, according to Gadanne's article in this issue, those aspects that suffer most rejection).

For example, in contrast to its logico-propositional definition in mainstream analytical philosophy, in constructivism, *knowledge* is not considered to be static and detached "knowledge that" or "knowledge of" but rather to be pragmatic-operational "knowledge how," which is linked to actions and which is intrinsically tacit (Stew-

art 1996). Its dynamical aspect is often expressed in constructivist authors' preference for the notion of "knowing" over "knowledge." This conception renders the "justified true belief" definition of knowledge in mainstream analytical philosophy meaningless, and many of the problems that derive from it – such as the Gettier problem, which challenges the question of "really knowing" a matter of fact – cease to be relevant because neither the required correspondence with any (synthetic) truth can be established nor can knowing in its entirety be propositionally made explicit.

Closely related to the dynamic constructive definition of knowing is the aspect of the *plasticity* of the mind. As the mind has to develop all evaluation and interpretation criteria on its own (e.g., based on incoming electrochemical nervous signals that do not convey anything about their triggers, Foerster 1973), it has all the plasticity necessary to deal with complex environments. This conception has repercussions for disciplines that account for the working of the mind such as cognitive science, and that aim at creating smart artifacts such as artificial intelligence.

RC combines insights from natural and applied sciences (cf. Boden's article) and thus has interdisciplinary origins. Its *interdisciplinarity* distinguishes RC from those "armchair philosophies" that react slowly to new results from outside philosophy. Unlike those philosophies, RC has always used concepts that have only recently (if at all) entered mainstream thought, such as circularity, self-reference, autonomy, and network processes (cf. Müller & Müller 2007 for extensive discussion of von Foerster's BCL, in which many of these concepts were explored).

The RC perspective suggests that for living organisms the output (actions) is just a means to control their input (perception). They act in order to keep input states in equilibrium. Therefore, for a living being, the world consist of *what matters* rather than *matter* (Riegler 2005a). In other words, that which we refer to as reality has its roots in the operations by which we assemble our experiential world. In science, too, the shift from "observed systems" to "observing systems" (in the words of Heinz von Foerster) renders many epistemological problems superfluous, such as verification and verisimilitude and the unsolved challenge of the best strategy for approaching the truth.

Last but not least, RC has *ethical* consequences. It is argued that since reality is not the ultimate arbiter, humans themselves are responsible for their decisions and actions. In a society, claims of absolute truth are used for gaining power over others and lead to suppression. In science, they lead to a restriction of the variety of approaches (Riegler 2005b), or to the illusion that solutions are independent of human scientists (Foerster 1992), or even to claiming authority by referring to an external truth that makes one's own point of view unassailable (Mitterer 1994).

Since for (radical) constructivists these issues are not only self-evident but also appear to be very fruitful with regard to their applicability to a wide range of problems, concepts, and phenomena, they often find themselves asking why others have such a hard time seeing and acknowledging these advantages. In a first attempt to account for the lack of acceptance, one may refer to a series of objections to RC that have frequently been raised. They are described below.

To start with, RC seems to be *self-refuting*. Since it rejects the concept of objective truth it cannot itself be true (cf. Quale's contribution). Furthermore, RC appears to subscribe to an *ethical arbitrariness*, i.e., to a "whatever" relativism where "anything goes" and that supports reactionary social and political ideologies (cf. Kenny's article). RC also seems to be too restricted to the individual perspective to account for *social structures* and society (cf. Johnson's article). In pedagogy, "constructivist teaching" seems to imply "*leaving the students alone*" to construct their own knowledge such that the teacher becomes superfluous (cf. Slezak's article). In general, the success of science would be nothing short of a *miracle* if this knowledge was nothing but a construct of individual human minds (so-called "inference to the best explanation," cf. Boden's article). It is also notable that the argumentation against RC is often formulated in strongly emotive terms (especially, so it seems, because RC does not quench humans' thirst for certainty (cf. von Glasersfeld's and Hug's articles)): "anything goes," "a hopeless relativism" (Howe & Berv 1997: 32), "[radical constructivists] have lost the idea of a right and a wrong answer in science" (Nola 1997: 79), and "[RC] seems far more at home with non-democratic forms of educational and governmental practices" (McCarty & Schwandt 2000: 77). Sometimes it seems there is also a misunderstanding about the adjective "radical," which is not meant to refer to any irresponsible extremism, but rather intended to mean "thoroughly consistent" (Riegler 2001: 27). In other words, "radical" means that constructivism has to be applied to all levels of description. However, for many authors this adjective, as well as strong slogans such as "The truth is the invention of a liar," seem too controversial. It appears that the theory of RC is simply (too) provocative for many people (cf. Poerksen's and Scholl's article).

Consequently, to address these issues we invited contributors to shed light on these questions:

- Why are the advantages of RC not strong enough to convince more scientists and philosophers?
- Can the objections to RC be refuted in a way that makes RC more attractive to scientists and philosophers?

Scientific discussions are often carried out behind closed doors with only community members admitted. We wanted to avoid such a lop-sided situation so we also invited critical contributions that elaborate on the objections to RC. Then we asked proponents of RC to comment on these critical papers: not as an academic rebuttal of some sort but as a sincere attempt to understand and learn from the opponent's objections.

## The contributions

The first paper, by **Siegfried Schmidt**, presents a general survey of the various forms of (more or less radical) constructivism. Schmidt tells the success story of RC as the branching out of the one original RC into different versions via taking up a critical stance towards the rest of the constructivist community. He examines whether it could give rise to a new scientific paradigm. In the opinion of the author, this seems impossible. While RC should be considered a tool, it falls short of being a "super theory." This, however, must not be understood in a defeatist way: RC has proven to be very useful in a variety of disciplines such as systemic therapy, coaching, media and communication science, and historiography, and in cultural and literature sciences. However, being a "super" problem-solving instrument means that RC has to face academic competition and that it needs to become more self-critical.

**Andreas Quale** discusses several of the objections against RC in greater detail, including the charge of solipsism, the allegation of self-refutation, the claim that RC supports non-democratic social and political viewpoints, and the allegation of the miraculous match between science and the experiential domain. The author argues that the common ground of all these objections is a philosophical stance against the ontological relativism inherent in RC.

**Ernst von Glasersfeld** investigates possible sources of why RC has not become a generally accepted theory. The reasons he identifies include shirking the responsibility for one's own actions, humans' thirst for certainty, and the incommutability of beliefs, for which he refers to an expression of Sig-

mund Freud's, "the adhesiveness (or stickiness) of libido".

In his paper, **Dewey Dykstra** discusses the question why RC is not mainstream through examining the understanding of RC itself. According to the author, RC and realism can be seen as different Kuhnian paradigms. For a practitioner of the one paradigm to understand the other, the ability to switch from the basic tenets of one's paradigm to trying out the basic tenets of the other is required. Referring to Piaget, he suggests that to come to make this switch requires the person to realize a disequilibrium between their existing paradigm and some new experience. If there is no disequilibrium, there is nothing to drive non-constructivists to consider constructing alternatives to the basic tenets of their realist paradigm. Finally, Dykstra shows how the logical, ethical, social, pedagogical and scientific objections to RC only have meaning from the position of the realist and are no problem at all from the RC position.

**Karl H. Müller** provides a detailed and insightful analysis of the state of RC as a research tradition. He analyzes the cognitive, institutional, socio-cultural, and historical factors that have influenced the wider acceptance of its ideas. In particular, he claims that in the 1960s and 1970s there was a striking asymmetry between the excellent scientific productivity of RC and its low network formation, which eventually blocked it from becoming mainstream. Müller suggests some changes in the movement that might enable it to become more accepted by mainstream academia and society.

Several papers are devoted to considerations in *disciplines* where RC has managed to acquire some foothold in academia, i.e., communication and education science as well as psychotherapy.

The paper of **Armin Scholl** sketches the history of the introduction of RC into communication science in German-speaking countries and tries to answer the question of why the epistemological debate today has almost fallen silent. Scholl argues that RC has often been provocative and exaggerating in style, which in turn has provoked harsh reactions in the mainstream scientific community. The author discusses several argumentative strategies that have been used to cope with the challenges of RC, i.e., offering

a compromise between RC and realism, accepting the criticism against realism but rejecting the radical elements of RC, and declaring that there is no need for RC as an autonomous epistemology. Despite such attempts to dilute RC, it is one of the merits of RC, thanks to its skeptical attitude and emphasis on second-order observation, that it keeps disciplines such as communication science alive.

**Bernhard Poerksen**, also from the perspective of communication science, reconstructs which arguments and problematic issues can be (and in fact were) developed against constructivism. His paper shows how constructivist epistemology has influenced the self-understanding of media studies in the German-speaking academic community and attempts to clarify basic issues as well as suggest solutions that are acceptable to all parties to the debate. Poerksen debates ongoing accusations such as "trendiness, exaggeration and arbitrariness," and he refutes them by arguing that the critics in communication studies have misread RC to a great extent.

**Theo Hug** provides an overview and examples of positions criticizing and challenging RC, mainly in the field of pedagogy. He investigates the "all-and-nothing" continuum that identifies RC as mainstream at one extreme and as irrelevant on the other. Furthermore, Hug criticizes the threefold classification of learning theories that encompasses behaviorism, cognitivism, and constructivism. Finally, he rejects the idea of RC becoming mainstream if this relates to power politics and joining the ranks of academic truth-oriented Isms.

Arguing from his rich experience with constructivism in psychotherapy, **Vincent Kenny** compares the unfolding development of constructivist approaches with a river delta. He is concerned with the way constructivism continually and inevitably splits and divides, making a mainstream constructivism impossible. Kenny proposes a variety of Kelly's suggestions for improving personal constructs as a way to facilitate a more viable community of constructivists.

The following four papers are mildly to severely *critical* of RC. We considered their inclusion useful, as by studying their arguments RC can learn from the criticism from outside constructivism.

According to **Volker Gadenne's** perspective of critical rationalism, RC consists of four components, namely the "construction hypothesis" (cognition as the result of a constructive process), the "closed-system hypothesis" (the brain and, as a consequence, the cognitive system, as operationally closed), "antirealism" (we cannot attain knowledge of an independent, objective reality) and "pluralism, tolerance, and active learning" as practical consequences of RC. Gadenne argues that, while these practical aspects find wide acceptance, many scholars have an aversion towards RC due to deeply-rooted intuitive convictions that make them reject RC's philosophical assumptions of the closed-system hypothesis and anti-realism.

Arguing from the position of scientific realism, **Margaret Boden** rejects a variation of constructivism that she calls "ontic constructivism," i.e., a version that denies the existence of objective reality. Ontic constructivism has to be distinguished from cognitive constructivism, which she assigns to von Glasersfeld. Another distinction she makes is between analytical and non-analytical constructivists. While the former show a "healthy respect" for logic, the latter, especially proponents of the strong programme in the sociology of science, hold that logic is just a "grand narrative" and science is nothing more than a game that somebody decides to play or not. Boden generally applauds von Glasersfeld for not relying solely on abstract philosophical arguments. However, she argues that he (like Piaget before) is subject to the problems of genetic fallacy (i.e., justifying an epistemological claim by referring to its biological or psychological roots), which is an irritation for many philosophers. Boden's article can also be seen as a warning to RC not to fall into any sort of "ontological trap."

In his paper, **David Kenneth Johnson** criticizes RC as being a contemporary form of skepticism and elaborates on the known objections to RC of solipsism and antirealism. Regarding the question "Why isn't everybody a radical constructivist?" the author argues that RC is not able to solve the "problem of the other". RC allegedly fails to account for its own social presuppositions. Contrary to its own claim, RC must assume real other subjects in order to appeal to those subjects. Johnson maintains that RC rests on

contradictory assumptions: resisting all positive references to “reality” while recognizing the plurality of subjects allegedly makes von Glasersfeld a metaphysical realist.

Johnson’s critical paper is accompanied by the commentary of **Hugh Gash**, who considers the challenge to commonsense realism an obstacle to RC becoming mainstream. In contrast to Johnson, he emphasizes that social aspects get their fair share of consideration in RC. For example, testimony plays a major role in children’s learning but not because testimony “in itself” empowers children but because it has the potential to lead to individual epiphany, very much as is the case in discovery learning.

In this vein we, the editors, would like formulate an answer to Johnson’s allegation that asking “Why isn’t everybody a radical constructivist?” in a *public* forum such as Constructivist Foundations alone shows the absurdity of RC. Would it not be contradicting one’s own experiences as a scientist to claim that scientific publishing did not have the potential to enlarge one’s experiential reality? Therefore, we consider it only legitimate to use it as a source of experience, too.

**Peter Slezak** presents a philosophical critique of RC and tries to show that its pedagogical claims are more of a reflection of good teaching practice than proper philosophy, i.e., that there is a “stark discrepancy between philosophical pretensions and practical pedagogy.” The author also argues that von Glasersfeld’s RC misunderstands central tenets of the Western philosophical tradition in its claims to originality, for instance with respect to the realism issue.

Slezak’s article is accompanied by two commentaries that try to find out what can be learned from the misunderstandings of RC in Slezak’s paper. The first commentary, by **Leslie Steffe**, tries to come to grips with the rejection RC receives from realists and with why RC is allegedly bad for science and mathematics education. In his view, many criticisms are unjustified, in particular the claim that radical constructivists *deny* reality. Furthermore, he concludes that how epistemological models of knowing can be used in education should be better left to the educators who use them in interdisciplinary work. He, too, emphasizes the need to be “proactive,” i.e., to formulate and engage in vibrant research programs. The second

commentary, by **Dewey Dykstra**, is an attempt to painstakingly analyse many passages from Slezak’s paper. He also responds to Slezak’s rejection of RC’s value to education and to what Slezak apparently means by “good teaching.” Despite his disagreement with Slezak, Dykstra rejects the idea that each side should further engage in trying to prove the other side wrong. Instead, we need to change the interaction to one in which members of opposing sides attempt to understand the other’s position.

The special issue is rounded off with a concluding commentary by **Peter Cariani**, who points out that in the history of science and philosophy we find many movements that have not “caught on,” such as systems theory, cybernetics, biosemiotics, pragmatism, workplace democracy, and participatory democracy, among others. Cariani identifies a series of specific reasons why such movements, despite their strengths, do not grow to capture the public imagination. These reasons include intellectual, motivational, institutional, and psychological factors, the failure to form a movement identity, strong competition, the absence of a need to grow, failure to be recognized as a distinct set of ideas or worldview, the lack of an economic engine, and so on. His conclusions, however, are anything but pessimistic, since he maintains that RC has not exhausted its potential and possibilities. As an emergent epistemological perspective, it has a great deal to offer the intellectual world. But Cariani is also cautious when he writes that taking over constructivist ideas and the acceptance of RC by the mainstream is not to be expected very soon.

## Conclusion

We cannot expect that critics of radical constructivism would wish for RC to become mainstream. But even in the constructivist community the theme question of this special issue leads to very different answers. Some constructivists, such as Kenny, refuse to believe that there is something like a mainstream for constructivism, while others, such as Hug, are rather pessimistic about it and think that, at first sight, this would not be a “desirable endeavor” because RC would need to participate in “power

politics, selling the real thing, and joining the ranks of truth-oriented Ism’s.” But there are also others, such as Dykstra, who display much more optimism when they maintain that “if RC became mainstream, the world would be very different” and that that different world “would be a much better place.” In the “Declaration of the American Society for Cybernetics,” Ernst von Glasersfeld made the important statement: “Cybernetics is a way of thinking, not a collection of facts” (Glasersfeld 1981: 1). Following his words, a mainstream radical constructivism would change the world by changing the way people see the world (Ranulph Glanville, at the Cybernetic Coalition meeting in November 2010).

Clearly, finding the answer to the question, “Can RC Become a Mainstream Endeavor?” depends on what constructivists consider the role of RC to be in the scientific community. Are radical constructivists to define science as just an arbitrary social game that has no more intellectual authority than any other, or should they have a “healthy respect” for scientific tools such as logic and rationality? Finding “greater acceptance” in science is linked with taking science seriously in the first place.

What we have learned in the course of collecting the papers for this special issue is that not finding more acceptance is partly “home-made.” Namely, the large number of constructivisms and the incompatibility that comes with this fragmentation lead to a very heterogeneous landscape with little support and cross-understanding among constructivists. Too much disagreement and incompatibility certainly weakens the movement.

One way to counteract this tendency is to move forward with new challenges and goals and – given that some characterize RC as worshipping the “old masters” – with a new generation of radical constructivists. Due to its interdisciplinarity, new goals and new constructivists should both be expected to be found in any discipline, for example in cognitive science and artificial intelligence as well as in (quantum) physics and, as contradictory as it may sound, sociology. One of the interesting plans for rejuvenating the radical constructivist member pool comes from a group of cybernetic societies that meet annually in Vienna as “Cybernetic Coalition.” Starting in 2012 this coalition will

provide an annual summer school for about 40 to 60 students from around the world, focusing on topics from second-order cybernetics and radical constructivism.

That plain misunderstandings are also at the root of RC's failure to gain wider acceptance is not only visible in the commentaries to Johnson's and Slezak's papers, it is interestingly enough also present in those authors whose initial position can be considered constructivism-friendly. In the course of writing his guest commentary, Cariani explored deeper into the constructivist literature, in particular von Glasersfeld's, and had to admit that in the end, "...it turns out, I have long agreed with all of the fundamental tenets of RC... However, I did not realize this complete agreement until I recently saw [a] simple list of core principles" (Cariani 2010: 129).<sup>1</sup> This definitely calls for a wider dissemination of radical constructivist ideas in ways that are accessible to readers and that do not create prejudices in the first place.

Even if RC cannot or should not become a mainstream endeavor, it will further develop. Although the fundamental questions and disputes within RC might never stop, radical constructivists should attend to more specific tasks within their (scientific) disciplines. If radical constructivists manage to demonstrate how effective RC can be at explaining specific phenomena, RC has the potential to become a helpful tool for solving *specific* research problems. The combination of a general theory or meta-theory and of substantial hypotheses on very concrete research problems may be attractive to scientists who not only claim to be good researchers within their discipline but who also claim to refer to more fundamental questions on epistemology and methodology from the perspective of RC.

1 | Cariani refers to a set of seven core elements listed in Glasersfeld (2007: 97). An alternative set of constructivist principles – operational closure of the cognitive apparatus, agnosticism toward ontological reality, circular explanations, and self-limitations of constructions – can be found in Riegler (2001: 5–8).

## Afterword

While this Special Issue was being prepared, Ernst von Glasersfeld passed away on 12 November 2010 at the age of 93. In a sense, this issue is a witness to his legacy. It could not have been possible without the persistence and accuracy of von Glasersfeld's writings that lucidly introduced a new perspective. As he often remarked, he was merely putting together that which has been said by many others across centuries and across the discipline. This makes radical constructivism – like all good scientific and philosophical work – the present moment in a long lineage of ideas. And even though that which he set in motion is still a small stone, it is steadily gaining momentum in changing how people see the world.

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