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**Fritz A. Reusswig** is a sociologist and philosopher with a PhD degree from J. W. Goethe University in Frankfurt am Main, Germany. Since 1996 he has been a senior researcher at the Potsdam Institute for Climate Impact Research (PIK). His research interests cover environmental sociology, climate-change mitigation and adaptation strategies, and environmental populism. Fritz is a member of the German Sociological Association (DGS) and teaches environmental sociology at Berlin's Humboldt University. https://www.pik-potsdam.de/members/fritz/.

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## Author's Response

# Sustainability, Populism, and Constructivism

Hugh Gash
Dublin City University, Ireland
hugh.gash/at/dcu.ie

**> Abstract** • In my response, I focus on themes that recur in the commentaries: (a) Radical constructivism's neutrality and the need for and value of sustainability; (b) education and sustainability; (c) the relation between fast and slow learning; and (d) radical constructivism in the context of populism and fake news. I welcome the way the commentaries broaden the context of the target article, emphasising the contemporary international importance of the topic and providing examples that refine radical constructivism's contribution to educational innovative practice.

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« 1 » Rebecca Huntley (2020) has described climate change as a scientific, social and political question influenced by psychological biases that shape our perception of the world. Susan Clayton et al. (2015) have also reviewed psychological research to avoid misunderstandings in relation to climate change. The target article adds to this theme, describing how radical constructivism (RC) can explain why people have concepts about sustainability that include fake news and how these differences might be overcome to enable working together for the planet's future.

« 2 » A central feature of RC is its rejection of mind-independent reality on the grounds that knowing is based on a comparison between on-going experience and past experience, because individuals cannot directly access "reality." **Kensei Hiwaki (Q1)** asks for clarification about "mind-independent reality" and Humberto Maturana's "objectivity-in-parenthesis." Objectivity-in-parenthesis follows from taking seriously the idea that all that we know is a construction. The idea of objectivity assumes we have access to mind-independent reality, whereas radical constructivists emphasise "objectivity-in-parenthesis" because they recognise that our ideas are personal constructions. Immanuel Kant's analysis of experience distinguished between what is not learned (a priori knowledge) and what is learned (a posteriori knowledge). In Kant's philosophy, concepts such as space, time and cause are innate a priori concepts that are necessary to organise experience and "to know the truth of universal and necessary claims" (Kant 1996: xxix). In his book *The Construction of Reality in the Child*, Jean Piaget (1954) described how the child constructs these a priori concepts. Piaget's six-stage sensorimotor period describes the development of the child's concepts of space, time and causality. These Kantian a priori concepts are linked, in Piaget's account, to the object concept. At the beginning of this stage, the child uses reflexes to interact with objects, next learns about space by touching objects, and then moves from not reacting to objects hidden in front of her to searching for objects hidden in increasingly complicated ways. At the end of this stage, the child can represent objects that can be touched and moved in ways that show an understanding of space, time and causality.

## RC's neutrality and the importance of sustainability

« 3 » In the target article, I take a neutral position on sustainability, because, from a radical constructivist perspective, values are constructed. As values are personal constructions, an individual has responsibility for her constructions and recognising this has ethical consequences (Gash 2000, 2011). One of these is the invitation to treat the "other" as a legitimate other, thus differences are an invitation to discuss their origins. However, RC itself remains neutral, as it is about process not content.

« 4 » As pointed out in my target article (Footnote 8 and Table 1), another crucial aspect of RC is that it remains agnostic about mind-independent reality, because knowledge is always based on experience. In Gash (2011) I argued that RC invites an openness to other ideas and to reconsidering one's own ideas that has ethical implications. This openness requires an agnosticism about objectivity-in-parenthesis, acceptance of uncertainty about mind-independent reality, and an acceptance and care for others. Importantly, foreground-

ing the ethical risks making the ethical prescriptive (Gash 2000).

« 5 » Science educators sometimes describe RC as relativist, (Taylor 2014) because it does not provide a way to decide between what Michaelo Delmonte (§2) calls "individual subjectivities." On the contrary, while RC allows for the construction of different explanations of phenomena and different value choices, what is known must stand the test of a cognitive subject using the concept of viability, though as Sebastian Kletzl (§11) points out, using viability does not constrain us as much as using truth would, because it offers a variety of options. The notion of truth implies objectivity-without-parenthesis and applying it is considered to be a compelling argument (Maturana 1988: 29f) in which the observer ignores their participation in their construction of their explanation. In contrast, with objectivity-in-parenthesis, the observer accepts that it is their criterion of acceptability that validates an argument and recognises that there may be other ways of doing this. This allows different positions but insists on a viable criterion of acceptability.

« 6 » The neutral position of RC in the target article draws attention in a number of the commentaries. Charlotte Holland (§7ff) raises this issue, Fritz Reusswig (§3) is critical of the idea of compromise on sustainability issues, and Alfredo Salomão Filho & Tanja Tillmanns are concerned that different personal constructions might be considered equally viable (§8) and emphasise the need to focus on relations (§§2ff).

« 7 » These comments foreground the need to emphasise that RC is not a normative theory, i.e., RC does not assign value judgments. Rather, it is a theory about how knowing and learning works. As such, it has implications for changes in thinking. Further, while RC avoids mind-independent reality, the emphasis on the centrality of the mind (as critically commented on by Salomão Filho & Tillmanns in §3) in no way is intended to marginalise other actors. It is just that the individual is always in the position of needing to understand the other actors' positions from her own perspective. Neither does the emphasis on mind, in RC, prevent focusing on relationships and agencies of varying types. However, these positions will be constructed by an individual. Even more so, being "part of the world" is central to RC, though perhaps obscured by an emphasis on the importance of the personal construction, which is a logical requirement of RC's position.

« 8 » Reusswig (§3) lists sections in the target article where mutual respect and dialogue are recommended as the major practical input of RC to the sustainability debate. As he argues persuasively, if this means compromise, it is not enough given the urgency of climate change and the related issues. I agree. In the conclusion to the target article (§40), I mention three possible outcomes for discussion: compromise, an intermediate position, or a superordinate position. Compromise may be possible in some areas but there will be issues where compromise will not be possible and the imperative of survival will impose. RC provides a framework for understanding different world views. However, when saving lives is a priority, its requirement for viability entails taking a world view that rejects political compromise in the face of scientific evidence.

« 9 » The target article takes a neutral position assuming that a careful analysis of any sustainability issue and a discussion of the process involved in the different positions would lead to a consensual emergence of a resolution. However, while such an approach can be expected to work in a context of mutual respect with well-defined problems like calculating the restaurant bill or discussing the options for a trip between two locations, this hope seems naïve when differences are strongly felt because they are linked to values or important to identity (Maalouf 1998).

« 10 » As one way to overcome this difficulty the target article (§32) suggests different domains of knowledge might be considered like different geometries with different postulates or assumptions. Bringing these differences to the fore may help us moving positions to find a solution. In this context Jones Irwin (Q1) asks how RC explains the emergence of value and how to distinguish between ethical positions. Jeffrey Goldstein (2017) describes the importance of *the idea of a difference that makes a difference* and this is a good context in which to discuss the origin of value. Even simple organisms will move away from too much light, too much heat, and so on, so where a binary difference is noticed, one aspect will be preferred. Individual choice may be simple and binary, as in the cases of two pieces of music, two wines, two buildings, or two political candidates. The emergence of value may arise in an individual or in a social context but is always a choice with ethical consequences. Hiwaki (§13ff) describes the imbalance between value systems in the economic domain and its consequences for sustainability. Also, Salomão Filho & Tillmanns (§1) criticise the ideology of economic growth. Varying positions on climate change have their own varying ethical priorities and Hiwaki argues against market-driven economics, proposing a social and cultural value system (§13ff; Hiwaki 2019) to counter the hegemony of the market so as to promote sustainability. Discussion as to which of the two is preferred is likely to reveal personal features and values. Irwin's (Q1) on the question of the origin of values merits a fuller psychological-developmental answer than can be given here, though Salomão Filho & Tillmanns (§§3ff) stress the importance of considering agency in a context of both social and human–environment relationships.

## Education and sustainability

« 11 » Challenge is a radical constructivist educational strategy (target article §32). Holland emphasises challenging children's ways of thinking about climate change using Visual Cues. This allows the learners to become aware of unconscious ideas and values that influence their thinking. Holland (§7) argues that the dialogical approach suggested in the target article (§32) emphasises openness and mutual respect and these qualities may not be sufficient to trigger change in thinking. She notes that for change to take place, there must be some benefit to the observing subject's organisation of their experienced world. A valuable consequence of this approach is the emphasis on learners identifying why and how their views differ and what makes them crucial to identity (§8), a dimension I noted as critical in the target article (§34ff). Yet another important feature of Holland's approach is requiring the learners to examine how the process has changed their own thinking.

« 12 » Following my reading of Holland's critique and to answer her question (Q1), I welcome her insights into the need to em-

phasise more direction in discussions. A key issue for RC is the need to rely on challenge to honor the viability of one's own constructions and one's own integrity (target article §35). The ways Holland's challenges are followed up or scaffolded provide very useful guidelines to teachers who work on sustainability. In the case of Tillmann's Visual Cues approach (Holland §5) being used with economic issues, the values that arise might include dimensions of Hiwaki's economic value system (§13ff). Hiwaki (§§18ff) recommends a series of ways to adjust the lopsided market-driven social value systems. While these values may be important to an individual's identity, when they emerge from dilemmas related to sustainability, they can be considered challenging. This takes us to Hiwaki's Q2, asking how RC relates to his value system. To answer his question, let us look at the procedures recommended by Holland. If one were to use them, visual dilemmas concerning pollution might be shown that highlight the opposition of economic values on the one hand and ecological or social values on the other. More generally speaking, the discussions recommended in the target article to uncover the origins of different ideas (§12) arising here in these dilemmas could be used to reveal the various values embedded in Visual Cues. This might reveal both lopsided market values and the social and cultural values needed in an economy emphasising wellbeing. Another point of agreement between Hiwaki's system and RC is his recommendation for a gradual and steady approach, which is consistent with the psychological developmental change that is the result of appropriate RC intervention and reflection.

« 13 » The educational programme for sustainable development (ESD) described by Austin in her commentary is a nuanced inquiry-based learning (IBL). Here, learning is framed as a pedagogy concerning environmental stewardship and learning is *in relationship with the environment*, emphasising value criticality and reflection and leaving space for hope, surprise and wonder. In addition, Austin describes a phenomenon called nature-deficit disorder (§4), which highlights just how much needs to be done to enable appreciation of the human-environment relation, with the latter moving to remedy this deficit. The common illustration is of city children being unaware of the very biological origin of the cows' milk on the table. Austin also refers to the Common Worlds approach (§8), with a pedagogy that "encourages learners to learn collectively with this more-than-human world rather than about it" (§8). This echoes Heinz von Foerster's emphasis on being part of the world (target article §40).

## The roles of fast and slow thinking

« 14 » In the target article (§2), I indicated that fast thinking can be perceived optimistically as useful in certain circumstances. In this context, Irwin (Q2) asks about the relation between spontaneity and deliberation in RC thinking. As an example, Holland's (§5) analysis of presenting disorienting dilemmas is hard to improve on. Spontaneous thinking reproduces thoughts learned in past experiences, and as Holland shows, deliberation is activated when disorientation occurs. As another example, in the target article (§32), I mentioned how stereotypes might be challenged by questioning and presenting counter-examples. These ways of challenging the viability of established and spontaneously produced stereotypes can lead to reflection, deliberation and change. So, due to fast thinking, thoughts may change when there are opportunities to reconsider. In a different vein, Kletzl suggests that heuristics and fast thinking can be useful and creative when "tamed" by slow thinking (§§9, 13ff). This makes sense from an RC point of view, when solutions are sought, sensed and emerging. DelMonte (§4) makes similar observations on how fast and slow thinking can be used together to reveal unconscious ideas in his psychotherapy clients, an observation that highlights an emotional aspect of the relation between fast and slow thinking (Irwin Q2). Our need for inter-individual consistency in RC (target article §16) may tempt us to trust either testimony or arguments based on fast thinking. The critical aspect here should be the procedures used to provide positive reasons for viability (Kletzl §14).

## RC and sustainability

« 15 » What, then, are the positive contributions that RC can offer? Following Reusswig's commentary, I continue to hold that promoting objectivity-in-parenthesis is important but I agree that more is needed. Is it the emotional commitment that brings quality to the debate that will help the most? There are explanations as to why populists ignore evidence (target article §38) and believe in fake news (Reusswig §7). In the recent US presidential election, fake news items were considered "real" and "true" by half of the US population for some time. The idea that Covid-19 is a hoax is countered by the numbers of people who have died and the saturation of hospital facilities with no additional intensive-care beds, though recent evidence implies that it is Covid-19 plus underlying conditions that increases the probability of fatality.[1] No amount of evidence or discussion seems to change the minds of deniers in the short term. For some, the outgoing US-American president tells only "the truth." In addition, I should emphasise that the suggestions outlined in Table 1 in the target article are not meant to imply that all constructions are equally viable. The origins of beliefs about sustainability that depend on fake news and are without scientific evidence are not viable. RC has been insistent on this and living up to this standard of viability may imply that alternative views need firmer challenges. Salomão Filho & Tillmanns (§4) endorse the idea that embracing a relational view that overcomes difference will provide a needed stimulus to change. Of course, people may, or may not, be open to or ready to change (DelMonte §7). The hope, but not the guarantee, is that they will change when the evidence appears compelling and is challenging.

« 16 » What now needs emphasis is that RC is essentially about process and not about the ideas and values that are constructed. To enable change, groups such as populists need challenges to examine the basis of their beliefs. In addition to foregrounding objectivity-in-parenthesis to enable change, mutual respect is essential. These features are central to the underlying ethical implications of RC (Gash 2000, 2011). RC is essentially about process and objectivity-in parenthesis, with the implication that an individual acknowledges their own place

1| "Covid-19: ICU admissions and deaths down to a fraction of first wave," *The Irish Times,* 7 November 2020, https://www.irishtimes.com/1.4402727

and their own reasoning in their thinking about an issue. In a climate of distrust when the other is not accepted as legitimate, one cannot expect communication. However, Holland's advice stands, the other with different views needs to be challenged and to be shocked so as to find a way to reflect on their fake news, their conspiracy theories supported by their social-media groups (Reusswig §7). As Irwin (§7) suggests, maybe the pandemic will challenge us to examine the wider relations between the world and education. Sarah Morris and Robert McDonald (1995) showed how moral consequences influence moral judgments, so there is hope that the severity of the consequence of fake news may facilitate reflection. As I finish this response, there is hope that the severity of the pandemic in the US will lead to a change in attitude towards fake news about Covid-19 in the US and its associated disinformation.[2]

« 17 » We need more than just discussion of different views, whether these views are singular or whether they can be profitably considered as sets of relationships (Salomão Filho & Tillmanns §2). We need to see how alternative views are constructed, to examine their origins and what supports them, together, to see whether change is possible. DelMonte (§4), Kletzl (§12) and Irwin (§7) remind us that exploration of fast thinking and the link to slow thinking may help to uncover emotions and values embedded in fast thinking and help new creative solutions emerge. Holland (§§4ff) and Austin (§§4ff) emphasise educational processes that may facilitate sustainability and Salomão Filho & Tillmanns (§4) recommend ensuring that agency for change is considered from a perspective that honours connections with others and the environment rather than just human–environment connections. I agree with Reusswig (§7) that a change in perspective is needed to surmount the fake news and the discrediting of science. Otherwise, we leave debate mired in the lack of respect and entrenched positions that come from dividing the world into good and bad and believing that the outgroup is the cause of the problem. My view is that RC may be misconstrued as offering only discussion as a way forward in discussions about sustainability, but its ethical implications offer a powerful compassionate approach in which we care for one another and our planet.

2| "Trump faces growing pressure to start transition as Covid surges across US." *The Guardian,* 16 November 2020. https://www.theguardian.com/us-news/2020/nov/15/trump-transition-biden-coronavirus-covid?

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