Editorial: Ninety Years of Constructing

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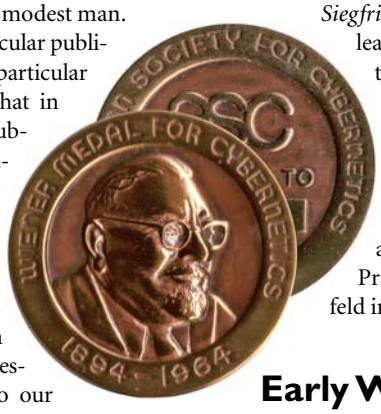
On 8 March 2007 Ernst von Glasersfeld attains the age of 90. In celebration of this, we take great pride in publishing this festschrift as our way of saying thank you, and of sending greetings and our affection to this remarkable, honest and modest man.

A festschrift is a particular publication, and we have a particular approach. We require that in the all pieces we will publish, the work of von Glasersfeld will take centre stage. We also invite two types of contribution: the more normal academic paper, and more anecdotal pieces which carry a more personal message. We are grateful to our authors for helping us realise a festschrift that attains these aims. We add our thanks, too, to photographers, artists and poets who have enriched the von Glasersfeld related *material* we have been able to publish, which, we believe, enhances the general quality.



Ernst von Glasersfeld has brought a remarkable rigour, energy and single-mindedness to his pursuit of what he has called Radical Constructivism (RC). This is a form of constructivism that doesn't compromise by hedging, but goes straight to the crucial matter of the necessity for us to acknowledge our presence in our experience, for the observer to actually observe, for the mind to take part in the creation of the reality it describes as "sensed." In this account, we always recognise that we are present.

It is not out intention to gloss RC here, especially not in the introduction to a festschrift to celebrate and honour the scholar who has done most to clarify and elaborate it, so we will stop. Given the more than 20 contributions to this festschrift which cover virtually all aspects of Ernst von Glasersfeld's work, career, and personality, any detailed biography would also be superfluous. Rather, we provide a "navigation-aid" through these articles.

Overview

In the opening essay, *Ranulph Glanville* writes of meeting von Glasersfeld, and of how the questions asked of him by von Glasersfeld have continued to fire his work to this day.

Siegfried J. Schmidt, who played a leading role in making constructivist approaches popular in the German-speaking countries in the 1980s, summarizes von Glasersfeld's work and person, with a text based on his speech marking the award of the Gregory Bateson Prize presented to von Glasersfeld in Heidelberg on 6 May 2005.

Early Work

When von Glasersfeld started to publish scientific articles in the early 1960s he probably did not anticipate that almost half a century later he would have raised the number of entries in his bibliography to almost 300 (cf. http://www.vonglasersfeld.com/). Some of his first works seem to have completely disappeared or are no longer available. *Paul Braffort* rediscovered Ernst's first scientific piece: a report on *Operational Semantics: Analysis of Meaning in Terms of Operations*, which appeared in 1961 as internal report of the Brussels-based European Atomic Energy Community (Euroatom). We are delighteghted to (re-)present this piece of Glasersfeld-excavation!

This, and the three publications that follow it here were the result of Ernst's collaboration in the *Scuola Operativa Italiana*, headed by his mentor Sylvio Ceccato. *Felice Accame's* paper deals with the relationship between the two scientists, whose primary connection was their lively interest in representation and linguistics. The paper of *Renzo Beltrame* further explores the theoretical status of the research at the Scuola Operativa Italiana and provides a lucid account of Ceccato's position at a time, when von Glasersfeld started to head off for new challenges in the USA. Scholars in the English-speaking world have known through von Glasersfeld himself of the connection with the Scuola Operativa Italiana and the respect in which Ernst holds Ceccato. But the lack of translated material has made both this point of origin in von Glasersfeld's work and the significant contribution of the Italians to early cybernetics, inaccessible. We are grateful to our Italian colleagues for their willingness to provide initial access.

One challenge lead to Ernst's work on the Language Analogue (LANA) project in the early 1970s, which gave him the opportunity to explore language use in non-human animal – more specifically, in the chimpanzee Lana. The essay by *Duane Rumbaugh*, the formal project leader, highlights the important role von Glasersfeld played. A central issue was whether chimpanzees are capable of learning the grammar of a language, and so von Glasersfeld developed an artificial pictogram-based language, Yerkish, which served as communication vehicle between human and chimpanzee. *Marco Bettoni's* paper details this language. This is another area of Ernst's work that is mentioned, but which few of us have followed in detail. It is wonderful that we have the opportunity to bring this work back to the attention of interested scholars.

The Philosophy of Radical Constructivism

The second challenge von Glasersfeld commenced working on in the 1970s was the long-term development of a new "epistemology" (a philosophical term he would later become hesitant to use) based on his work in Ceccato's group, the operational and correlational approach on which the Lana project was built, and his interpretation of Jean Piaget's *épistémologie génétique*. He called this "Radical Constructivism."

In his anecdote *Jack Lochhead* (who brought Ernst from Georgia to Massachusetts) describes his personal memories of that time. Together with Lochhead, *Leslie Steffe* was one of the friends whose efforts were decisive in enabling von Glasersfeld to continue on this path. In his paper, Steffe first describes Ernst's collaboration on the Interdisciplinary Research on Number (IRON) project which focused on the question of how children construct numbers and solve numerical problems, fuelling the further development of RC. Steffe develops this, in the second part part of his paper, with an idea of how RC can act as the core of scientific research programs and contribute to other radical constructivist research programs whose central problem is to explore the operations involved in constructive activity.

One of the tenets von Glasersfeld has never tired of repeating is that "his" theory borrows from many insights of scientists and philosophers. In his contribution, *Dewey Dykstra* explores yet another link, the parallels between RC and Buddhist philosophy, which are clearly visible when it comes to "disequilibration" over mismatches between realist expectations and experiences – a difficulty Dykstra identifies as the perpetual problem of understanding RC. While constructivist approaches share many distinctive features on the large scale, flavours differ in detail. *Vincent Kenny's* critical paper focuses on the different forms of "radicality" to be found in the writings of Ernst and in those of Humberto Maturana. In tight-rope walking the radical gap between them he tries to grasp onto some of the very different metaphors offered by both theorists, ranging from black boxes to submarines. Kenny claims that the difficulty to join the theorizing of both authors lies in the fact that von Glasersfeld has focused on the adaptations and learnings that go on at the cognitive level whereas Maturana's work is principally in the biological domain. In another critical contribution, *Bernard Scott* argues that Ernst's assumption about the existence of a "subject" and "others" is one that needs to be further explored and elucidated. His paper extends his ideas and proposes a co-emergent explanation of human awareness and self-consciousness, and with it the "experiential self." Scott's constructivist account of the "self as subject" avoids the need for any metaphysical assumptions by integrating ideas from George Herbert Mead, Humberto Maturana and Gordon Pask. *Herbert Müller* also paints a large picture. He discusses the place of RC and some of its implications in the development of an epistemology with the aim of differentiating it from "traditional metaphysics." While Müller acknowledges the relevance of Ernst's work for a number of disciplines that suffer from conceptual problems such as the mind-brain relation, he urges us to evaluate its implications in specific instances. Finally, *Vincent Kenny's* anecdotal piece rounds off the section on the philosophy of RC. In his interview he asks von Glasersfeld questions such as "How much patience does it take to be a constructivist?" and, by referring to the non-conscious aspect of automatisms in sports, he points at issues which still need to be addressed more explicitly in RC.

Radical Constructivism and Teaching

However that may be, RC has already addressed and stimulated many aspects in areas other than purely philosophical discourse, among which education is very prominent. *Reinhard Voß's* interview with von Glasersfeld highlights why RC lends itself to questions of teaching and education as it opposes the widespread idea that teachers can transmit knowledge through language. *Marie Larochelle and Jacques Désautels's* article indicates how taking a radical constructivist perspective can liberate educators to create new and valuable types of learning experiences. RC stresses the importance of developing a reflexive understanding of the world and prompts teachers to scrutinize the processes and distinctions by which students chart out their "world" and to devise models of their students' future relationship to the universes of knowledge intended for learning. *Ana Paztor's* paper clarifies the operational usefulness of a constructivist framework or mindset to the teacher of mathematics (an area in which Ernst, himself, worked), and illustrates with concrete examples from the author's own experience, the contributions Ernst made in this field. She devises a "shared experiential language" for teachers to *embody* in order to transform their practice congruently according to constructivist principles. Utilizing this language allows the shifting of responsibility for success in mathematics from the students back to those who guide them in co-constructing knowledge. Based on the discussion of the epistemic positions of realism and relativism, *Andreas Quale's* paper focuses on the characterization of the teaching of science in a RC framework. The author distinguishes between cognitive and non-cognitive knowledge that plays through the characterization of the teaching of science as contrasted to the teaching of religion. Since, he argues, teaching should be carried out in the mode of story-telling, Quale concludes that traditional ontology is not required for science-teaching. *Theo Hug* concludes the section on education with an anecdotal piece which seemingly weightlessly discusses some of Ernst's ideas on the backdrop of a skiing tour in the Austrian alps.

Radical Constructivism and its Implications for Society

The final section of the festschrift deals with the implications of RC for society. It starts with *Gebhard Rusch's* contribution which builds on the claim that constructivist approaches bridge the gap between the cognitive and social facets of understanding. Rusch proposes we take understanding as consisting of both at the same time: a special kind of social regulation and a special kind of cognitive regulation. The paper also contains a review of the German tradition of hermeneutics and an attempt to integrate it with sociological considerations. *Larry Richards's* paper provides an account of the author's understanding of Ernst's theory and contributes a part concrete, part speculative connection between constructivist ways of knowing and constraint-based approaches to policy formulation and social transformation and design. For the author it is evident that by raising new questions and stimulating new thinking RC contributes significantly to the development of a conceptual base for applied research on social activism. Finally, *Markus Peschl* attempts to explain how wisdom is acquired. He proposes and addresses a need to extend the conception of knowledge construction, as featured in RC, to include also a

non-cognitive perception of the world on an existential level. It describes and discusses a particular learning strategy, "triple-loop learning," for this, and a model, "U-theory," to implement this strategy. Both provide a valuable extension of the radical constructivist perspective that focuses on scientific and rational knowledge.

The festschrift concludes with three von Glasersfeld–related limericks presented by *Stuart Umpleby*, and illustrated with cartoons specially drawn by *Mihaly Lenart* (who also drew the one in this editorial).

Larry Richards is right when he states in his paper: "The work and thought of Ernst von Glasersfeld opens a path toward a rich array of concepts and ideas with the potential to inform efforts in a wide variety of human endeavors." After 90 years of constructing knowledge and wisdom, we can discern no end, or even slowing down. Ernst von Glasersfeld's active mental and physical life has not diminished. He writes, extending the reach of radical constructivism, and keeping it clean. When a few years ago, von Glasersfeld's house burnt down, and with it he lost his extensive library and many first editions, he set to and rebuilt the house, and is currently constructing furniture. He skis, with style and competence that shames many of his younger companions. Last autumn, he concluded an email in which he discussed some scientific aspects with one of us (A.R.), with the words "At last we have some reasonable weather and I'm busy chopping wood for the winter." So we cannot but agree with Jack Lochhead who, at the end of his essay, writes, "We continue our preparations for 2017."

In 2005, the American Society for Cybernetics awarded Ernst von Glasersfeld its highest award, the Wiener Medal. The citation reads:

> *"The Wiener medal of the American Society for Cybernetics is awarded to Ernst von Glasersfeld for an outstanding and profound lifelong contribution to both cybernetics and the ASC.*
>
> *"Von Glasersfeld's seminal work, developing a contructivist approach to problems raised by early cyberneticians, has enriched the field and moved the conceptual base of cybernetics into a more consistent vision – expanding the nature of how we understand cybernetics, how we enter into cybernetic processes of constructing our worlds, and how we approach the consequences of this understanding."*

We hope the reader will feel a resonance with this citation through the material in this festschrift, and will join all the authors, editors and all the others who have participated in this festschrift in wishing Ernst the happiest of birthdays, and many more to come.