

TALKING ABOUT BATESON: THAT WHICH MATTERS

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Laurinda: When I suggested that you write something about the influence of Bateson's ideas on your work you suggested that we had a conversation instead – you had engaged with those ideas a long time ago. From where I'm standing I find re-reading lets me see more and differently. When I re-read Bateson from my current perspectives, I find things in it that I didn't see when I first read *Steps to an ecology of mind* (Bateson, 2000) in 1972. I literally look again and see more as my structure changes. I'd be interested to know something about what the ideas you worked with back then were and how you have developed them.

Brent: Did I say that I'd "engaged with them a long time ago"? I can't imagine myself using that phrase in reference to Bateson's work – so, if I did, I suspect I meant something more like "I'd been engaged a long time" than "I'd engaged a long time ago". Like you, the occasional glance at *Steps* prompts me to realize that Bateson was presenting some very complex ideas, a more accessible vocabulary for which is only just emerging thanks to enactivism, complexity science, and a host of eco-discourses.

With regard to the ideas that most occupied my thinking, I'd better limit myself to one: information as 'differences that make a difference'. This one line, when I encountered it fifteen years ago, ruptured just about everything I thought I knew about knowing and knowledge. It's still a touchstone for me when talking with others about embodied or enacted knowledge.

Laurinda: Memory is a strange thing – I can't swear that you said "a long time ago" but, yes, when I read *Steps* in 1972 'difference that makes a difference', in the chapter entitled *Double bind*, had a similar effect of shifting me into a different (*sic*) way of being in the world. As an Oxford mathematician in my final year I enacted rationality and certainty and then I read:

The explanatory world of *substance* can invoke no differences and no ideas but only forces and impacts. And per contra, the world of *form* and communication invokes no things, forces, or impacts but only differences and ideas. (A difference which makes a difference is an idea. It is a "bit," a unit of information.) (p. 271)

Memory really is strange. We've both used 'that' in our remembered versions but, having looked at the book to get the exact quotation, I notice that Bateson, in fact, uses "which". From *Mind and nature* (Bateson, 2002), similarly, the phrase I took away with me was 'pattern that connects' – that book hadn't been published when I first read *Steps*.

If we're going to explore the origins of our current ways of seeing, I'd like to hear more about how exactly the quotation about information from *Steps* ruptured everything you thought about knowing and knowledge. How were you different before and after? It seems to me that any author who can have that effect on anyone (and here we are two separate entities) deserves some exploration of where their ideas have gone one hundred years after their birth?

Brent: In the late 1980s, as a new graduate student in mathematics education, I was trying to make sense of two discourses that were new to me:

- the "radical constructivism" that had infested the journals at the time
- Maturana and Varela's, 'embodied knowledge' that seemed to be one of Tom Kieren's (who was to become my doctoral supervisor) obsessions

Laurinda: And still is if his discussion of ICME-10 highlights in this issue of FLM (p. 23) is anything to go by.

Brent: I recall being stumped by the refusal within both discourses to describe knowing/knowledge in objective or representational terms – a tendency that is pretty much carved into the English language.

I'd already read writers such as Zukav (1969), Capra (1975), Hofstadter (1979) and Bateson (they're still all clustered together on my bookshelf), so it's not like I hadn't been exposed to alternative frames. But it wasn't until I'd re-read a badly photocopied passage from Bateson – could have been the one that you just cited – that the barriers to a new interpretation crumbled.

The notion that information was about perturbation rather than objects or substances – that it wasn't something that was passed along in packets or that flowed like liquid – changed everything. Focused on pedagogy as I was, my attention turned immediately to a teaching that was concerned with differences that made differences – and that difference has been a constant (*sic*) in my work ever since.

Clearly a structural change – one that affects everything I do. For example, on a more trivial note, consider Bateson's phrase "the pattern which connects". I've long been bothered by his editors' inability to distinguish between phrases calling for 'that' and 'which' – and the sort of difference that would need to be presented in order to notice their difference.

Not to get sidetracked though, the phrase itself is one *that* is also important to me. But before I say why, I'm keen to know why you plucked it out.

Laurinda: Given what I wrote above, I agree that I would have expected a ‘that’ I checked in *Mind and nature* and there it is “*the pattern which connects*” (2002, p 8, original emphasis). This feels like an illustration of Bateson’s ideas for me. You can’t see something for which you don’t have a need for a distinction. I only first realised that there was an issue when I had the *Word* editor turned on some years ago and wondered why a phrase had been marked. I now see the difference and notice ‘that’ and ‘which’ in my world – and even go so far as remembering other people’s phrases wrongly. We choose what we see

Back to “pattern which connects” For me, this phrase points to the shift in my way of seeing from objects to processes. It’s as if we are designed to see these “patterns which connect” – the questions ‘what’s the same?’ ‘what’s different?’ underpin how I live and how I work with students who are learning mathematics or who are learning about teaching mathematics.

When I’m planning to teach or in the act of teaching *same/different* is what I am working with – supporting the learners in looking first and saying what they see, making distinctions that can be discussed and refined both literally and working with episodes from the experiences that stay with them. I am using my own powers of discrimination to report to the group what I notice about their interactions.

Alf Coles, in this issue (p 21), describes using a process of “meta-commenting” with his students in the mathematics classroom. Such meta-commenting fits, for me, with another underpinning to the way I work from Bateson – story:

[...] a little knot or complex of that species of connect- edness which [*sic*] we call *relevance* (2002, p. 12, original emphasis)

And further on in the same chapter:

I offer you the notion of *context of pattern through time*. (2002, p 13, original emphasis)

I encourage students to speak out of their own awarenesses and listen to each others’ stories whilst looking for the connecting issues that are being discussed so that we can talk ‘about’ those issues.

Brent: First a confession, as with you, it was *Word* that (and I really want to write ‘which’) prompted me to realize the grammatical problems with some of Bateson’s key phrases – kind of wonderful. I’m a bit fussy around usages of ‘that’ and ‘which’. The fact I didn’t notice must have meant that I was actually engaging with the idea rather than (as often happens) getting caught up in the presentation of the idea. But since noticing, I can’t help but notice.

So ... pattern. Since high school, when it was suggested by one of my teachers, I’ve thought of mathematics as the study of pattern. But it wasn’t until encountering the notion of ‘patterns that [*sic*] connect’ that I began to think in terms of patterns being so integral – not just to mathematics, but to mathematics pedagogy. In one of those epiphanies that prompts reinterpretation of all previous interpretations, I

realized that most (if not all) of my most frustrating moments as a teacher were around learners’ inability to notice a pattern – and, of course, my failure at the time to notice the pattern that they weren’t noticing. Nothing connected, because no patterns were present to connect.

That’s actually where my own research interest in the manner in which teachers attend to students began. A little curiously, that interest gelled for me as the focus of my doctoral research when I read the following in *Mind and nature*:

[...] the idea of “logical typing,” when transplanted from the abstract realms inhabited by mathematicological philosophers to the hurly-burly of organisms, takes on a very different appearance. Instead of a hierarchy of classes, we face a hierarchy of *orders of recursiveness*. (2002, p. 188, original emphasis)

I have to reinvent the details, but I’m guessing that the mention of “mathematicological” and “hurly-burly” in the same sentence naturally pointed my attentions to my teaching. In the margin I scrawled:

teaching as listening ... which is a recursively elaborative participation in the evolution of the student’s understanding

Since then I’ve been wondering how teachers might prompt awarenesses of the ‘patterns that connect’ by listening to learners and endeavouring to present differences that might make a difference.

Laurinda: Now that reminds me of István Lénárt presenting different geometries (FLM 24(2), pp. 24-25) and algebras (p. 30 in this issue) to students to support their learning through the meaningfulness of making distinctions.

Brent: This discussion of distinction-making reminds me that learning and teaching are not so much about coming to know what you don’t know as they are about coming to notice what you haven’t noticed. That, perhaps, has been the most significant of Bateson’s many prompts to my thinking – the realization that all education is education in perception ... which, of course, entails a transformation of knower, not simply what the knower knows.

References

- Bateson, G. (2000, first edition, 1972) *Steps to an ecology of mind*, Chicago, IL, The University of Chicago Press
Bateson, G. (2002, first edition, 1979) *Mind and nature. a necessary unity*, Cresskill, NJ, Hampton Press Inc.
Capra, F. (1975) *The tao of physics*, Berkeley, CA, Shambhala
Hofstadter, D. (1979) *Gödel, Escher, Bach: an eternal golden braid*, New York, NY, Basic Books
Zukav, G. (1979) *The dancing Wu Li masters. an overview of the new physics*, New York, NY, William Morrow and Company

This editorial introduces a strand, which will continue through future issues of the journal, recognising Bateson’s work one hundred years after his birth in 1904. You are invited to write a communication or article on how you have used ideas from Bateson (or Maturana and Varela who were influenced by him) in your teaching or research (eds)