

The Imposition of Boundaries

A Response to Ton Jörg's Programmatic View

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Ton Jörg's essay (this volume) is an ambitious work, proposing nothing less than a reformulation of education. While such an endeavor is clearly too much for a single work, this attempt points toward a path for such an endeavor, implicitly raises important questions, and also provides a number of points with which to engage as a respondent. Although – or perhaps because – I am a physicist, one thing that drew me initially to complexity theories in education was the seeming openness of complexivists to recognize the personal in education. It is for this reason that I begin my engagement with Ton's work with the personal – and person-filled – nature of Ton's work.

Person

For me, many persons dance through my reading of Ton's work. First, Ton's own writing is obviously very personal. This is not merely a matter of Ton having his own recognizable style. Instead, the writing is Ton, with the first person references, the acknowledgement that some things are "wonderful" (Jörg, this issue, p. 8), and so on (No solely intellectual, academic piece would ever consider anything to be "wonderful"). This is Ton not merely examining the ideas presented on an intellectual level, but Ton as a person engaging with the situation he is confronting. In doing so, he asks us to engage with this work, not merely as intellectual readers, but also as persons. This is an important corrective to much of the tradition of educational research, which has striven to be "objective" and thereby disconnected from education.

As I look at Ton's work, I see still more persons involved: those for whom Ton advocates. Notice carefully that Ton does not consider merely "students" but instead "persons". While a person may be a student today, to consider the person as only a student is to attempt a reductionism of the person, and Ton largely manages to avoid that. Likewise, Ton considers learning and teaching not as things in themselves, but as parts of larger historical and social processes. (I suspect Whitehead would be pleased with these turns.) I think that this is an important step towards actually recognizing – and (dare I say it?) preferencing – the dignity of the human person both as researcher and researched.

Once we recognize researcher and researched as persons, we must recognize the connections between them. Stories, as told by the researched and retold by the researcher can not fruitfully be separated from the persons who tell them. Further, as persons, researchers and researched are vitally connected to each other and many other people, events, contexts, and stories; we researchers disconnect those components at our own peril. In this sense, Ton joins with one writer who is frequently cited in this work, Lev Vygotsky.

Lev Vygotsky

Lev Vygotsky is, as Ton notes (see his footnote 1) a relatively recent addition to the English-language pantheon of voices in education. Because of the circumstances of Vygotsky's life, many of his works seem unfinished. Perhaps this unfinished character allows his passion and personality to come through more than in other works of similar intellectual depth. (I believe it to be more likely, however, that it is because of Vygotsky's character, and not just because of his circumstances, but this distinction is an example of the unruliness of social science research.)

Although Ton does not cite Volume II of Vygotsky's *Collected Works*, (subtitled "Fundamentals of Defectology"), that work displays for me the combination of passion and intellect perhaps more clearly than anywhere else. In this, Vygotsky states:

The greatest mistake – the view of a child's abnormality as only an illness – has made our theory and practice subject to a most dangerous delusion. No matter what the affliction may be...we meticulously analyze every corpuscle of the defect, every little speck of disease found in abnormal children, while we never notice the gold mines of health inherent in each child's organism, no matter what the affliction may be.

It is beyond understanding why this last, simple notion has not become a scientific, practical truism... (Vygotsky, 1993, p. 80)

Setting aside the question of how much has changed (or not) in the three-quarters of a century since Vygotsky wrote these words, from statements such as these it can be seen that Vygotsky is personally involved in his work, in much the same way that Ton is. I believe that this personal involvement contributed to two things that Vygotsky was able to see so well. First, Vygotsky speaks of the need to consider the person as a whole, rather than merely a collection of attributes. Second, as any study of Vygotsky will

reveal, he is an important thinker in the history of studying persons linked with their cultures, especially in the context of educational research.

Hari Seldon

Although he certainly was not the first fictional character I had encountered, Hari Seldon – a protagonist in Isaac Asimov’s *Foundation Trilogy* (1974) – is the first fictional character whom I can remember being alive inside my head. I distinctly remember being enthralled with two notions: the notion that someone could predict what was going to happen so far in future, and that someone could give guidance to people facing such an anticipated crisis. Both of these themes have, in one form or another, followed me for some time.

Despite my infatuation with Hari Seldon, “now I know better”: Seldonesque long term predictions are not possible within a complex system, and hence the ability to leave words of wisdom for the future is truly a fiction. For much of his writing, Ton also knows better, and restricts his interventions and claims to those that are involved with very tight feedback loops, while holding forth the belief that such short time scale interventions will have a desired impact over a longer time scale. This, I think, is an important point: complexity theory does not ask us to give up our long term aspirations and float aimlessly (as if all evolutionary processes are chance alone), but instead asks us to express our long-term goals in the more here-and-now. This has enormous potential impact for teacher preparation: As much as “I love children” is a completely inadequate reason to enter the teaching profession, it is a necessary first step. The attitude expressed by “I love children” roots teaching in a long-term ideal; the trick is to express and carry out that ideal on a short time scale, each day, every day.

I think, however, that the story of Hari Seldon also indicates places where perhaps Ton has lost his way. Like Seldon, Ton attempts to provide guidance (from a distance) through crises. However, as much as I (still!) admire the attempt, I do not believe it to be possible. “Causal modeling” – that part of Ton’s work that would supposedly lead to the type of guidance that Seldon provided in Asimov’s stories – simply will not work. Kampis (1991) carefully examines the difficulties when attempting to model a system (i.e., use variables in place of observables) and his cautions and limitations apply here.

More importantly, however, is one thing that Ton implies is sort of a crisis – the replacement of face-to-face educational interaction with, for example, virtual worlds. This “crisis” has other possible resolutions, especially when seen through a complexity lens. While I am still a face-to-face person, (and I write on paper when I get stuck,) I suspect that many of my students have perfectly generative (although different) relationships online and through text. This ability of many to have relationships that I do not have is, I think, a key point.

It is well-known in complex physical systems that *tight* feedback loops are often necessary to promote the overall “health” of those systems. However, I am persuaded that social system complexity (which I take to include education) is radically different than physical system complexity, in a way similar to what Gell-Mann (1995) has termed

the difference between *complex adaptive systems* and mere *complex systems*. In a social system, cultural artifacts that become part of the “inside” of a person are much different than those artifacts as they existed “outside” the person.¹ Since all types of education – including “reciprocal learning” and “peer mediation” – are cultural devices, we can not expect them to have a static stabilizing influence on the culture over a long time. Indeed, as the culture becomes internalized, persons change, and as culture in turn is not independent of persons, the culture will necessarily be different. We can keep doing things as we always have, but the outcomes will change.²

Boundaries, Coherence, and Educational Research

My experiences and studies lead me to believe that persons and cultures, essentially, are unbounded, and all my points above, in one way or another, are about the imposition or crossing of boundaries in persons and cultures. These boundaries take many forms: restricting the long-term process to the now, constraining the uncontrollable, reducing a whole to a few parts, prioritizing the importance of some interactions over others, separating the researcher from the researched or the researcher from her writings (in a misguided attempt to be “objective”³). Imposition of boundaries is one of the conventional things we do in education and educational research. However, it must be noted that our conventional ways of thinking are conventional – and perhaps even arbitrary – and that other conventions may be possible. Ton implicitly asks us to think about possible other conventions, and in doing so, asks larger questions.

Since many of the issues raised here have to do with boundaries, we could question why we use boundaries in research. There are two benefits to imposing boundaries. First, we must limit what we look at, for we have neither the time nor the cognitive ability to make sense of everything. Second, the imposition of boundaries provides the subject of our investigations with a satisfying coherence, and this coherence gives the researcher the impression that what is being studied is a single unity, and therefore knowable.

Peter Taylor (2005) uses the term “unruly complexity” in his examination of the study of ecological systems and concludes that the tidiness we seek impoverishes our conclusions (and often harms the systems we seek to understand). Tidiness does not allow for the essential openness that is necessary for social systems to be themselves: Tidiness is excellent for progress in classical physics, but life and the living are not tidy, and it is only the mortician who can ensure our every hair is in place. (To further press this image, notice that death is *as* a type of separation that we experience is much different than the day-to-day separations that occur.) Where Ton, Vygotsky, Seldon, and the rest of us, insist on imposing boundaries, we fail to know the entity, but instead know only those parts that we study. Where Ton – and again, all of us – push past the boundaries, we are able to grow in our understanding of the entity of our attention.

¹ Even though there are problems with Vygotsky’s presentation of the mechanism of internalization, it is undeniable that things become different once they are internal to us.

² There are many more details that could be examined here, but this main point will, I think, always remain the same.

³ See Ricca, 2008 for a further examination of this point.

If pushing past boundaries is so important, it can rightly be asked why it is not done routinely. My answer would be that it isn't...yet. Our research tools, our socialization – as people and especially as researchers – all have been developed with coherence of parts in minds, and not with open-ness in mind. Is there a way to develop tools (in the Vygotskian sense) that balance open-ness and coherence? Although our current maths, models, metaphors, and meta-theories are not sufficient to do this, I suspect that we could develop appropriate tools, and I strongly suspect that the study of complexity (and works like Ton's) may provide us with a path.

And so, I suspect that my real answer to the important question I see raised by Ton's work – why don't we push past the boundaries? – is that we, like Ton, have begun. If we impose the boundary of "now" or "so far" on the answer to this important question, then it appears that we have done little, if anything. However, it is unfair to judge the now, for it bounds an endeavor – the collective wisdom of the research community – to just the consideration of some people and some time. Perhaps our attitude should reflect that of the scribe related in T. H. White's *The Book of Merlyn*, who

(c)arefully leaving some pieces of blank paper in which he was to write no longer...had concluded with the following message...'I have put into writing what I have truthfully heard and examined. And lest the writing should perish with the writer or the work fail with the workman, I am now leaving some paper for the continuation of it – in case by any chance a man may remain...to carry on the labour.' (White, 1977, p. 177).

References

- Asimov, I. 1974. *The foundation trilogy*. New York: Avon.
- Gell-Mann, M. 1995. *The quark and the jaguar*. Holt Paperbacks.
- Kampis, G. 1991. *Self-Modifying systems in Biology and Cognitive Science*. New York: Pergamon.
- Ricca, B. 2008. Enframing: The view from within. *Complicity* 5 (1), 115-120.
- Taylor, P. 2005. *Unruly complexity*. Chicago: University of Chicago Press.
- Vygotsky, L. 1993. *The collected works of L.S. Vygotsky. Volume 2: Fundamentals Of defectology (Abnormal psychology and learning disabilities)*. (J. Knox & C. Stevens, Trans.). New York: Springer.
- White, T. H. 1978. *The book of Merlyn*. New York: Berkley Books

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