# BRADLEY – How about

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# How About Tools for the Whole Range of Scholarly Activities?

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The production of digital tools and the debate about how they fit with the humanities has a long history. Much of it has the character of frustration. Many digital tools have been built, but almost all them have had little or no effect upon the humanities as a whole. This has been a theme of mine for many years (see Bradley 2005; 2009), but the phenomenon has certainly been noted by many others. Edwards reports that Martin Mueller conducted a distant reading of the titles of monographs and articles in scholarly journals to measure mainstream interest in what he terms ‘literary informatics’ and concluded that it remains a niche activity with ‘virtually no impact on major disciplinary trends’ (Edwards, 2012, 216). The 2005 Summit on Digital Tools at the University of Virginia reports, ‘Only about six percent of humanist scholars go beyond general purpose information technology and use digital resources and more complex digital tools in their scholarship’, and I suspect that no one thinks that the number is much higher today. More recently, in an article titled ‘Building Better Digital Humanities Tools,’ Gibbs and Owens note that ‘despite significant investments in the development of digital humanities tools, the use of these tools has remained a fringe element in humanities scholarship’ (Gibbs and Owens, 2012, abstract).

Gibbs and Owen present a User Experience (UX) perspective drawn largely from interviews of humanist scholars, and tool builders will definitely benefit from many of the observations that they make. However, I believe that the challenge is more fundamental than trying to find out what potential users say they want. If we are looking for a sea change in humanities scholarship driven by the uptake of our tools, we should, instead, remember two innovators who both achieved one through their innovations and who understood the limitations of the UX user-oriented perspective. Henry Ford is reputed to have said, ‘If I had asked people what they wanted, they would have said faster horses’, and Steve Jobs claimed, ‘It’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them’ (Ott, 2013). Perhaps a perspective on why digital tools for humanists are not being taken up needs to go outside of a set of (albeit valuable) UX observations.

So, if the UX perspective is not the whole story, what else is there? Here I take a different approach, centered on the way many DH toolmakers think of the word ‘tool’, and attempt to broaden this idea of tool to fit it better with more of what goes on in the humanities, and therefore to make digital tools more influential there. My contention is that we need a more fundamental rethinking of tools and their function.

I start with Ramsay and Rockwell’s observation that ‘Digital artifacts like tools could . . . be considered as “telescopes for the mind” that show us something in a new light’ (Ramsay and Rockwell, 2012, 79). The striking thing about this metaphor is that it draws parallels with a particular kind of tool—the scientific instrument. One way of seeing the assumptions that come loaded with this categorization is to look into the history of the conception of the telescope itself as a tool within science: something Malet (2005) reviews in his discussion of the early conceptualisation of telescopes in the 16th and 17th centuries. As a tool for ‘knowing’ and ‘discovery’—as something that revealed problems rather than solving them, opening discussions rather than closing them (238)—Malet claims that it became evident that, like this kind of humanities-oriented digital tool, the telescope needed to find a theoretical basis for what it did. Malet tells us of the evolution of this thinking over the 16th and 17th centuries—beginning with a view of the telescope as being essentially theoretically transparent: first as a kind of intimate extension of the eye (Malet, 2005, 245) or a kind of prosthesis for human vision (260) but eventually, starting with Kepler, to see the need for a theoretical basis that drew on optics and perspective, as to why materials seen through the telescope could be taken to have veracity (261). Of particular relevance to us is that Malet makes evident the separation of a theoretical basis for the telescope (drawn from optics and perspective) from a theoretical basis for what it revealed (such as the moons around Jupiter, or the lunar craters).1 How did these two very different research domains successfully connect with the telescope? DH toolmakers need a similar discussion: How does the theoretical basis of text analysis tools actually successfully connect and enrich discussions in the very different theoretical world of modern literary criticism?

Although viewing humanities digital tools as analogues of scientific instruments is one paradigm, there are others, and we see alternatives in James Feibleman’s (1967) classification scheme for (nondigital) tools. The closest category he has to Malet’s *tools for knowing* is his ‘tools for receptors’: the class of tools that ‘like spectacles, telescopes and vibrating membranes[,] extend the receptors’ in humans, allowing us to observe things that otherwise we cannot, or only with difficulty, experience. But Feibleman reminds us that there is a more familiar use of the word *tool* than this—tools like spades or bicycles that ‘extend the effectors’, the parts of humans that allow us to make things, things like holes in the ground or trips to the grocery store (Feibleman, 1967, 330). These kind of tools in fact fit more naturally with the more conventional use of the word *tool*, as is implied with ‘woodworking tools’ or ‘gardening tools’. Once this is noticed, we can see, perhaps, that Steve Jobs’ early classification of computers as ‘bicycles for the mind’ (see Popova, 2011) involves a very different sense of the potential of digital tools than we find in Ramsay and Rockwell’s seemingly parallel phrase ‘telescopes for the mind’.

The DH has had a significant history of tool making of this kind, too. One thinks of TuStep (2014) (for the making of sophisticated academic publications), for example, and Zotero (for the making of bibliographies), and we can see in the significant uptake of Zotero that the right tool, solving the right problem, can have a significant impact. The consideration of this kind of tool opens up a different perspective on issues, including on questions such as the UX’s *ease of use*. Are woodworking tools, or a good violin, ‘easy to use’? Do they produce results easily? If not, why is this *not* a reason that they have failed to find a user community? In fact, these tools help us to better understand the place of expertise in tool use, and its significance in the process of producing, in the hands of a master, good things from tools—an idea one can see in TuStep as well.

A third category of tools that brings significant relevant insights is ‘tools for cognition’—tools that are meant to help us think better. An extended and useful description of the idea of cognitive tools (although for the related field of tools to facilitate learning) appears in Kim and Reeves (2007), and they, in turn, make frequent reference to the idea of cognitive tools from its original definition by Netchine-Grynberg (1995). Tools for cognition are interesting because they combine characteristics of both Feibleman’s tools for receptors and effectors in potentially powerful ways. Whereas tools for effectors allow us to better execute ideas we already have in our head to produce something external to it, and tools for receptors take things outside our heads and put new ideas in our heads, tools for cognition—because the product they produce are ideas in our heads, too—form a kind of positive feedback loop, perhaps of the kind characterised by Jerome McGann as *autopoietic* systems (McGann, 2004, 200).

Kim and Reeves use mathematical notation as an example of a tool for cognition. Mathematical notation not only serves to communicate ideas (tool for effectors), but is used by the person working on a problem to help him or her struggle with his or her research: scientists put mathematical fragments in their notebooks to help them think. Perhaps mathematics is not the right tool for humanities scholarship, but scholarly writing can act as a tool for cognition, too: many scholars write notes for this same purpose. Indeed, my Pliny environment (Bradley, 2008) is meant to explore how a tool to support the writing of fragments, as scholarly notes, might help humanities research.

Scholarship in the humanities involves an interconnection of tasks that could benefit from both Feibleman’s tools for receptors and effectors, and in the task of working with the materials, involving cogitative work that tools for cognition could support. Perhaps a discussion that engages with these three kind of activities might move us better to understanding where digital tools could fit with the humanities?

## Note

## 1. For various reasons, this issue is even more evident in the history of the microscope. See Hacking (1981).

## References

**Bradley, J.** (2005). What You (Fore)See Is What You Get: Thinking about Usage Paradigms for Computer Assisted Text Analysis. *Text Technology,* **14**(2): 1–19, http://texttechnology.mcmaster.ca/pdf/vol14\_2/bradley14-2.pdf.

**Bradley, J.** (2008). Pliny: A Model for Digital Support of Scholarship. *Journal of Digital Information,* **9**(1 [26])*,* http://journals.tdl.org/jodi/article/view/209/198.

**Bradley, J.** (2009). What the Developer Saw: An Outsider’s View of Annotation, Interpretation and Scholarship. In Siemens R. and Shawver, G. (eds), *New Paths for Computing Humanists: A Volume Celebrating and Recognizing Ian Lancashire*. Digital Studies / Le champ numérique, 1(1) (13 May), http://www.digitalstudies.org/ojs/index.php/digital\_studies/article/view/143/202.

**Edwards, C.** (2012). The Digital Humanities and Its Users. In Matthew, G. (ed.), *Debates in the Digital Humanities*. Minneapolis: University of Minnesota Press, pp. 213–32.

**Feibleman, J. K.** (1967). The Philosophy of Tools. *Social Forces,* **45**(3) (March): 329–37, DOI:10.2307/2575191, http://www.jstor.org/stable/257519.

**Gibbs, F. and Owens, T.** (2012). Building Better Digital Humanities Tools: Toward Broader Audiences and User-Centered Designs. *Digital Humanities Quarterly,* **6(**2), http://www.digitalhumanities.org/dhq/vol/6/2/000136/000136.html.

**Hacking, I.** (1981). Do We See through a Microscope? *Pacific Philosophical Quarterly,* **62**: 305–22.

**Kim, B. and Reeves, T.** (2007). Reframing Research on Learning with Technology: In Search of the Meaning of Cognitive Tools. *Instructional Science,* **35**: 207–56, DOI:10.1007/s11251-006-9005-2.

**Malet, A.** (2005). Early Conceptualizations of the Telescope as an Optical Instrument. *Early Science and Medicine,* **10**(2): 237–62, http://www.jstor.org/stable/4130312.

**McGann, J.** (2004). Marking Texts of Many Dimension. In Schreibman, S., Siemens, R. and Unsworth, J. (eds), *A Companion to Digital Humanities*. Oxford: Blackwell Publishing, pp. 198–217.

**Netchine-Grynberg, G.** (1995). The Functionality of Cognition According to Cassirer, Meyerson, Vygotsky, and Wallon: Toward the Roots of the Concept of Cognitive Tool’. In Lubek, I., Hezewijkvan, R., Pheterson, G. and Tolman, C. W. (eds), *Trends and Issues in Theoretical Psychology*. New York: Springer, pp. 207–13.

**Ott, G. C.** (2013). *Why Steve Jobs Didn’t Listen to His Customers*. http://www.helpscout.net/blog/why-steve-jobs-never-listened-to-his-customers/.

**Popova, M.** (2011). *Steve Jobs on Why Computers Are Like a Bicycle for the Mind*. Brain Pickings, http://www.brainpickings.org/2011/12/21/steve-jobs-bicycle-for-the-mind-1990/.

**Ramsay, S. and Rockwell, G.** (2012). Developing Things: Notes toward an Epistemology of Building in the Digital Humanities. In Gold, M. (ed.), *Debates in the Digital Humanities*. Minneapolis: University of Minnesota Press, pp. 75–84.

**Summit.** (2006). *Summit on Digital Tools for the Humanities: A Report on the Summit on Digital Tools*. University of Virginia, Charlottesville, VA, 28–30 September 2005.

**TuStep.** (2014). TuStep Text Processing Tools. http://www.tustep.uni-tuebingen.de/tustep\_eng.html.