



The Multiliterate Autonomous Learner: Teacher Attitudes and the Inculcation of Strategies for Lifelong Learning

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Expert systems and learning networks

The promise of CALL or computer-assisted language learning has from its inception been to somehow set learners on a path independent learning. The model for doing this has changed drastically over the years. Stephen Downes characterized the evolution of this model in the talk he gave at WiAOC 2007 (<<http://wiaoc.org>> and <<http://webheadsinaction.org>>), entitled *Personal Learning the Web 2.0 Way*:

- Slides:
<http://www.slideshare.net/Downes/personal-learning-the-web-20-way>
- Audio Part 1:
<http://streamarchives.net/node/84>
- Audio Part 2:
<http://streamarchives.net/node/83>

Reduced to its essential dichotomy, the earlier models were algorithmic whereas more recent ones have become increasingly connectionist. Downes harked back to the notion of expert systems, the idea that computers could somehow be made to embody a Socratic dialog with learners, or program them into mastery of certain subject matter (e.g. Programmed Instruction, Mastery Learning). Various instantiations of algorithmic instructional models have so far failed to produce a credible expert system.

This is because, in Downes's view, knowledge does not derive from algorithmic processes but from connectionist ones. That is, apart from the most discrete learning goals (how to perform long division for example) knowledge is not linearly derived in series of if/then junctures but is pattern driven, as embodied in networks. In other words, instances of knowledge reside at nodes which online comprise distributed learning networks, and to become knowledgeable is more a matter of developing competencies for accessing those nodes and systematizing the information available there than of mechanically following algorithms down pre-scribed paths, which is what an expert system by definition has

us do. Siemens (2005 as but one example) makes similar observations in his writings on connectivism, where he asserts that the network itself is more important than the meaning it contains:

Those theorists most closely aligned with the new landscape are also those who most readily acknowledge that the process is one of coming to know, rather than of knowing.

And this dichotomy lies at the heart of autonomy for a new age of learners. If autonomous learning is akin to teaching people how to fish (as opposed to fostering dependencies on feeding behaviors) then a cutting edge knowledge of how one fishes for information in distributed learning networks (e.g. on the Internet) is crucial to staying afloat and healthily sustained in the quest for autonomy in any kind of learning, not just language learning. Fishing for information in this day and age entails, among other multiliteracy skills, a working knowledge of syndication (RSS), aggregation, tagging, and folksonomies (the taxonomy of tagging), and using these in conjunction with knowledge derived from discoveries percolated through communities of practice. Therefore a working knowledge of tools facilitating contact and collaboration within distributed learning networks is paramount, as described for example in a recent article by Dieu and Stevens (2007).

Multiliteracies and Paradigm Shift

As these concepts are relatively recent developments in a fast-changing world of information surfeit and dissemination, where notions of multiliteracies and transliteracies are emerging to characterize the competencies required for effectively coping and communicating in the 21st century, many teachers in the digital immigrant generation (Prensky, 2001) are simply not keeping up. Many teachers still conceptualize technology as working along the lines of an expert system, something that can be purchased

shrink wrapped and which students can be plugged into for learning outcomes to be realized. This may work in some cases for short-term learning goals but not as a strategy of great value towards attaining competencies directed at lifelong learning.

This is but one of the many paradigm shifts that teachers in particular are having to grapple with as we head inexorably into the 21st century. I say teachers in particular because there are so many of us who are of the age where we can recall when using computers to develop learning algorithms was state of the art, before Internet became ubiquitous. Now that Internet is for the fortunate few 'always on' the greatest potentials for technology in learning are rapidly shifting to connectionist models. The challenge for teachers, especially those whose use of technology has lagged behind latest developments, is being able to switch mindsets away from the expectation that computers should provide solutions to problems in education in algorithmic ways.

The expert model is intuitively understood by a generation brought up on western scientific logic, and such logic does not readily suggest nor accept network solutions. To Cartesian-logical minds, network solutions might appear counter-intuitive *until experienced*. How, for example, can a wiki work unregulated and 'bottom up' to create an encyclopedia that is in many ways superior to the traditional 'top down' authoritatively published ones. Yet wikis and other social networking tools have had startling impacts on constructivist learning when applied appropriately in educational contexts. Their benefit to learning, says Downes, is beyond articulation or description, but is rather, ineffable.

Who are the new learners?

Meanwhile, a younger generation of learners is emerging which is increasingly liberated from 20th century mindsets. Lawrence Lessig (2006) created a buzz recently when he contrasted the read-write 21st century with the read-only 20th. A similar notion was conveyed in Time Magazine's declaring You as being the person of the year (Grossman, 2006). Lessig's contention is that the 20th century was a pendulum swing toward concentrating power in the hands of the few who controlled media whereas the new century is seeing the pendulum swing back to power being restored to the voices of the many who have taken back control of the *new* media. This is the context in which today's learners are experiencing social networking as a matter of course. They are the digital natives, the twitch generation (Prensky, 1998), the ones who are in increasing numbers being born into households where Internet is as common as TV was to the current generation of teachers. The expectations of these digital natives is such that, when confronted with last-generation mindsets, another of Prensky's mantras might apply: enrage me or engage me! (2005). Or

worse, antipathy - teachers who fail to adapt could be regarded as irrelevant.

Or even *worse, detrimental*. There is anecdotal evidence to suggest that teachers who do not model appropriate uses of technology predispose their students to avoid technology in turn, whereas teachers who use technology in their classes positively influence their students to experiment with technology in finding solutions requiring them to apply their skills as autonomous learners and problem-solvers.

One bit of support for that is from Cheri Toledo's (2007) presentation at the recent Future of Education online conference. Kathy Clesson (as heard on the recording) said that she found in her district that students whose teachers used CMS's and Web 2.0 tools in their teaching tended to be the ones whose students became most comfortable with using technology in their ongoing teacher training whereas an avoidance by teachers of technology tended to harbor concomitant discomfort and avoidance in their students, who did not feel that technology was very relevant to their work.

Relating this to learner autonomy

Autonomous does not mean isolated or 'by oneself' - an autonomous learner is one who self-starts him/herself in the direction of a learning strategy in which, these days, a learning community might figure highly. Therefore learning strategies leading to community and network building might be productive in producing autonomous learners, some of whom would also work as teachers. It stands to reason that one who prepares others to be lifelong learners should him or herself be one. We can find models of behaviors we would like to impart (to students) in teachers who take advantage of as many learning opportunities as are available in their distributed learning networks which they nurture and explore (i.e. are themselves autonomous vs. those who complain of too few opportunities for professional development when in fact such opportunities abound from no matter where in the world we are, online, which suggests that such teachers are either working under critical duress or are themselves not particularly autonomous).

Teachers who explore and exploit the many opportunities for interaction with peers in the online environment are much more likely to adapt the techniques they themselves use for professional development in their own classes and thereby MODEL these practices for students. As Downes notes in slide 22 of the presentation that has sounded the tonic chord for this article, "To *teach* is to *model* and to *demonstrate*. To *learn* is to *practice* and *reflect*."

It is possible to conclude that teachers who practice autonomy in their own professional development formulate heuristics for harvesting knowledge within their personal learning spaces, and thus stand a better chance of inculcating the desired behaviors in their students, thus increasing the likelihood of producing potentially autonomous and

lifelong learners. But it is a percolative process. In order to teach (to model and demonstrate) one must constantly learn and re-learn, and this means that one must practice the behaviors one models (how else to model them?) and reflect on the ramifications of those behaviors, as we do in writing and reading this article, from each of our nodes connected to one another through our interlaced learning networks.

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