

Technology in Social Practice: Returning to Dewey's Conception of Learning

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Introduction

As we think about the changes that the next century may bring in educational practices, many of us turn to new information and communication technologies. Typically, we identify one of three major reasons for the focus on these new technologies:

- One is that these new technologies promise ways to transform education by offering vast resources for learning, and new tools to support inquiry throughout the curriculum; thus, we see the opportunity to learn *through* new technologies.
- A second reason is that intelligent participation in the coming era requires an understanding of the ways that these new technologies are transforming industry, health care, science, language, international relations, and everyday life; thus, we see the need to learn *about* new technologies and the ways they permeate life.
- A third reason is that economic success in the information age society appears to demand new skills and new ways of making meaning; thus, there is the need to *learn* (to use) the new technologies.

In sum, there is a parallel to Michael Halliday's famous formulation about the reasons for the centrality of language study in schools: We need to learn through technology, to learn about technology, and to learn technology.

As we delve deeper into the question of human-centered design for education, some seek to understand characteristics and implications of specific types of new technologies: computational visualization, remote instrumentation, intelligent agents, MOOs and MUDs, collaboratories, telementoring, image processing, virtual reality theaters, embedded systems, speech recognition/generation, intelligent tutors, digital video, and so on. This future-oriented strategy is a necessary component of assessing what capabilities the new technologies afford.

However, there is a past-oriented strategy that may be more revealing about the shape of future educational practices. This abstract suggests some ways in which re-examination of foundational ideas in education may provide crucial insights for efforts to expand and transform education in the coming age.

The Re-Turn to Dewey

Although John Dewey wrote in the early part of the 20th century, not the much talked about 21st, his thoughts seem increasingly prescient. As John McDermott (1973, p. x) writes,

his work maintains a creative vitality...the paradox is that Dewey achieved this vitality, not by having written for the future, but rather by writing out of his own present experience...he believed that ordinary experience is seeded with surprises and possibilities for enhancement, if we but allow it to bathe over us in its own terms

This vitality is seen in the fact that many people working to construct technologies for learning now cite Dewey, primarily in terms of his advocacy of learning by doing. They propose models for learning based on immersion in emerging practices of the larger society. This approach would certainly find some support in the progressive education movement that developed from some of Dewey's ideas, but his contribution to the construction of 21st-century education may go much deeper.

To see this, we first have to understand what Dewey does not say. He wrote little about technologies per se, which may be one reason that his work appears to some to have little relevance to current discussions about 21st-century education. In fact, he did not even have much to say about the dominant educational technology of his day: the book. Despite being a great scholar and the author of many texts, one has to search to find references in Dewey to books as educational tools.

The well-known references to books in Dewey are implicitly negative. For example, in a discussion of subject matter, which may be taken as a proxy for books, he (1902/1956, p. 20) says, "The map is not a substitute for personal experience. The map does not take the place of the actual journey." In other words, personal experience is at the center of education, not subject matter. There is a role for subject matter: It is to aid in the development of experience and to aid the learner in extracting deeper meaning from future experiences.

What would Dewey have thought about the World Wide Web? Some researchers argue that the new interactive and collaborative learning models delivered through the web and other media contrast with the inadequate models of the past that Dewey clearly opposed. Thus, they see a neat equation of

Dewey = constructivism = learning by doing = interconnected, interactive webs of new technologies = 21st century education = good

standing in opposition to

textbook-based = subject-matter driven = stultified teaching of the past = bad

As appealing as this opposition might be, it suffers from three problems. The first is that Dewey might well have applied his critique of book-learning to all the new technologies now being proposed as mechanisms for transforming teaching and learning. Dewey would have asked whether ordinary experience had been eliminated as the foundation for learning, and if so, whether the result could be anything but hollow. If, as he claims, education is the search for the structure of experience, then even the most exciting technological interaction might have little meaning in the student's lived experience.

The second problem is that the opposition trivializes Dewey's philosophy and thereby misses the insights that his work does provide for thinking about new technologies and education, and

more broadly, for social informatics.

The third problem is that without specifying the relations among subject matter, media, activity, meaning construction, and experience, the simple opposition obscures what may truly be transformative about the introduction of new technologies for learning.

Insights for Future Education from Dewey's Philosophy

This talk will touch upon five areas in which Dewey's work can inform our investigations into the potential for new technologies in education:

- Learning through technology, about technology, and of technology. Why do we use new technologies for learning? Judging from the statements of national leaders, school administrators, corporate sponsors, and parents' groups, this is a non-question. The only concern is quantity: How fast can we get as much technology as possible into the schools? Challenging us to reflect on what we do, Dewey would ask us to pause to think more about how learning *through* technology serves as a point in the development of experience. He would value learning *about* technology, especially if that were through participation in authentic social practices that use technology. On the other hand, he might question *learning technology* if that were conceived merely as preparatory to later life.
- The perversity of change. Why do we so often discover that new technologies remain underused, misused, and unused? Journal articles sometimes describe in great detail one classroom in which marvelous learning occurred through the use of some new system, but they fail to mention the 10 teachers who merely rewrote their current methods in a new medium, the 100 who knew about the system, but failed to use it at all, and the 1000 who were not interested enough to learn anything about it.

In a 1949 book, Dewey and Arthur Bentley articulates the idea of *transaction*, which provides one way to think about this problem. Rather than conceptualizing the technology as a discrete object that interacts with a social system, they would want to understand the way the technology participates in an organic relationship with a living social practice. As opposed to interaction, transaction moves us away from questions such as "What are its effects?" toward questions such as "what processes of change are occurring in the social system encompassing this technology?" (Bruce, 1997).

- Resources for learning. What are the best resources for learning? Dewey characterized the "impulses" of the child as the true resources of the school (Dewey, 1915/1956). These include the impulses to communicate, to construct, to inquire, and to express. If they are the fundamental resources for learning, as opposed to teachers, texts, labs, or computers, then attending to them may give us a deeper understanding of the roles new technologies can play in education.

Using new communication and information technologies, teachers and students are discovering more ways to communicate with others, to make things, to learn about the world, and to express themselves. Their discoveries point to exciting possibilities for learning today and in the new century. Classroom-based research

has shown how important it is to understand new technologies in the context of what is known about how people learn (Bruce & Levin, 1997).

- Learning as a social phenomenon. Where do new technologies fit in the social world of schooling? Another result of situated studies has been to show how *realizations* of a technologically-based innovation vary tremendously depending among other things on the teachers' goals, students' previous experiences with computers, the available support, and the school's policies with respect to assessment and curriculum. One teacher may use a word processor to create practice lessons on punctuation while another may develop a year-long theme study that relies on extensive student writing and revision for publication. These great differences say that the teacher's creative role is vital to the successful use of new technologies. As Gregory Abowd says in his abstract, it is "much more important to that we understand how people are using Classroom 2000 [than to] push for controlled experiment."

Another result of situated studies of new technologies has been to show clearly how technologies rarely produce simple, one-step changes. Instead, changes occur over long periods, as teachers and students develop enlarged understandings of what the technologies can do. They need time to integrate new tools into existing teaching and learning practices.

This research has also shown that the richness of the new technologies the access to vast resources on the World Wide Web, the powerful new media, the interactivity- can sometimes lead to a focus on content or methods in teaching, with less attention to individual learners, thus manifesting Dewey's map in place of the territory. Simply using computers or connecting to the network does not ensure that teaching is easier and more effective or that students will be automatically well-prepared to live in the 21st century. Instead, making good use of new technologies increases the demands on teachers, at least initially. Educators face major challenges to use these technologies effectively to expand the possibilities for learning.

- Learning and life. How can we think about the apparent conflicts between the classroom and the workplace, between learning for today's needs versus tomorrow's, between using the technologies of today and those likely to appear in the future (also see Gerhard Fischer's abstract)? Dewey could not have told us whether learning to program in Basic was a good use of student time in the 1980s, but his conception of lived experience as the search for the structure of experience does tell us why the conventional view of schooling as preparation for life is inadequate. A deep understanding of this would lead many to reconsider some of the new learning demands placed on teachers and students.

References

Bruce, B. C. (1997). [Literacy technologies: What stance should we take?](#) *Journal of Literacy Research*, 29 (2), 289-309.

Bruce, B. C., & Levin, J. A. (1997, in press). [Educational technology: Media for inquiry, communication, construction, and expression](#). *Journal of Educational Computing Research*,

16(3).

Dewey, J. (1956). *The child and the curriculum & The school and society*. Chicago: University of Chicago Press. (Original works published 1902 and 1915)

Dewey, J., & Bentley, A. F. (1949). *Knowing and the known*. Boston: Beacon.

McDermott, J. J. (1981). *The philosophy of John Dewey*. Chicago: University of Chicago Press.