Chapter 2: Meanings of "Ubiquitous Learning"

This collection invokes the term "ubiquitous learning." Here I would like to examine the different meanings this expression might have--different kinds of ubiquity, and in relation to that different ways in which we ought to rethink teaching and learning.

The most ordinary meaning is captured in the expression "anytime, anywhere" learning. In contemporary markets, the instantaneous and highly customizable availability of services and information is becoming a standard branding device. This ranges from being able to send and receive text messages from your cell phone, to 24/7 customer service hotlines. In education, so-called distance education, or online programs, are frequently marketed around the convenience of asynchronous and flexible class schedules, allowing people to study and complete assignments on their own timetable. This has led to a broader shift in attitudes toward such courses and programs, in which students-as-customers expect an even higher degree of customization and accommodation to their preferences, not only in terms of scheduling. As customers, they know they can take their business elsewhere.

In this essay, I want to press the idea of ubiquitous learning beyond an "anytime, anywhere" marketing slogan, and to suggest six interrelated dimensions along which its meaning can be fruitfully extended.

First, there is a spatial sense of ubiquity (the "anywhere" half of the previous slogan). In developed societies, digital technologies are always around: not only in computers and other overt computing devices, but in cars, in public kiosks, and so on. Regional wi-fi means that Internet access is only a click away, wherever you are. Constant access to information, however, also entails that others have constant access to *you*. Citizens and workers, in developed urban areas particularly, are situated in networks that make them available to others--whether they choose to be or not. The dystopic implications of these trends have been played out in popular films like "The Net" or "Enemy of the State," but at the same time these trends reflect an increased public tolerance, if not even expectation, of perpetual digital presence. A colleague of mine had his computer bag stolen in a hotel in London, and within hours he held in his hands video printouts of the act taking place – while other surveillance cameras recorded the thief as he got on a public bus, rifled through the contents of the bag, and got off a few stops later. In a post-9/11 society, more and more people interpret this state of surveillance as increased security.

From a learning standpoint, spatial ubiquity means continual access to information to an extent that we have never witnessed before. The traditional distinction of formal and informal education is blurred once we recognize that physical location is no longer a constraint on where and how people learn; the processes of learning and memory themselves may be changing as people are less required to carry around in their heads all

that they need to know to get through a day effectively--if you need something, you can always look it up. I will return to this theme later.

Second, there is a portability aspect to ubiquity: handheld computing devices, even "wearable" devices, are becoming more commonplace. Portable devices *can* be always with you--which tends to establish and reinforce a social expectation that they *should* always be with you. The portability of these devices, in turn, creates new kinds of social practices--young people who no longer wear watches but use their phones to keep track of time; the many uses and conventions of text messaging that are created simply by virtue of the expectation that others will be constantly online and available. A program in Ireland, intended to help young people learn and preserve the Celtic language, gave them free phones with grammar and vocabulary software loaded on--the instructors wanted to be sure that wherever they were they could immediately access linguistic information, and it made more sense to use a device that young people would always have with them, knew how to use, and which was already seamlessly integrated into their daily social and linguistic practices. (Of course, they were constantly using the phones as phones too.) I cannot think of a better, simpler encapsulation of the principles of ubiquitous learning--in this case, learning reinforced by portability and practical integration into the activities of daily life.

Third, there is ubiquity in the sense of interconnectedness. Automobiles now come equipped with GPS systems and dashboard devices that can tell you where the next gas station or hospital is. Driving on the highway, you can find a hotel, estimate your arrival

time, and book your reservation while you are still 500 miles away. "Smart homes" connect relevant devices together to share information; or you can turn off your coffee maker with your phone without returning home.

For the learner, this interconnectedness creates an "extensible intelligence," extensible in two related senses. Technologically, one's knowledge, memory, and processing power are enhanced by constantly available devices that can supplement and support what we are able to do in our own heads. Socially, one is perpetually in contact with others who may know things or be able to do things that we cannot do ourselves. In a real sense a person can be smarter because they have access to networked intelligence, whether it is technologically or socially distributed, or both. Educational agencies, from all age levels, have yet to come to grips with the question of what knowledge, skills, and capacities people *do* still need to carry around in their heads, and which ones may be less necessary than they used to be. What is necessary knowledge for the future, and what does this portend for the standard views of curriculum?

Fourth, there is ubiquity in a practical sense: how new technologies blur sharp divisions between activities or spheres of life that we have traditionally viewed as separate. Work/play, learning/entertainment, accessing/creating information, public/private are distinctions that conceptually might never have been as clear-cut as our usage suggested them to be; but for a host of social and cultural reasons they are becoming increasingly untenable as sharp distinctions today. These changes are not all technological in nature, at least not directly so: changes in popular culture, in the nature of work, in the structure and

activities of home or family life, and so on, have brought with them a host of different expectations and ways of thinking about where, how, when, and why learning takes place. It is not just that the traditional monopoly of those places we call schools, and those times we call "class periods" as the sole or even primary sources of learning, is being challenged. More substantively, the entire economy of attention, engagement, and motivation to learn needs to be rethought. Learning as a practical human activity, which is always embedded in a wider network of social and institutional contexts, needs to be seen in relation to a new set of genres and practices.

"Virtual" learning environments need to be understood not primarily in relation to technologically based "VR" experiences, but as immersive learning places in which creativity, problem-solving, communication, collaboration, experimentation, and inquiry support a fully engaged experience. These "places" are virtual not by virtue of any kind of "synthesized" reality, as that is normally understood, but in relation to dynamics of interest, involvement, imagination, and interaction that support an active engagement between a learner and a learning environment. "Ubiquity" is a different issue from "virtuality," but they intersect at the point where immersive learning activities are fully integrated into a flow of practical doings, where there is no separation between action, reflection, and inquiry. New digital technologies, as I have tried to show, can play a crucial role here; but the larger shift I am describing is not itself dependent on any technology, but rather a shift in thinking about how structured learning opportunities can be made meaningful and relevant to learners.

Fifth, there is ubiquity in a temporal sense; the "anytime" dimension of anytime, anywhere (which is of course closely linked with spatial ubiquity and constant interconnectedness). But this temporal shift goes beyond the simple language of "24/7" availability; it reflects a *changed* sense of time. The use of recording devices to "time-shift" television shows, and the growing prevalence of asynchronous modes of communication (for example, in online education programs), reflect a certain customization of scheduling. This yields different expectations and practices that change one's subjective relation to time--of trying to conform the timing of events to one's habits and preferences, and not only vice versa. These new and varied rhythms suggest a different relation, in turn, to learning opportunities--easy availability and convenience, but also a pacing and flow that are more continuous, that allow "stopping in" and "stopping out" at different moments. Every moment is potentially a learning moment, not only in the quotidian way in which that was always true--but in the sense of structured, intentional learning opportunities, more seamlessly integrated into the routine practices of home, work, and entertainment.

Another, related sense of temporal ubiquity involves the idea of "lifelong learning," but now instantiated in a new way. Generally this term refers to principles of adult and continuing education; but in the present context it expands to mean the truly perpetual availability of learning opportunities and a changed set of expectations about *continual* growth and development of skills and knowledge. It is almost a cliché now to talk about frequent career changes, the need to upgrade skills and knowledge even within an ongoing career, and the shifting demands of a knowledge economy. But "lifelong

learning" here means something more: it means that learning is not relegated to a certain age or time, a certain institutional setting, and a certain set of externally oriented motivational structures. Rather, in this changed world view, *to be is to learn*.

Sixth, there is ubiquity in the sense of globalized, transnational networks and "flows" (in Appadurai's sense): flows of people, information, ideas, and so on. One is never simply where one happens to be; one is also situated within a set of relations and contingencies that affect, and are affected by, these increasingly global processes. Learning for a global future, therefore, involves more than having email pen-pals in another country, going on tours or exchange programs, or learning about the customs and exports of exotic, faraway places. It is coming to recognize the fundamental interconnections among disparate people, places, and processes, and the ways in which these influence and constrain even apparently local and individual choices.

In the picture of education I am sketching here, the nature and activities of schooling will have to change. It means that traditional boundaries need to be broken down in both directions: not only sending out new and different kinds of "homework" home with students, but bringing *in* to the classroom activities involving other learning tools and resources that have not typically been seen as part of schools. Schools, and teachers in schools, need to think of themselves not as the sole (and perhaps not even the primary) source of learning for many of their students--especially students above a certain age--but as *brokers* of a certain sort.

The school, in this model, is a kind of hub: a place that brings together, coordinates, and synthesizes disparate learning resources. The "spokes" radiating out from this hub are the connections to other learning places and activities; many of them largely if not entirely separate from the control or influence of educators. But where educators do still have influence is in helping young people evaluate and integrate the varied learning experiences they have in these other, less-planned environments. Educators also have an important role to play as equalizers between those students who have a tremendous range and number of such opportunities outside school, because of their family situation or location, and those who have far fewer opportunities. In a system of mandatory education, the school is still the one common learning place that students share; and this gives it a unique and important responsibility, compared with other learning places. But starting from this premise yields a different basis for planning about what needs to take place there, one that links school aims and activities much more fundamentally to learning that is taking place elsewhere.

Readings and References

For further reading on ubiquitous technologies, and some of their implications for learning, see Abowd and Mynatt (2000). For more on the notion of "anytime/anywhere" learning, see Bruce (1999). For more on rethinking the "virtual" as a learning space, see Burbules (2005).

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