Stealing Our Smarts: Indigenous knowledge in On-Line Learning

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Abstract

Tell me what you know... Knowledge and knowing can be a very tricky thing. Reflect on what you are fairly certain that you know. *Self-certainty in human knowledge is a function of metacognition primarily. This paper addresses how we know what we know about the most primal and fundamental functions in our everyday lives, and equates the ways in which technology has invaded such spaces as romance to the ways in which technology has begun to infiltrate our own understandings of learning. Through an examination of indigenous knowledge, also thought of as folk knowledge, but meaning that knowledge which is resident within the learner themselves, this paper asserts that we need to move to more of a user-design (Carr, 1997) approach to online learning design and development.*

Introduction

The notion of indigenous knowledge as I am using it, is that knowing or understanding that is resident within all of us, and particularly the sort of fundamental knowings that we think of as primitive, ordinary, or folk. The title of this paper is intentionally evocative, asking you to reflect on the ways that the postmodern society has created insecurity, instability, and even condemnation of your and others' indigenous knowledge. If we recognize that those in power wish to maintain power and that indigenous knowledge, or even more the true trusting and confidence in one's own indigenous knowledge undercuts that power, we will then understand that the powerful within a culture can steal the smarts of the weaker. Technology has offered the perfect vehicle for that theft by opening a new source of insecurity in those of us with limited knowledge of any technology. I hope I am able to argue this thesis effectively by pointing to many cases in which we see a clear undercutting of indigenous knowledge

What is unshakable for you? Faith? Religion? Spirituality? Science? Technology? Maybe it's technology that you're sure of. They say you can always spot the educational technologists by the stars in their eyes you know...we have faith in technology. And science isn't far behind. We believe in the numbers, in the science, statistics are compelling. An unreasonable faith in science becomes like a religion; we call it scientism. Our unquestioning faith in these things robs us of the value of intuition, instinct, personal perceptions, insight.

But let's go back to what you know. Perhaps you feel comfortable saying you truly know a few more mundane things, like how to use a microwave, how to cast a ballot in an election, or how to locate information on the web. Do you know those things? Are you confident that you know how to use a microwave? All microwaves? Without the aid of a user's manual? Do you have a certain intuition that guides you through the process of finding something on the web? Do you gather tips from friends, do you have a book entitled "Google for Dummies?"

Do you know something even more basic, how to talk to people, how to communicate, how to build relationships? Do you know how to woo a mate? How to date? How to find your perfect match—your soulmate? The perfect woman? "The Stepford Wives", a movie made popular by its star Nicole Kidman, illustrates the ways in which technology can be used to fix the most common of problems in our everyday relationships. Stepford wives are created when men place their wives in a special machine to make them not only more beautiful physically, but more importantly to implant a few nanochips into their brains to help them overcome their tendencies to be unhappy, disgruntled, and demanding.

Now obviously Hollywood USA does a good job of trying to make this situation seem impossible, ridiculous, but it raises a serious question. To what extent do we look, in our everyday lives, to technology to solve our problems? In "The Stepford Wives", direct brain manipulation is involved—it's one of Hollywood's favorite themes as we'll see later. Learning is reduced to simple brain manipulation in learning how to be a proper wife. This "re-education" is a total brain transformation, avoiding all that messy hard work on habits, psychology, interpersonal relationships and so forth. It may amuse us, but does it suggest again that technology, science and the experts at Microsoft, Disney and AOL can solve our real world everyday life problems?

Well, outside of Hollywood experts do have solutions for many of our life problems if we choose to accept their help. There is a website, e-harmony.com that helps you find your soulmate. For some reason the old-fashioned process of dating doesn't jibe with high tech postmodern social needs. While some communities have relied on matchmakers for generations, the good ones were part of the community and knew all the people and their families in a given community quite well. But e-harmony promises to find you a mate through "scientifically proven compatibility matching." Their website tells us all we need to know, "Surprisingly," writes founder Dr. Neil Clark Warren, "Surprisingly, a good match is more science than art. Dr. Neil Clark Warren (by the way that Dr. title is important) has shown that the compatibility of romantic partners can be measured. Our compatibility matching system matches you taking into account the 29 key dimensions that help predict compatibility and the potential for relationship success."

There are some very important key indicators of an overreliance on science here. First, we ask the Dr., we go to the higher authority. Anyone who has a doctorate must be most qualified and most expert in the topic and therefore *entitled* to advise us. This overreliance on science and expertism has led to massive increases in specialization because it is through narrow expertise that power is gained. Our global society has become increasingly fragmented in the face of disciplinary specialization. Complex systems theories and the International Society of Systems Sciences are examples of the opposite force— attempts at unifying principles and broad connecting systems theories. However, these movements are not surprisingly relatively small and to this point have proved powerless against the raging specialization present in most of our universities and other social systems. The tendency in our institutions all over the world today is continuing toward narrow disciplinary focus. Professor John C. Doyle (2004) remarked during his International Plenary Lecture to the SICE Annual Conference,

"Modern fields of science and engineering have evolved remarkably high degrees of specialization. The present division of intellectual labor is structured by the assumption that complex systems can be "vertically" decomposed into layers of materials and devices versus the systems they compose. A further assumption is that each layer is further "horizontally" decomposed …. A central cause of the fragmentation of complex systems into isolated subdisciplines has traditionally been the inherent
intractability of problems that require integration of, say, communications, computation, and control. An increasingly troublesome side-effect is a growing intellectual Tower of Babel where experts within one subdiscipline can rarely have meaningful contact with experts from other subdisciplines, and may even be largely unaware of their existence."

I think this is a very apt description of our problems at the moment. We have a difficult time making significant organizational changes because of the fragmentation inherent in our current institutions. And to sacrifice our fragmentation would be to sacrifice both individually and corporately our identities. We have increasingly become "that person who studies a specific bug from the Amazon." However, our problems are intractable in
the face of this fragmentation. It is only through some form of dynamic, complex, linking science such as systems sciences as understood as a unifying science from von Bertalanffy, that we can seriously approach difficult whole problem solutions. These are life's "wicked" problems. And they are informed, still, more by experts than by indigenous knowledges.

Hollingsworth (1984) agrees. He writes in 'The snare of specialization', published in *Bulletin of the Atomic Scientists:* "Indeed, the disciplinary fragmentation of the modern university is a major barrier to the theoretical advancement of the study of institutions and innovations as well as most other hybrid fields of research. And it will be only as a result of effective communication *across* diverse fields of knowledge that our study of institutions and innovativeness will be effectively advanced." (p. 37).

So this fragmentation has led us to feel that there are experts in absolutely everything from the narrowest of our problems, to wider problems, to personal problems, where we probably should be relying on our own ideas, thoughts, intentions, and intuitions. Because there are experts on average walnut tree wood production, and canine corneal dystrophy, we believe that there should certainly be experts who can help us with our broader problems as well. So we look to the good Dr. to help us find a compatible spouse.

You'll note, also, in the e-harmony example that there is a science of compatibility. Really, a science of compatibility? Are they serious? It sounds too frighteningly close to Stepford for comfort. Why would we need to rely on a science for something that we can easily figure out when we choose our friends. We know when we like someone, and when the lower stakes of friendship are on the line, we generally don't ask others for a science of friendship compatibility to help line us up with our 24 friendship typologies ensuring trouble-free friendships. We accept, in our friendships, that sometimes we have good friends, friends we find for ourselves, that we are compatible with. We can also accept that sometimes friendships fall apart, and it hurts, just as it hurts when relationships of any sort don't work out. But we can't wrap ourselves in science and protect ourselves from hurt, or can we?

This science of compatibility that e-harmony.com extols has two key features, it's a *system* and it's *measurable.* I don't know if you've noticed it or not, but as a systems theorist, I've been stunned by the proliferation of systems in our world. Did you know there is a dental flossing system, picture framing systems abound, and we are all painfully aware of phone payment information systems. So a system, for most people, and apparently for all marketers, is simply

something that has more than one piece, part, or component. In hard systems language, we do expect that there is a fairly strict reliance on the input, process, output model of a system. The definition, then, of a system is something that has several components which work together to process some input and create some output. Examples of systems of this sort are everywhere. A car is a system, a camera is a system, even our bodies are systems. But these systems are mechanical systems. Like clocks we understand these kinds of systems as relatively straightforward mechanisms. In general, if you know what you're doing—there is that call to expertise again—you can take out an ill-functioning part of a mechanical system like a motorcycle, and repair or replace it and the system will run again. However, we have seen that this works well in the mechanical world and have erroneously assumed that this same model will work in the other systems in our lives...the social systems, the more chaotic physical systems such as our bodies (Capra, 1982). We have decided that the body, for example, is a mechanical system like a clock, but because the system is complex and dynamic we discover that the expert advice isn't always more sound than holistic forms of medicine. Thus, our years of schooling are rarely a true match to the generations of indigenous knowledge shared among communities about healing. But marketers know that we'll fall for the scientism of systems every time, and they use it to their advertising advantage as often as possible.

At the same moment, we understand measurement to be a critical part of any scientific system. What's interesting is how many of us already know that measurement doesn't
work the way that scientists want us to believe it does, and yet we continue to rely on numbers as if they were significantly superior to stories, feelings, intuitions, anything that is personal as opposed to objective. Most recently, US President, George Bush has cut the funding entirely for a program called "Evenstart." This program benefits low income non-English speakers with a learn with your child approach to literacy. But three studies showed that Evenstart doesn't work, according to the Bush administration. What is hidden in this rhetoric is an understanding that the Bush administration has defined science in a particular way, which tends to benefit conservative causes. Science is not an unbiased energy in our world, it can easily be manipulated. Some of us debate the extent to which even numbers themselves ARE in any way objective, we've all heard "Numbers don't lie" and we've also all heard, "You can make the numbers say whatever you want." Actually both are probably true, the numbers do not lie, it's the way that people manipulate them that can create misleading or downright disingenuous results and consequent conclusions.

The recent US election was so incredibly tight that numbers were flying around like mad just days before the election. Did you know that the outcome of the election year Redskins NFL football game has foretold the outcome of the election since the 1930's? They came out in favor of Kerry, meanwhile, the Scholastic publishers children's vote has also accurately predicted the outcome with their vote for decades and they came out in favor of Bush. When skirt hems go up, democrats are elected, when the stock market goes down the democrats are elected, and when more Halloween masks of a certain political candidate are sold, that candidate, in this case Bush, wins the election. Most minivan drivers vote Bush, sedan drivers vote Kerry. All of these statistics--I have to wonder who is keeping track of them, and why. But given our layers of disciplinary specialization, there is probably an academic somewhere in the world who's job it is to track and study bizarre election statistics through the use of a bizarre election prediction *system*.

Measurement is ultimately meant to be about accountability. At the very least it is about
accountability when numbers are applied to education and learning in particular. We have accepted as a society standardized test scores over stories

of learner progress as reported by teachers and parents. Teachers and parents who actually know the learner are not trusted, instead we accept that statistics and the standardization of examinations is more objective, and therefore worth more. We can rely on these numbers for decision-making and to assess the teacher's ability to do his job. I was amused a few years back by an article I reviewed for a journal in which the independent variable was "learning per second." How precisely that was measured was not entirely clear. But it is what held the software program being examined accountable for effective learning.

Measurement and systems are part of the over reliance on expertism in our educational landscape. And online learning is certainly no exception. In fact, we rely on expertise so much more than we even begin to realize. We have been very slowly lulled into a position where we rely less and less on our own smarts, our own feelings or beliefs about how the world works, and increasingly more, every day, on the statements of experts. The statistics overwhelm us on 24hr. news, or in self-help books.

All this science may not lead us down the right road. My friend, Dr. Ian Baptiste , a professor of Adult Education would say that our indigenous knowledge, that is our intuitions and internal smarts are not being stolen, but rather that they are structurally given away. But I'm afraid I disagree with Ian. In fact, while in some cases we are lulled into accepting science where our own sensibilities already tell us perfectly acceptable answers, in many other cases it is ripped from us.

 "The God's Must Be Crazy?" is a rather amusing South African film which has a bit of a cult following. The premise of the movie is that the God's were crazy for sending a tribe only one Coke bottle, which fell from the skies (in this case out of a low-flying, single-engine airplane). The movie does a fantastic job of describing two very different cultures closely co-located—an indigenous tribe with little outside contact, and modern industrial or post-modern man. The movie highlights, for example, the ways in which each "tribe" has adapted or not adapted and the results of these approaches. Because the tribal approach to rearing children is never to speak harshly or punish a child, their games are inventive and they are well-behaved. Their world is relatively easy to negotiate and understand and so they learn what they need to from their elders without much fuss. Industrial man on the other hand has so completely complicated his world that dynamic systems of discipline are necessary to keep up with children's boundary needs and they are "sentenced to 10-12 years of schooling to learn how to live in the dangerous world" their elders have created. These contrasting images, are, of course, romanticizing tribal life, but they also make an important point about postmodern existence and the ways in which the world has become a complicated place that forces us into a position of needing experts on many components of our very existence.

Indigenous knowledge can be an extremely powerful antidote to the postmodern life. And the stark differences between tribal life and modern life highlighted in such a contrast as is illustrated in "The God's Must Be Crazy" bring into sharp relief the counter-intuitive constraints we've placed on ourselves.

Biopiracy is the theft of indigenous knowledge and it is related to systems and measurements and highly specialized fields of study. Biopiracy is the placing of patents on plants, processes, and ways of life that have informed indigenous cultures for generations so that even *they* have to buy their own inventions back from large corporations. Dei, Hall & Rosenberg 2000) have edited a book, *Indigenous Knowledges in Global Contexts: Multiple readings of our world*, in which they offer us an anti-colonial (not post colonial) call to reclaiming the indigenous knowledge that is being stolen from us. And in the preface to this text, Shiva writes, "The phenomenon of 'biopiracy' and

'intellectual piracy' whereby Western commercial interests claim products and innovations derived from indigenous traditions as their 'intellectual property' (through protections such as patents), have emerged because indigenous knowledge systems have been devalued and (it follows) have not been afforded protection. This lack of protection reflects the reductionist approach that the West imposes on indigenous knowledge systems. ...Indigenous knowledge is thus at the heart of the global issues of our times. The future of indigenous knowledges will not simply determine whether the diverse cultures of the world evolve in freedom or are colonized; it will also determine whether humanity and diverse species survive." (p. iv) Patents have been placed on biological materials such as genes, animals, and even human beings. This has elicited unanticipated outrage on the part of affected indigenous populations— outrage toward the large corporations who patent living things and profit from them. We should then ask ourselves is if we are either abdicating or having stolen from us by learning pirates our innate knowledge about learning—how learning happens, when good learning is happening, what online learning environments might
look like—do we abdicate that understanding to experts? Can we accept the involvement of front-line users in the creation of online learning environments? What would that look like?

Lawnmower Man is a science fiction film that illustrates what happens when we move into technologically assisted learning via virtual reality. Here we see that expert science has led to direct brain manipulation again, in order to overcome learning deficits in a mentally challenged learner—the man who mows grass for a living—the lawnmower man. Of course, this violent learning approach leads to further violence and the learner's eventual demise. Obviously this is a cautionary sci fi tale warning of the dangers of manipulative learning sciences. But it also shows us that it is possible to imagine futures of learning that are actually destructive. If we understand human learning as something that needs to be expertised and scientized, we lose a significant focus on the learner and begin to become those educational technologists with those stars in their eyes again. We lose sight, blinded as we are by science, expertism, and technology, of the human being learning, and the fact that learning has been something we have done for millennia in ways that few, including brain scientists, really understand fully. And yet we each know when we've learned something, many of us know how we learn best through metacognition and reflection on our own learning processes. But this knowledge is not scalable, it isn't sexy, and it doesn't sell well.

If we can return to an indigenous understanding of what learning is about, and respect the learner in the process of the creation of online learning environments, we are probably
one step closer to more democratic forms of online learning. In my book (Carr-Chellman 2005), I looked at the international status of online learning or e-learning and its relationship to advancing democracy globally. Not surprisingly the cases, 14 in all, across six continents found that in general, the rhetoric of democracy is definitely not met with the reality of how e-learning is being implemented. While politicians would like us to accept public expenditures for the purposes of e-learning that will reach to the most disenfranchised poverty-striken populations, the reality is that e-learning mostly serves middle class families who are able to earn primarily vocational degrees online. Certainly it is a noble effort to serve these populations, although they do already have sufficient resources to afford technology and internet services, however, it is not the noble democratic cause that our politicians would have us believe. Political speeches are full of "helping the least of our bretheren" and "opening the ivory gates" to democratize the university so all can attend. Online learning designers believe they have the knowledge, it's a matter of simply transferring knowledge from one place to another, from the expert's head into the novices', for example. This is what most of the texts on knowledge management are all about. But Dei, Hall &

Rosenberg, (2000) in their own chapter in *Indigenous Knowledges in Global Contexts*, remind us that, " "No individual, group, community, or nation can justifiably claim ownership of all knowledge." Indeed this is contested terrain. "Unfortunately, far too many educators privilege certain ways of knowing and interpreting the world over other ways." They tell us, "To a great extent, we are witnessing a 'crisis of knowledge.' In large part this crisis can be attributed to globalization which has intensified the processes of commodifying knowledge." (3)

Thus, politics and systemic issues are certainly central to the advancement of democratic online learning environments. However, these issues are at the highest levels. To more concretely focus on the ways in which we can engage learners in the creation of their own systems of human learning for online environments is what I'd like to devote the remainder of this paper to. Understanding the role of democracy and critical theory in the creation of online learning environments is wrapped around the importance that is placed on those understandings which reside within users of advanced learning environments—their indigenous knowledge. I am deeply moved to more completely understand the ways in which technology itself may be robbing us, socially, of the values previously placed in indigenous knowledge and replacing that value with a scientism or religious faith in expert knowledge.

If we look to the Scandinavian foundations of user-design or participatory design we can at least begin to get a glimpse of what might lie ahead in the land of online learning when driven by indigenous knowledge. A respect for learner intuitions means that we afford a certain amount of power to learners. Because the open marketplace of ideas has allowed learners to choose whatever they want to study based on their ability to pay, we have already started to see a certain amount of learner control and choice seeping into all curricula at the post secondary level. I would anticipate a spiraling of this level of choice, and an intensification of it. I would expect an increase in online learning options available in the k-12 curricula as well. Allowing students first to choose what they are interested in and really want to learn about is the beginning of a truly democratic and user-design oriented system. However, it may also be problematic. That is, if everyone is trained to be a Shakespearean Scholar, who will drive the taxis, or mow the grass? The industrial model of learning works, in part, because the system funnels people into job-oriented or vocational training. The fear may be that if we allow students to truly choose to learn whatever interests them and whatever they want to learn about, will we have enough learners who are interested in either difficult things like chemistry, or mundane things like data entry. This fear is actually relatively easily quelled within any capitalist economy by looking at past trends.

Generally, whenever a serious shortage of workers exists, groups of disenfranchised or underprivileged populations are happy to step into the void if salaries are sufficiently rewarding. This, however, can exacerbate a tendency for certain areas, medicine, law, academe to remain the purview of privilege. In addition, my husband's work in Adult Education (Carr-Chellman, in progress) reminds us that if we can understand education as more than mere technical or vocational training for work, but also understand it as self-fulfillment and realize that this self-actualization leads to better taxi drivers and lawn mower men, then we've taken a step toward more democratic online learning options.

Assuming that we can accept and adjust to the learners determining their own interests and needs for curriculum design, we can look more narrowly into how the actual environment is created to be a user-design space. In the past, we have understood user-design to mean user-input. We do focus groups, ask people what they want to have different in a website or learning environment, and we try to meet their expectations within the limitations of the technology and our skills as designers and programmers. This, while noble and admirable

is not true user-design. Central to the meaning of user-design is a clear shift in power…to put the tools of design into the hands of the users. Thus, what needs to happen is the creation of learning environments, which allow learners to create their own environments. We know a good deal about learner differences, for example, and we can create systems that allow a learner to first figure out what kinds of learning work best for them and then design a space that is most comfortable for them. In the same way that learners can design an office space with appropriate desk, chair, lights, books, computer, file cabinets and so forth at their finger tips, ergonomically comfortable, and supportive—we should be able to create online learning spaces that are infinitely more adaptable to learner preferences than we currently have. This is particularly the case when we consider the use of learning objects Wiley, (2000) as a source of innovation in online learning through user-designed learning spaces.

If we can allow learners to first select their content and then customize their space, we have taken significant steps toward a more democratic, respectful system that comes
closer to the true meaning of user-design. It's not going all the way yet, but it's a big leap forward. I think that in trying to imagine a new system of user-designed learning, I'll rely on Education & Ecstacy—a book George Leonard (1968) first released with this image in 1968. The chapter is, oddly enough, titled "Visiting Day 2001" and it offers us a significantly different image of user-designed electronic learning spaces than most of us would have imagined 50 years ago.
No matter how many times you visit the Basics Dome, its initial effect is literally stunning. It takes a while for the nervous system to begin processing; first, you have to surrender to the overwhelming sensory bombardment that comes from every side. There are, around us, forty learning consoles, at each of which is seated a child between the ages of three and seven, facing outward toward the learning displays. Each child sits at a keyboard, essentially less complex than that of an old-fashioned typewriter, but fitted with a number of shifts so that almost every symbol known to human cultures can be produced. The child's learning display, about ten feet square, is reflected from the hologram-conversion screen that runs all the way around the inner surface of the dome. The image appears to stand out from the screen in sometimes startling colors and dimensions. The screen that runs all the way around the inner surface of the dome. The screen is slightly elevated above the child's horizontal eye level so that everyone in the dome, by turning all the way around can view all of the learning displays. Each display joins the one on either side of it, so that the total effect is panoramic. And each has its own set of stereo speakers, joining in a panorama of sound….When a child takes the chair to begin learning, another radio receiver senses his presence through his electronic ID and signals the central learning computer to plug in that particular child's learning history. The child puts on his combination earphones and brain-wave sensors, so that ongoing brainwave analysis (not manipulation) can become an element in the dialogue….Once the computer picks up the child's ongoing brain-waves, it immediately begins reiterating (in drastically foreshortened form) his last learning session. The child watches his most recent lesson reeling by on his display. If he wants to continue where he left off last time, he holds down his "yes" key until the reiteration is finished. If not, he presses "no" and the computer begins searching for other material appropriate to the child's level of learning, material which is flashed onto the display until the child presses "yes." The "select" process generally takes less than two minutes. The dialogue then begins. (147-149)

We need equally fantastic images for visiting day 2100 and we need to stretch our minds and imaginations to figure out ways to create online learning environments, which respect learners, advance democracy, and rely on user knowledge rather than science, technology, and expertism. As we consider the future of education, and the role that online learning plays in that future, we

have to consider the indigenous knowledge and the learner power in the system. Dei, Hall & Rosenberg (2000) tell us, "The task of social and educational change requires a recognition that indigenous peoples have knowledge systems for theorizing and conceptualizing their social and natural worlds. Local communities are not simply the source of raw data for academic theorizing elsewhere. Local peoples must be seen as key players in the construction of knowledge about their societies." (p. 16) I challenge each of you reading this paper, right now, today to try to move into a space where your expertise is second to the intuitions of those you work to serve. As I believe Banathy (1991) would say, imagine worlds of learning that have never been, and make those worlds come true through collaborative design.

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