

Open Collaboration

Finding and Polishing “Hidden Gems”

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"Always and everywhere, free resources have been crucial to innovation and creativity."

–Lawrence Lessig in *The Future of Ideas: The Fate of the Commons in a Connected World*¹

I would bet that a great many faculty, along with their ideas for books and research, have “hidden gems” of learning games, or other innovative ways to teach content online, either already on their computers or still in their minds. If we help to develop and polish these gems, make them grow, show them off and encourage them to be used, our students, schools, and faculties will all benefit enormously. But *please*, let’s not start salivating about generating huge license fees to increase our endowments by selling them – even on e-Bay! If we really care about advancing instruction, we should be doing our best to insert them as quickly as possible into the public domain so that we can develop them collaboratively. I’ll get to why in a minute.

In my last column I highlighted problems that arise when instructors attempt to reach “Digital Natives” *not* by making their basic subject matter engaging, but by pandering to their students through titillating subject matter or course titles. There are much better ways to reach Digital Natives, and one of the best of these is to create subject matter-based learning games – instruction in the students’ “native language.” Already many of these games – relating to all parts of the college curriculum – are springing up in a variety of places, yet without most of us being aware of their existence, and without much power to bloom and grow. We need to find a way to bring these seeds to full life, and enlightened administrative policies can be of great help.

Not too long ago, for example, a senior history professor² called me to ask if he could show me a learning game he had developed about the Spanish Inquisition. “The

Inquisition – Hmmm...” I thought. But by the time I was nearing the end of his game the game I was excitedly shouting “Don’t kill me, exile me, exile me!” as I tried to craft my answers to inquisitors questions appropriately enough to win (which in this game was receiving any punishment short of execution.)

The Inquisition Game is an example of what I call a “hidden gem.” Hidden gems are kernels of ideas for teaching some of the things we want student to learn using the language of games, which the students find so engaging. While the original Spanish Inquisition Game was limited in scope (it was certainly not a “course’ in the Inquisition) and although it was relatively primitive in its execution (its layout and graphics were rudimentary), it contained enough gameplay and information to be the germ of something transformational, and potentially enormously effective.

The *reason* such game-based learning can be so effective is that it don’t just “tell” the learner about the Inquisition (or anything else) as a lecture might do, or even just “show” him or her about it, in the manner of a movie or multimedia presentation. Rather it puts the student *right into the middle of things*, and lets him or her work their way around as an active participant in the events of the times. It’s more than just a “simulation,” in that it actively gives the players goals, puts them in competition with others, etc. And it turns out that when done right, this is *fun*, at least for the Digital Natives. Not “ha-ha” fun, but rather intellectual fun – “what decision should I make next and what are its potential consequences” fun. The kind of fun the interactive revolution can, should and will be bringing to education in the near future. Although some “Digital Immigrant” instructors may at first find it a strange or “unrigorous” way of learning, once they experience it, many of them like it too. It is by building up such innovations as the Spanish Inquisition Game and its siblings, and through innovators such as that game’s Professor-creator, that the *effective* electronic courseware of the future will eventually be born – *if* we are willing to collaborate to be its midwife, and if we are willing to sacrifice some of our egos in the process.

My guess is that you have some – or many – hidden gems of your own, either personally or in your institution. Many of them are games, but they may be other creative ideas for online learning as well.

Of course some might consider the “gem” I just described as nothing more than a ho-hum, “learning aid”– a supplement, to be included, perhaps on a CD, perhaps online, as part of a traditional textbook or course. And at this stage they would probably be right, whether or not the professor who created it succeeds in selling it to a publisher for that purpose.

But seeing it that way is, I think, a mistake. The reason is that it is much too early in online learning’s gestation period to “fix” such innovations or assign them to a particular category (especially a traditional one). Rather what we need to do at this stage is to get lots of people *working* on these rough gems, cutting and polishing, adding and subtracting, gradually turning them into something really beautiful and useful. Like the

open software “Linux,” or the first-person shooter game, a “hidden gem” needs many creative minds and hands to reach its full potential. The best way to make this happen is for the gem to be put online in an open way, with an invitation to all to contribute.

Over time, with vision and the input of many instructors – and students – from around the world, the tiny Spanish Inquisition game (or any such kernel in any subject) will surely become a much larger game that is infinitely more complex – so much so that it *could* become the equivalent of a “course” on the Spanish Inquisition or something else. More roles and points of view can be included, “briefs,” “decrees” and “defenses” can be required, historical alternatives or theories debated and confronted, all within the game. If the opportunity is presented to them, those students and instructors around the world with open, inventive minds will find ways to expand this medium in fun and exciting directions, increasing its scope and power more and more. Such a thing has already happened in the online world with games such as *Quake*, where players create their own “mods” (level modifications), and *The Sims*, where players construct their own additions and put on line not only the additions but the tools for building them! Similar things happen in persistent online worlds such as *EverQuest*. Once we have established some collaborative models that are effective for education, I predict that large “course equivalent” games will be developed for physics, philosophy, and everything else.

There are already scores, if not hundreds, of early “gems” or “kernels” of such courses already floating around inside our colleges and universities, in every department. An anthropology professor has made a simulation of a fictitious tribe for students to investigate and experience many of the issues of field work on the computer². Another anthropology game takes students into a simulated African village to determine how a tribe would be affected by a corporation’s plan to establish a diamond mining operation nearby.

Business school instructors have created games for trading, competition, marketing, economic scenarios, process control and start-ups. Some are even Harvard Business School cases. Science and math professors already have many useful games to illustrate their various phenomena. A law professor has built and published a game around the “art” of objecting effectively during a trial (*Objection!*). MIT, funded by Microsoft, is creating games to teach engineering, physics, math and biology. You may have come across “Virtual U,” a game about running a university.

In playing these games – sometime on their own, often mediated by instructors – students face real issues, do real research, have discussions (both real and simulated), collect real data, uncover and solve real problems, collaborate, compete, test hypotheses, generate reports and recommendations, and design, build and test solutions. In other words, an enormous amount of real learning goes on.

Of course some of these gems are better and more advanced than others. Some are little more than a simple idea, or a primitive execution. Others are still only concepts and storyboards. Some are quite deep in their content but need much interface work to make

them useful, engaging learning tools. Some, like *Objection!* and *Virtual U*, have even attempted to “go commercial.”

But mostly, what we have at this stage is pieces. Professor X has thought up a great way to do y (say do virtual conversations) and someone else has figured out how to do z (say coaching) creatively. Someone else may have figured out a clever piece of interface. But no one has solved the entire puzzle and built a true, full, game- (or other interaction-) based course that all would agree is great and totally engaging. Although we know it is eventually coming, there does not appear to be a Beethoven or Einstein out there who can single-handedly show us the way to truly engaging and effective online learning. To make what we need happen both quickly and well, we need desperately to be collaborating – taking from and building on each others’ work, and combining whatever pieces work effectively into larger, more useful structures. Hence the need for the public domain, or, as Lessig calls it, some form of “innovation commons”³ available to all.

To go from today’s “gems” and “kernel ideas” to the polished, sophisticated instruments that entire course “games” will be, there is enormous work to be done. Pieces must be created that deal with not only the “low hanging fruit” of the things that obviously lend themselves to interaction and gaming, but the deeper, more complex and more difficult parts as well. We need engaging online models – game or non-game – for including all the good things that teaching provides, including guided reflection, logical rigor, positive and negative feedback, rewards for originality in thinking – and for avoiding the bad, such as merely putting lectures or text online.

The games world presents us with two basic models for creating such large works: the “engineering” approach and the “iterative” approach. They are important to understand because they often produce very different results.

The “engineering” model involves a complete planning out of the entire project (e.g. a course) in a large design document, often running to hundreds of pages. This plan includes not only the content, but the way it is to be presented, the programming that is needed to be done, the interactions between all the parts, etc. In the engineering model, nothing is built until this design document has been completely worked out, edited and approved. This model is likely to be a recognized one among academics. It is how textbooks get written, curricula and syllabi prepared, buildings built. It is also the way much commercial and academic software is designed and constructed.

The problem is, the ‘engineering’ approach does not generally produce very engaging results (unless engineered by a “genius.”) So there is a second approach, the “iterative” approach, often known to game designers as “design by playing.” In the iterative approach there is no finalized grand design document when production starts, but rather only people playing the “kernel” game (i.e. the first “playable prototype”) and suggesting “wouldn’t it be neat if...” The builders then go back and add features suggested, and the game is retested in an ongoing loop of addition and continuous improvement.

So while one approach to e-learning is to have professors build online courses through an engineering approach (alone or in teams), and then to try to decide who owns what, there is another approach we should consider. This is reproducing in the e-learning space the “innovation commons” that Lessig describes in relation to how the early Internet developed. What this would mean is that whenever someone develops a method, or a process for teaching something effectively online, whether in a game or otherwise, that piece becomes available for use by everyone, with no license or license fee necessary. It would also mean that in some way the code for these innovations is “open” so that someone with an idea can add it in at any time.

Obviously this raises many questions.

First, why would we do this? Why would anyone voluntarily give up any ownership of his or her own ideas and creations? Does anyone do this now?

The first “why” is because at this stage in online education we need innovation above almost all else – the “online education” we have produced so far is, to be generous, pathetic. The second why is because no single individual can solve the problem alone – innovation requires many people building on the work of one another. And as Lessig says, “Always and everywhere, free resources have been crucial to innovation and creativity.” The best model of people freely giving up any personal rights to their work (other than reputation) is the programmers of the Internet. The enormous creativity of the Internet arose because the original coders were free to take from each other. As most of you probably know, there is a “View Source” function built right into the browser that lets you see the code for any web page.

Second, what about “content”? The material we teach needs to be “correct,” doesn’t it? (Although we all know “correct” is a relative term, there are some things that are clearly wrong.) Certainly we need some system of “vetting” by any institution that offers something to the public. But whether this means we need “ownership” is open to question. In addition, the “content” (in terms of specific points of view, problems and explanations) may be able to be kept separate from the presentation format. It is in the format and presentation of online learning that innovation is most lacking and needs to be encouraged.

Third, how would we go about this?

This is probably easier than anyone thinks. I believe that all one probably has to do is say “this is open” and enormous numbers of people will come. This is not the famous “build it and they will come” fallacy, but rather “give *them* the opportunity to build it and they will come.” People love to input their ideas into the net. As the World Wide Web’s inventor Tim Berners-Lee has said, what people put into the net is much more important to them than what they take out. The online community is enormously good at self-organization. Once the idea gets out that anyone can (and should) play in the creation of

academic software, SIGs will form, people will take charge and organization will happen in a non-proprietary way.

Fourth, so how will anyone make money?

It has become fashionable – and in most cases necessary – for schools to want to earn additional revenue. And as they have seen the potential market for their wares grow, the desire has also grown the part of faculty to themselves profit from any IP they invent, as they have traditionally done through textbooks. Hence the great IPR debate about “who owns what” online.

I have watched for some time in the software world the relationship between intellectual property protection and commercial success. Although I have no hard data to present, I think there is, for the most part, very little relation. I have seen many (including some who should have known better, such as Microsoft billionaire Paul Allen) spend hundred of millions of dollars to acquire and protect patents and copyrights, only to go out of business. Instead of secrecy and protection, in almost all the cases I know of the people would have been much better off taking their ideas to the public for scrutiny, input and iteration. “[M]ost of the great leaps of the computer age have happened despite, rather than because of [intellectual property rights (IPR)], writes Alan Cox, a well-known Linux developer.⁴

As academics, it is particularly important for us to be laying out our ideas for improvement, rather than selling them. Not that we can’t have products – we can. But if we prevent people from taking what is in those products – particularly at the structural level – or if we raise the cost of doing so through license fees, we will certainly stifle and slow down the innovation we need to successfully accomplish our mission of teaching.

The key issue is this: if we are to develop maximally and most efficiently our electronic teaching capabilities, what intellectual property should belong to institutions, what should belong to individuals, and what should belong to the “commons” or the “public domain?”

I would suggest that at the early stages of the development of a medium, such as we are now seeing with e-Learning in whatever form, private ownership of *any* intellectual property relating to online learning is a restraint that will hold us back from quickly (and perhaps ever) developing the best educational system possible.

Is this to say that capitalism and the marketplace are wrong? No, but it is to say that education is not the same kind of market as other markets. It’s also to say that infrastructure is different from the content that will go on that infrastructure. One of the biggest issues we have seen in the online world is competing infrastructures and incompatible systems that are arresting progress while not making anyone particularly rich. On the other hand the single, open standard of the Web has allowed an unprecedented expansion of creativity. We should at least consider that the very best solution for education may be to throw *all* online intellectual property creations into “the

commons” for all to build with and on, at least until something that is stable and universally accepted as useful and “the best we can do” emerges. Once we have the next equivalents of books, perhaps we can fight over who owns them. But now we have only pages. Do we really think that each of us owning and protecting a page will get us where we want to go?

Yes, the issue of who “owns” academic intellectual property is a thorny one. But unless we realize that there is another possible route – one of open collaboration and no ownership at all – we risk becoming more apprentice businessmen (and women) than academics, and we and our students are all likely to lose in the process.

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Notes

1. Lessig, Lawrence. *The Future of Ideas: The Fate of the Commons in a Connected World*. New York, Random House, 2001.
2. Professor [name to come]
3. Lessig, *op. cit.*, p. 49.
4. Cox, Alan. “This is How Free Software Works,” *wideopennews*, 5, 8.6, <http://www2.usermagnet.com/cox/index.html>. Quoted in Lessig, *op. cit.* p. 57.