

Cultivating the Imagination in a World of Constant Change

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Far too often, students' passions and interests are disconnected from their educational experiences. Instead, the best of them have mastered the system by figuring out what will please their teachers the most. Douglas Thomas, associate professor in the Annenberg School for Communication at the University of Southern California, and John Seely Brown, visiting scholar at the University of Southern California and former chief scientist of Xerox Corporation and director of its Palo Alto Research Center (PARC), are co-authors of *A New Culture of Learning: Cultivating the Imagination for a World of Constant Changes* (2011). They distinguish between a culture of teaching and a culture of learning, and argue that the old model of teaching is unsustainable. They propose a new culture of learning based on cultivating the imagination. Thomas and Brown describe straightforward shifts in priorities that lead to big changes in learning and innovative thinking, such as elevating asking questions above offering answers. They advocate for play in a bounded learning environment that strikes a balance between constraint and freedom, and exercises based, for example, on "what if" questions that allow the imagination to flourish. Excerpts of Thomas' remarks at the Forum's 2011 Aspen Symposium are reprinted here.

TAKE AWAYS

- Content backed by institutional warrants—names like Harvard, Princeton and Yale—has defined how higher education has functioned for a large part of its history. But for students today, institutional warrants tend to matter very little. They are living in a world of multiple contexts and sources.

- Because content is always changing, educators tend to focus on teaching

meta-skills; that is, not facts but, rather, how to learn. That works because we can teach students how to find new content. But when context is shifting as fast as content, meta-skills are insufficient.

- A new culture of learning based around the notion of play in a bounded learning environment can cultivate and invigorate students' imaginations. Such an environment offers the

opportunity to connect what goes on in the classroom more directly to students' lives and everyday world, and is therefore more relevant and effective.

- Productive inquiry can help make sense of a world of constant change. Questions are more important than answers, and answers lead to better questions—the key to cultivating the imagination.

I want to start off by talking about students. My students—and they're certainly not unique—excel at being taught, but they're not very good learners. If I were to summarize our book, *A New Culture of Learning*, I would say that we make a distinction between a culture of teaching and a culture of learning, and argue that the latter is far more important in the world of the 21st century than it's ever been in the past. In some ways our survival as a nation and certainly as educational institutions may depend on recognition of that fact, because the old modalities of teaching may not be sustainable for very much longer.

A colleague of mine started at USC recently; he came from MIT. He realized very quickly that undergraduates at USC are not at all like undergraduates from MIT. That puzzled him. His expectations were, somewhat naively, that they wouldn't be the same, but they would be close. They weren't, and he couldn't figure it out. What strikes me is that all of our students, from all of the different disciplines, even on USC's campus, are different: the cinema students are different from the Annenberg students, who are different from the engineers and the biologists and the English majors. All of these cultures

have their own flavor. We as administrators and educators would do well to understand what those different contexts of learning look like, and why it is that they're being reshaped in the ways that they are.

For the past year I've been using my students as guinea pigs of sorts. I've been taking some of the ideas from our book and trying to implement them in the classroom. I have the good fortune of having two kinds of classes. One is a mass lecture class—about 200 students, called “Introduction to Communication Technology”—and the other is a small class of 22 students called “New Cultures of Technology.” I've been able to try some of our ideas to see how they work in the context of my students and our classes.

I found that there are some fundamentally diverging attitudes about school and the classroom. When I went to school and started teaching, I definitely understood that the university was a world of content. I went to the university to learn things. Yet, the kind of things we want our students to know are not of the level-101 type. They're the big ideas, such as what it means to be an educated member of a democratic society. I think all of us strive to impart those ideas—even if we're in fields that have vocational implications, such as engineering, for example. I think in our hearts we want students to be able to take ideas from the classroom out into the world, and make the world a better place at some level. That's important to us, and why we are educators; we believe in something, we think it is worth teaching and communicating, and hopefully we'll help make the world a better place.

But what has that meant for us faculty? It's meant that we are teaching pretty much the way we learned and in the way that the system has worked since time immemorial. We have a standard model of transfer. The idea is that I've got something in my head that's worth knowing, and I need to get it into my students' heads. I can use books and lectures and assorted other material, and now I can use new technologies to help do that.

Then in order to decide whether or not I've been successful in that transfer, I have a standard model of assessment. That assessment is actually a model of efficiency. I give students a percentage about how much stuff transferred: C, they got 70 percent of it; B they got 80 percent of it; A, they got 90 percent of it; A-plus-plus, they got 100 percent of it. That's the predominant model for how we think about teaching. Did the content make it from point A to point B? Now, if you read our book and you listen to us talk today we're going to tell you, with a large amount of irony, that standing up in front of people and lecturing to them is not the right way to teach. Neither is giving students a book to read. We're aware of that.

For a long time, education has centered around a set of institutional warrants—names like Harvard and Princeton and Yale. These mean something. Content backed by institutional warrants has, for a large part of the history of the academy, defined the way we have functioned. However, today I'm finding that my students are living in a world of context. I spend quite a bit of time talking to them about how they understand the world. I'm very curious as to what kind of institutional warrants matter to them. The answer is not very many at all. News to them is not Walter Cronkite, nor is it *The New York Times*. News to them is Fox and MSNBC and the Drudge Report and the Daily Dose and NBC and the *Washington Post* and Google News. It's all of these things combined. The world to them is context. To make sense of that world, they have to become very good not just at reading context but at reading multiple contexts together and against themselves. That's how they're starting to understand the world.

Think about Wikipedia. It boggles my students' minds that we have disdain for it as educators because to them it is just one more context. We say it's not accurate, it can be changed. They say, nothing's accurate, everything can be changed, what's so special about Wikipedia? Actually, what's special about Wikipedia is that you can see the changes. They're transparent. You can go back and look at the history of those pages. Look at the Wikipedia page for Christopher Columbus, for example, and you will see it's been changed in the past year nearly 5,000 times. That tells you that that's a controversial piece of knowledge, that it's in dispute. You can track that history of changes. You can't do that with the entry in *Encyclopedia Britannica* for Christopher Columbus. You can't go back and see the letters between the editor and the author. You can't see the changes, what was put in and what was left out. There's a transparency to Wikipedia that students understand as a rich context for knowledge. But whether it's accurate or not in terms of pure content is not really much of an issue for them.

I did an exercise to try to get my students to name some institutional warrants that had meaning for them. And every one of them came back with the same answer: it depends. It depends on what the context is. For a long time I thought they were cynical. They're not cynical, they're just masterful readers of context. In fact they may be less cynical as a result of that.

So what is school for today's students? It's just one more context, and in a lot of cases, not the most important one. That's their way of thinking about the classroom.

Finding content and context connected is very interesting to reflect on. Up until now I think the real story has

been that all these new tools for authorship have democratized technology. They've allowed us all to be authors and producers, to do things like create a book and put it on CreateSpace without going through a publisher—which John and I did. Look at YouTube and the massive amount of authorship that's going on there. The do-it-yourself movement and the ability to create things is phenomenal.

But what's more important is that we've created the tools to reshape the context in which things have meaning. By reshaping context, we can do all kinds of things that we haven't been able to do. Before, if we wanted to change the



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way people read, we had to do things like buy publishers and buy newspapers. MTV is a great example. MTV changed the way people consumed music from an auditory to an audiovisual phenomenon. I can contribute to that with a piece of software, in my bedroom, over a weekend.

Our students are learning that context is everything. And they now have a role in shaping context in a way we never have before.

The Product of Education

How do we understand the product of education? I think we have to ask a couple questions. What is the context for learning and what is the context for teaching? We need to go all the way back to K through 12 to really understand. I'm fond of saying that when my students get to me, they come half-cooked. My job is to take them to the last stages, to put the sauce on, so to speak. Prior to that point, they've likely been through some pretty confining experiences in the classroom. Far too often, their passions and interests had been completely disconnected from their educational experiences. We've taught them that education is a guessing game. You see the teachers in the front of the room and you try to guess what will please them by answering their questions. In large part, I think that K through 12 has prepared them for that.

School is one more context for the students. The context in this case is gaming the system. It's a certain kind of play, but it's not really about learning. The decontextualizing of

learning from their lives has been particularly problematic because it's taught them that anything that's fun, anything that's play, anything that's enjoyable, is suspect. If I'm having too much fun, I'm not going to be taken seriously. I'm not going to be seen as rigorous.

In any other context, before we go to school, learning is a joyful, wondrous thing. Take a small child out for a walk and let them stop. They will spend a half-hour discovering a tree. They will explore all the nooks and crannies, and the bark, and the leaves, and they will investigate every inch of it because they're curious and because there's wonder in their eyes. It takes about 12 years of education to thoroughly beat that out of them. That's when we get them. They show up as freshmen, and they have learned that this is serious business; there will be no fun, that there will be no pleasure. That's what you do after you get out of class when you go drinking with your friends or whatever else, and you have your social experiences at college. But the classroom is not for fun.

Realizing that inspired me to do something a little bit crazy. I taught a class about games in 2004, before anybody else that I know of was doing so. I had spent time in Austin at Sony doing an ethnography of the culture of a game called "Star Wars Galaxies." I thought that could be used as a case study to teach students about games. Sony gave us all copies of the games and time cards to allow the students to play. They video-conferenced in for interviews to answer questions from the kids.

To be rigorous, I put together a list of difficult readings, including Donna Haraway on cyborg feminism, Martin Heidegger on the nature of technology, and Jacques Derrida on metaphor. These were hardcore, difficult readings, mainly because I was afraid that people would criticize the course, questioning playing a game for a class for credit. I wanted to be very sure that if they ever looked at the reading list, they would be intimidated.

I got 12 students in the class, none of whom were gamers. We met once a week for three hours. At first, I lectured them for an hour and a half and told them about the readings and what they meant. Then we had a brief discussion, and then for the last 20 minutes they were able to go up on the big screen, into the game and show examples of how these readings were reflected in the game. That went on for a couple of weeks.

Suddenly they're coming in saying, "I know we've got to do the lecture and the discussion and everything, but there's something you've got to see." They would show me it at the beginning, and then we'd have the lecture and the discussion. By about the sixth or seventh week, we were spending

two hours and 45 minutes on the game on the screen and 15 minutes of me saying, by the way, you should read paragraph three because Heidegger is saying X, Y and Z. I would go home and think I was a failure, I had lost control of my class, and it had become exactly what I had feared: a bunch of students playing games.

Then I read their midterms, which were incredibly good. These were not the smartest students I've ever had, nor did I think they were the most motivated. But they were writing about Donna Haraway and Martin Heidegger and Jacques Derrida and tying it to their experiences in the game. The things that they had been talking about had allowed them to think about the readings and connect them to their lives in such a way that they were saying things that actually mattered to them.

I had some of the most joyful teaching moments as a result of this class. It was a transformational experience for me because I realized that I had had a massive amount of anxiety about letting them learn. I had to be the teacher. I had to have that institutional authority and those warrants, and if I didn't, I wasn't doing my job. I was more in their way than they were ever in mine. And I think of myself as a pretty enlightened person interested in alternative theories of learning. So if it's hard for me to get out of the way, I can't imagine what it's like for somebody who's been doing this for 25 years and thinks that lecturing and reading books is the only way to teach.

That's the hurdle that we face, and it's a big one.

Cultivating the Imagination

John and I have tried to shift the conversation away from schools as teaching machines that are all about efficiency of transfer to a focus on learning environments. It's not that our schools are broken—it's that our current theory of learning isn't working. Environments don't break. They can be toxic, healthy, unhealthy, flourishing, and so on. They aren't efficient things that fail, they just change shape and remorph.

The problem we're seeing is that transfer starts to break down when the world starts changing faster than the transfer can keep up. If you're in a business and every six months you need to bring people back to retrain them because things have changed in the workplace, that's a losing game. It's not just the content that's changing all the time, but the context is shifting too. As good educators, we believe we have the solution, which is that we will teach meta-skills. We all like to think that what we teach isn't facts, but rather, how to learn. And that works if content is shifting because you teach people how to go find new content. But when context is shifting as fast as the content, meta-skills don't help very much either.

So we started looking at a theory of inquiry, which one could argue goes all the way back to the Socratic method. But more on point for John and I, it went back to the work of John Dewey. We found was that many of Dewey's ideas were essentially right, but well before their time. One of his major problems with technology was that he thought we could never have a community technology—but he was referring to telephones. Well, obviously we've kind of solved that problem; we have all sorts of technology-based communities.

We started to think about how to reinvent Dewey. How do we take the idea of productive inquiry and use the world of constant change and the Net to make sense of it? We realized that questions are incredibly important, that they tend to be more important than their answers. Answers give us impetus to ask better and better questions, and in fact are key to starting to cultivate the imagination.

Imagination is a topic that deserves a lot more attention than it gets. I can ask, how many of you are against imagination, and of course it's funny. But if I ask how many of you can give me a precise definition of what it is, that's more complicated.

John and I came up with the idea of a new culture of learning based around the notion of imagination. We argue that the old model of learning has become unsustainable, or if it hasn't yet, it's going to be sometime in the relatively near future. Unfortunately, it's also the core of what we do. I'm as guilty of this as anybody. I stand up and lecture to my students. It's a model that's very comfortable and well-understood, and it's been used for a long, long time.

But the problem we face is that the approach is fundamentally disconnected from how students learn today. If we think about the role of the university as being in large part to improve how our students go out in the world and behave as democratic citizens, then the fact that we're teaching them in a context that has decreasing relevance to the way they learn is a problem. It rings more and more hollow to students, and it becomes more and more difficult to influence them.

Our idea of inquiry and question-based models is not new. But the environments we can create in order to make them work are. Much of what we talk about is the idea of following one's passions. Now, following one's passions without structure and discipline, as you know, is a recipe for disaster. We're not saying bring in freshmen and tell them to study whatever they want. Instead, we've come up with the concept of a *bounded learning environment*. We regard cultures not as anthropologists do but, rather, consider cultures as petri dishes.

A petri dish has two qualities that are important. The first is that it's bounded. Nothing from the outside can get in. It's a glass shell, but within that glass shell, the other important quality is that anything can happen. It has to be completely unrestricted and free. You put your nutrient in the medium and stand back and let it grow. You've got the boundary so it doesn't grow outside. It's all very controlled. A culture of learning can look a lot like that. It's that play between constraint and freedom, institution and agency, that we talk about in the book, that's so powerful as a way to create learning.

That brings us to imagination. Imagination is not something that you teach. You don't say, "Johnny, from 3:30 to 4:30 you will be more imaginative." It doesn't work that way. But we can create environments in which that can happen. A concept we found that works well is the idea of world building. It's not about memorizing things, and it's not about repeating things. It's about the ability of the mind to build a world.

The two words that we've come up with as the keys to imagination are "what" and "if." In large part, the essence of innovation is the idea of making something strange. Creativity is the idea of taking something familiar and using it in new ways—a perfectly valid and valuable thing to do. But innovation is somewhat different. It's the ability to build a world and a context around a piece of information to make the world change. That's a fundamentally important distinction.

To do that, you need to play. We use the term "play" in the way that Johan Huizinga does in his book *Homo Ludens*. Play is serious. For him it is the core of who we are as people. It precedes culture. Huizinga uses it to describe war, sport, law and poetry, and says that all of the things that are essential human endeavors have their roots in play. We're not talking about goofing off. We're talking about some of the most serious business we do.

Our theory entails just a very simple shift in thinking. When you invert questions above answers, it's an easy thing to do in the classroom. It doesn't require a provost to pay more money. We don't need new buildings. We don't need new teachers. We don't need new classrooms. We don't need any of that. The infrastructure's already there. Prioritizing imagination, passion, inquiry and questioning is a relatively easy thing to do.

In the class I mentioned that I taught last semester, *New Cultures of Technology*, I did that by looking at two different "what-ifs." One was the history of technology and the cultures around it, and the other was the history of science fiction. Both are histories of what-ifs: one looks backwards, one looks forward. What were the "what-ifs" that were asked in order to

invent the telephone, the telegraph, the Internet, and so on? The other "what if" is the beauty of opening a book and reading the first page and realizing you're someplace that you've never heard of or seen before, and being willing to ask things like, what if there were telepaths? What if there was an intelligent machine? What if we were all robots that could download each other's consciousness? We can build and participate in the exercise of world-building with an author. The class looked at the idea of imagination from those two perspectives. It turned out to be quite interesting.

The other exercise I did with this class that worked really well is something I call "flipping the quiz." They had just read a book by Philip K. Dick called *Do Androids Dream of Electric Sheep?*, which is what the movie *Blade Runner* is based on, and I gave them a quiz. I asked, if you wanted to know whether or not someone read this book and truly understood it, what would you ask? The next three hours they argued with each other about what was the best question, and they had to defend their ideas. I sat back. It was wonderful. They were very invested in the answer to that question, and why it was that asking that question mattered. The exercise was a great example of putting the question first and letting it play out and getting out of the students' way.

Another key idea that John and I write about is that there are traditionally two places where learning has happened: communities and collectives. Communities tend to be institution-based. In fact, when we create learning communities, we do so by investing in institutions. Now, what we see emerging with new technology is the formation of what we've been calling *collectives*. Collectives work quite differently than communities. They have an institutional base, usually some sort of platform, but they afford individual agency. Institutions tend to take a long time to create, and require a very deep investment. They also create infrastructures that become self-sustaining over long periods of time. Think about a university—brick-and-mortar buildings, and so on.

Collectives, on the other hand, are superfast. They have enough shared investment for people to find each other. They're peer-based, there is no authority structure, and the infrastructure is completely content-agnostic. A collective doesn't care what you're talking about and it's easily abandoned. The institution doesn't matter that much, but what we can do with it does. What that means is not only do we now have learning environments that can adapt to change and tolerate it, but they actually embrace change.

Change, then, is no longer a problem that needs to be managed. It's an asset that can be used to learn more, faster. This has been almost entirely the result of new technologies, what we've been able to do on social networks, and by

using products that Google, Adobe, Lotus and others have created. There are multiple ways for people to work with each other that don't require huge amounts of institutional investment and can be abandoned when they need to be, when something better comes along.

Conclusion

So what does this mean for the classroom? I'm coming to believe, quite deeply, that our students have become wired to learn differently. If the goal of education is a well-informed citizenry, I think we're training them out of the necessary skills they need in order to make sense of the world around them. In fact, we're giving them exactly the opposite message in the classrooms today. Our classrooms need to catch up with the world around our students. As I said earlier, it's not hard to put the ideas from our book into practice. It takes just a slight shift in the way we order our priorities. By putting questions first, we invigorate and cultivate students' imaginations. By doing so within the classroom as a bounded learning environment, we have a chance to reform what we're doing in the classroom so that it looks a lot more like what's happening in our students' daily lives and their everyday world, and is therefore more relevant, meaningful and effective.

Discussion

Q: How do you define play?

Mr. Thomas: The idea of play in *Homo Ludens* is simply the idea of activity within a set of bounded rules, which Huizinga calls a "magic circle." It's as simple as the idea that you give a bunch of kids a ball and say, your goal is to put it in that net or that net depending on what team you're on and, by the way, you can't use your hands. That's soccer, right? The invention and imagination and creativity that goes into that and how the entire game gets structured is like a petri dish.

One thing that's talked about a lot, but not actually paid very much attention to, is failure. Play is about failing a lot. If, for example, you play a video game and you start out at level one and go through level 20 and you never make a mistake and everything you do works perfectly, you will not play that game again. You will be bored stiff. What you want is to run into something you can't figure out, and then you work at it, and you try lots of different things and you experiment, and then you finally overcome it. That play gives

you a kind of reservoir of knowledge about the world that then you can deploy experimentally in different ways for the next challenge and on down the line. Play involves a lot of tinkering, a lot of experimentation.

Play is about riddles, too. Riddles are brilliant things because they're absolutely obvious in hindsight. They require lots of guessing, an imaginative leap in order to get to the answer. But once you make the leap, once you engage the imagination, suddenly everything's clear and obvious. That's the sense of play we want to bring into the classroom and encourage.

Finally, think about three kids playing piano. The first is playing very delicately and beautifully, doing the scales; the second is banging on the piano, hammering the scales out; and the third is playing the scales, but he's doing something else too, and you can't quite figure what it is, but it's cool to listen to. If you're a mentor and a guide, you say, that's a concert pianist, that's a rock pianist, and that's a jazz pianist. But if you're a typical teacher today, you say they're all doing it wrong. Our role as teachers has to shift. We need to start thinking about how it is we identify our students' passions and guide them in productive ways. Rather than saying I have to be the expert that gives everything to everyone, let's go find and explore all the resources out there together.

Q: I've done a bit of game development. I think it's very easy to let go of the lessons that we're trying to teach, and we need to keep our focus on whether the games are valid. I mean, are they consistent with well thought-

out theories, or do they invite off-the-cuff approaches? Do you have any thoughts about how we can build these environments so that they really are bounded, but are really imaginative as well?

Mr. Thomas: It's easy to fall into the trap of thinking that imagination and play are disconnected from students' lives. Our job has to be to show the ways in which they're absolutely connected to their lives and the world. It's not simply to go off to la-la land and make up whatever. It's, when you make up whatever, what does that say about your life, and the world, and your topic? Yes, I absolutely agree that "groundedness" is critical.

Q: I think is wonderful stuff. To me, though, it's about thinking deeply about how to engage students in their own learning, new ways to keep them connected and make them



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want to engage. What I'd like to understand better is why we think this is new? I sent my kids to Montessori school almost a decade ago, and this was the conversation I had with the Montessori teachers about the structure of a Montessori classroom—every piece about that exploring, about finding passions, about a bounded learning environment. One might think that what you're doing is rediscovering—in a very productive and important way—fundamental things about the way human beings learn and have always learned. But why is it that we think that this is the way that kids are now wired as opposed to the way that human beings are wired? When we think about the sense of urgency, it depends, I think, on whether you think that this is new or not. I would like to explore that a little more.

Mr. Thomas: I like going back to Socrates, talking about the examined life and drinking hemlock. I mean, I identify with Socrates corrupting the youth. This is the essence of learning, and it has always been at some level. We've always recognized that. But when we hit the era of industrialization, suddenly that's not a very good way to get people into factories. And I think that from that time on, we mechanized educational institutions and drove out so much of what we know has a positive effect on how people learn. Even with our faculty, when we sit down with them and say, wouldn't it be great if students would do x, y, and z, and they agree and say that's what we all got into teaching for. And yet when you tell them that that means they'll have to give up a little control in their classrooms, they groan.

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