



Stanford eCorner

How We Learn Today

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In discussing how education is moving away from a prescriptive model to one that encourages more autonomy, Olin College President Richard Miller contrasts older tenets of learning with newer principles. These include long-held beliefs such as learning before doing, versus learning experientially; or that teaching is necessary for acquiring knowledge, versus learning independently.



Transcript

- What's the best way to teach today? There's lots of information on this. What I will focus on is one of the books that I think is really interesting. This is a book that has as a co-author John Seely Brown. Has anybody heard of John Seely Brown? Yeah, he's from the valley, right? This guy was the chief technology officer at Xerox and the founder of Xerox PARC, the Palo Alto Research Center, where computing, at least personal computing, was invented. In his years after Xerox, he's been really consumed with understanding how people learn and what technology can do at the intersection. ^So John's book, *A New Culture of Learning*, kind of lays this ^out, if you look at the old model and the new model ^side by side, one of the things that you find out ^is the old model was about transferring knowledge. ^Remember that picture with the arrow going ^into the kid's head? ^That's what this does. ^The new model it's about teaching people ^to construct knowledge in their head. ^So it's new to them, it may not be new to the world, ^but they learn how to construct these models day after day. ^In addition to this, the old model is about sending ^a message you have to have the prerequisites, you have to do it this way in this order, you can't do that yet because you haven't had all the right courses, so that's why we have the capstone course.

We've actually designed something in the senior year, 'cause apparently you break some kind of law of nature if you pick up a wrench before you've had two years of calculus and physics. Okay? Can't do, that's the main message, the subliminal message. The new model is about can do. It's empowering you to try things, the old model said follow orders. Put your pencil down, test is over, don't talk to your neighbors. The new model is about following your passions. This is about you envision something that you're really interested in and then you empower yourself to go and find the data and make it work. The old model is about learning in class, that's why it's important to show up on time and to attend every class. This is why attendance is so important. Okay, the new model you learn 24/7.

Class is just one of the places that you learn. The old model was you learn alone, don't talk to your neighbor, don't share your data, that's cheating. The new model is about teamwork, it's about learning from others and building communities of learning. And finally, the old model is about problem-based learning that's important right, solving problems. The new model is about design-based learning. Well what's the difference? Okay they both involve making things that don't exist now. Problem-based learning is what I would call painting by numbers. You remember those kits when you were a kid? It's like a coloring book, it's black and white with lines and they put little numbers in the boxes and you put colors of the right color inside the box. Then you make a painting. That's project-based, somebody had to pre-dye just to know how many parts there were, make sure your kit had all the stuff you need.

It's better than not doing any kind of construction it's not the same thing. Design-based learning is a blank sheet of paper. Okay? You have to decide what to draw, how big it should be, what colors it should be. It exercises in fact a different part of the brain. It's that creative visioning part of the brain that's missing right now. Yeah, that's what John Seely Brown says. By the

way, I claim that's not new. We've been doing this for generations, that's very much the template of what we do in graduate school. That's how a PhD program works. You do a little bit of coursework, then you do this sort of weekly independent study, you talk to the faculty member, you are the one who generates the vision and the drive it's 'cause you care about this, you learn independently, you talk to the other graduate students, and you eventually present your work.

That's not new. Oh, but you say, that will only work in graduate school. You have to be you know really advanced in order to be able to learn this way. I have a question for you, have you ever heard of the Montessori schools? Okay, those are five year olds and by the way did you know the disproportionate number of CEO's of major corporations are graduates of Montessori schools? Apparently they didn't get damaged too badly by this process. Okay. What's missing is in the middle, it's the bachelor's degree, the undergraduate program where we're losing remember 4.9%. That 95% of the kids who are not doing it are being structured out of it because of the math-science death march. Okay, my most favorite quote from the book, is this one. ^For most of the 20th century, our educational system ^has been built on the assumption that teaching is necessary ^for learning to occur. ^Okay.

It's not. Okay. You're able to learn on your own, without any teacher. That's why kids don't come to class and they still pass, because they know how to learn on their own. Is that a bad thing?