



National Association
of Independent Schools

Schools of the Future: The Big Shifts

By Patrick F. Bassett

Editor's Note: What follows is the transcribed and edited version of Pat Bassett's TedX talk on The Big Shifts. For the video version of this talk to parents, see <http://www.youtube.com/watch?v=y0cqrhvgBB0>

This is an appeal to parents to support innovation in schools.

2012 is my 42nd year as a teacher. I started my independent school career as an English teacher, lacrosse and football coach, and a dorm parent at an all-boys boarding school, Woodberry Forest School (VA). Eventually I became the head of two different schools, Stuart Hall (VA) and Pomfret (CT), and now I am the head of an association that represents independent schools all over the country and the world, NAIS, the National Association of Independent Schools.

I spend my time now thinking about and using my organizations resources to imagine and document what schools of the future are beginning to look like. And that's what I want to share with you as my TED idea: To encourage you, especially the parents and the aunts and uncles and grandparents in the room, to be an advocate for your children and your school to be innovative.

The natural inclination of parents is to be conservative and traditional about their school. When your kids complain that their classes are boring and the lessons irrelevant, you tend to say, "It's *supposed to be* boring and irrelevant, because that's the way it was when I was in school." But what I want to suggest is that school doesn't have to be boring and irrelevant. And schools of the future won't be. Why, after hundreds of years of traditional teaching is this emerging? Because in education, like every other sector, there are big shifts underway.

First, I want to comment about the 2,500 years or so of teaching that we know about, starting from the ancient classical Greek period, when Socrates was the teacher of Plato, then Plato was the teacher of Aristotle, and then Aristotle was the teacher of Alexander the Great. We know there is one model of classical teachings from the apex of ancient Greek civilization that was extremely effective: It was "teacher-centered," teacher driven, teacher controlled. That form of teaching has always been and will always be, at least at the K-12, preschool to 12th grade level, extremely important. But it is only one end of a continuum that is presenting major shifts in the delivery of education, and now we are seeing a migration away from that traditional and classical model. While the new models won't exist to the exclusion of the classical model, newer models of teaching and learning are beginning to take hold. And as the MacArthur Foundation, in its work on the future of education has identified, the big shifts that will transform education are already becoming clear.

Knowing versus Doing

The first *Big Shift* occurs on the continuum between knowing and doing. For all of those 2,500 years, starting with Socrates until the last 10 or so years, access to information, knowledge, and education was restricted. In fact, access to information and knowledge was restricted for the 12,000 years of human life that we know about. It was restricted to those in power, those who had been educated, to the leader, the Shaman, the royal family, the professors, the teachers, and tutors. Closely held access to knowledge

started to change in the 19th century in the U.S. with the introduction of public schools for all as an impulse to democratize learning, but the full realization of that goal has only occurred in this first decade of the 21st century with the widespread availability of the Internet, the ultimate democratization of access to information and knowledge (and power), because now everyone has access through the Internet to everything. Facts and knowledge and ideas, all available to anyone, anywhere, and at any time. It is the biggest revolution in the history of civilization, frankly. You may not recognize it yet, because you are at the front end of it. But the Internet changes the basic dynamic and the basic expectation for teaching, learning, and distributes the power of knowledge in amazing new ways.

I will give you an illustration of how it works outside of education. My personal physician hates it when I make an appointment with him because I already come armed to the table with knowledge about what is ailing me, gleaned from WebMD. I am basically going to him to check on his knowledge. Similarly, most people need about five legal documents in their lifetimes. You can access those now free or almost free at www.legaldocs.com, and now most people do. So what I'm saying is that the power of knowledge and information in medicine and law has just been distributed globally, basically for free, with no entrance requirements or fees. The same is true for every lecture given at MIT over the last several years. And liberation of facts, ideas, and knowledge suggests a different role for teaching and learning. And the first big shift from this liberation is the possibility for teachers to construct education so that students go beyond "accessing knowledge," from "knowing" to "doing."

Robotics, for example, is a growing curricular trend in schools: I've spoken in 34 states and 32 countries, so I've seen schools all over the world driving their STEM (science, technology, engineering, and math) curriculum through robotics. I've seen third and fourth graders on teams, collaboratively taking on a fairly sophisticated STEM task such as building and programming a robot to find its way through a labyrinth, and at the end of the labyrinth toss a ball through a hoop.

Wouldn't everyone want their kids to be in a school like this one (The American International School in Japan), where third and fourth graders have that level of sophistication? And I'd like to say to educators that this shift from "*knowing* physics and math" to "*doing* physics and math" embodies an even greater shift: For the 1,400 years of universities have been in place, we have organized knowledge in subject areas, as if the subjects themselves were the end game. Well, that's actually going to change in the future. Subjects will be taught in the service of the creation of things. We'll still teach science and math and technology and engineering, but not as an end in of itself but in the service of having kids actually create something, actually do something with the knowledge.

At the more sophisticated levels, such as at an independent school in Massachusetts, Falmouth Academy, robotics competition challenges kids to create ever more technologically advanced machines, such as a submersible robot. No paper and pencil, fill in the bubble tests here, since the actual "test" was to send the robot into a dark pond, retrieve an object on the bottom of the pond, and bring it safely back to shore. So, if a junior in your school could be on a team that could do that, where would she be going to college? Well it turns out that the captain of this school's team is now at MIT.

Another of our schools has as its "signature program" for the sixth grade to create teams, each one of which building its own snowball grenade launcher, and the "final exam" is a huge event. You want your kid to be in a school where there is so much excitement about learning that the whole school shows up for certain academic events, just as they do for artistic and athletic events. Here's the final exam (it's pass/fail): The head of school agrees to drive his car across the parking lot at a prescribed speed. As the car is going by, the snowballs get launched, and your team passes if its barrage hits the car. Now all the excitement occurs because the head of school agrees to leave the windows down. So if the team hits the head of school in the head with the snowball the team gets an A+. So the whole school shows up, and all the parents show up, since it's such a big deal. Now what I'm trying to convey to you and generate in you is the reaction of kids: "Oh my God! This is exciting!" The kids are actually in the sixth grade doing something fun, but also something extremely sophisticated, since the problem is not just engineering, but also math, a rate, time, and distance problem. Do you remember how you were taught rate, time, and distance problems? Here's is how it went "back in the day": "A train leaves Spokane at 3:30 in the

afternoon going at 66 mph and another train leaves Seattle, going in the opposite direction...” So here’s your choice in the school of the future: Do you want to do that train problem and 25 more just like it for homework, or do you want your kid to be building a robot with a real world test? So *knowing vs. doing* is the story of the first big shift, and an essential part of the story of schools of the future.

Teacher-centered versus Student-centered

The second *Big Shift* is on the continuum between teacher-centered classrooms and student-centered classrooms. There is a big caveat as we migrate from the former to the latter: At our level, preschool through 12th grade, there will always be a place for place-based learning, school-based learning, and teacher-mediated learning because kids are not fully formed intellectually, and they need adult guidance to navigate their educational path. I’ll say this as well: kids learn first and best from people who love them and whom they love. And they learn best from very smart people. So when we are hiring teachers, in any system, public or private, we want to hire very smart people (high IQ) who are also high EQ people (i.e., very emotionally intelligent), because they will be magnets to your kids. And for the parents in the audience again, you are the first teachers, but eventually your kids migrate away from you and towards their school teachers as they get older. They learn different perspectives; they learn different assumptions about how the world works; they begin to test their own intellectual independence, as I was delighted to see after just one year of my granddaughter’s exposure to smart teachers and engaging curriculum at Garrison Forest School (MD) as an eighth grade boarder. I hate to tell the parents in the room this, especially those who have young children, but by the time the kids get into high school, they learn their cues from their teachers and their peers. And most of their attention is on their peers. And so actually the most important thing a parent does is choose their peers by choosing their school where their peers are serious about learning and the teachers excited about teaching.

Student-centered learning is facilitated by creative teachers. There’s a famous YouTube, Fox News clip of two third graders who invented, as part of their curriculum, wedgie-proof underwear. And you’ll want to Google to find this YouTube clip, because it’s hilarious. The two boys are twins, and if you watch the clip you’ll know why they had wedgies every day. So they invented underwear that had a rip-away, Velcro waistband. And their talking about it is quite engaging. But I like the idea of the third grade teacher who would say to third grade students (this is what student centered teachers would do), “We are going to figure out what inventors do, how they liberate their thinking, so you choose a team, you invent something that other third graders would want and let’s see what happens.” I like the idea of the da Vinci inventors’ camp at St. George’s School (WA); I like better the idea of a da Vinci inventors track at all schools; public and private.

Similarly, my own grandson Carter, when he was in the third grade had a teacher who believed in student-centered learning, and she said to Carter’s class, “We’re doing to do what adults do – research. You form the team and choose a topic that would be compelling to other third graders.”

So, Carter calls me up that night, and he’s all excited to say he gets to do research just like adults. “What’s your topic Carter?” I ask.

“We’re going to try to figure out why girls are so mean to boys.”

I say to Carter, “This is a perfect subject; there’s money to be made because men do not know why women are so mean to men. What’s your research methodology?”

“We’re gonna interview every girl in the school!”

So this is what they do. Carter calls me two weeks later, and he’s all pumped up. “We’ve got the answer! We had a hypothesis, we tested it, and we know now why girls are so mean to boys.”

“What’s the answer, Carter?”

“When girls are mean to boys, it actually indicates that they like you. And, you’re not going to believe this Papa, but nearly every girl in the third grade is mean to me!”

So, while there’s a bit of delusional thinking going on here with my grandson, the kid is psyched to do research and to learn how to do it right.

I like to point to as well to a math teacher from the public sector who is teaching math by throwing away the text book. He teaches estimation by taking the kids to an escalator and having them estimate how long it will take him to climb up the down escalator. He teaches how to determine the graph and slope for parabolas by filming stop action clips of himself shooting free throws or jump shots, showing half of the film clip so the kids don’t know if the ball goes in the hoop or not, then asking the kids to create the parabolic curve on a sheet of graphing paper, compute the curve’s slope, and then project it to the basket: Will the ball go into the hoop or not? So all of a sudden he’s got the whole class betting on their math calculation. Dan Meyers is his name. Ask your teachers to look him up on the web to see what he’s doing with math

If you had a choice of two math classes, which one would you want your child to be in? One that did math the way you did: traditional textbook-bound math? Or one where the teacher wants to throw away the math book and find math in the real world? In fact we have an online community of independent school teachers who have thrown away the Algebra I textbook. Take my advice: sign up for the class where the teacher throws away the text book. So, once again, my TEDx idea for adults with kids in school is that you mustn’t be resistant to the teachers who want to experiment. You *want* the opportunities to stretch your kids my making them, not the teacher, the center of the story.

The Individual versus The Team

The third *Big Shift* is between the individual and the team. The idea of America, our whole culture, history, and mythology, is rooted in “me,” the individual. This is actually very different from many other cultures, especially in the Far East, where it’s not all about “me”; it’s all about “we.”

American culture is steeped in individualism, valuing the individual and his or her “rights” as opposed to valuing the group and our collective responsibilities. While indisputably American individualism has contributed to American “exceptionalism” and the greatness of our country, too much of a good thing has its downsides. It turns out that too much of an emphasis on “rights” over “responsibilities” produces people in the workplace who are impossible to work with. Too little sense of collective responsibility and teaming produces people who actually don’t contribute or who can’t play in the sandbox with other players. So here’s the third *Big Shift* that I want to tell you about: the culture and the economy are recognizing that teaming is important.

Actually independent schools in general do the teaming exercise really well *after school* on the athletic field, on the drama stage, in band, in publications. In fact, much to their benefit, we require kids to do extracurricular sports, arts, and other activities. More power to us and to all schools that do that. But the school of the future will do teaming as well and increasingly *during class*, so that our kids realize when we are doing serious intellectual work we have to be able to function as an academic or intellectual or scientific team. (When was the last Nobel Prize in physics or medicine won by an individual as opposed to by a team? 20 years ago in Physics; only four individuals have won the Physics Nobel Prize in the last 40 years. Likewise, only three individuals have won the Nobel Prizes in medicine in the last 20 years, and five in the last 40 years. Generally, it goes to an international team, communicating over the Internet).

By the way, if you actually agree with what I’m saying, you would really challenge what we reward in school through grades and dean’s list and class rank. Again, too much it’s about the individual student not about one’s contribution to the larger intellectual and academic task at hand. By the way, when your kid gets to graduate school, let’s say at Tuck Business School at Dartmouth or Darden at UVA, or Wharton at UPenn, he or she will still be graded (it’s part of life), but because professional schools are project-based and case-study organized, and it’s not academic study for its own sake but rather preparation for real

world problem-solving, the system for grading is different than in most schools. At the graduate level, often you get two grades: How well did your team solve the problem or produce the saleable product, or create a sustainable plan? And then your teammates grade you on the extent to which you contributed. You know why they do that in business school? Because that's what life does. It rewards your success in terms of the task but also your capacity to advance a group and a team's work.

Expeditionary learning in the name of teaming is yet another venue in which the team is critical to success. My grandson Carter now goes to an extraordinary project-based school, Watershed School (CO), in Boulder where he lives. And water is important in Colorado, since there isn't enough of it. California steals all of it as far as far as Colorado is concerned. So the seventh grade class starts the school year with an expedition to the source of the Colorado River. It's much like Outward Bound/N.O.L.S. leadership training, offering the really big stuff of what you want your kids to learn: How to take care of yourself, your stuff, and your team. At the end of the day, isn't this what you want out of your kids experience and work in school? Learn how to take care of yourself first; learn to keep track of and take care of your stuff; learn how to take care of your team. Aren't these the elemental principles of success in life, the family, the workplace, and the community? Beyond the life lessons, out of the expedition emerges an academic theme for the year: water. How to find it, conserve it, lobby to preserve it. Likewise, Watershed's upper school "Borders" project takes the kids to the source of our immigration problem and confronts them with "the wall" to keep Mexican illegal immigrants out, and raises with them Robert Frost's observation, "Something there is that doesn't love a wall." These kids study all the subjects traditional schools teach, but largely in the project-based curriculum, the subjects *are in service of real life work*, and so the kids become deeply expert about a topic that has meaning for them.

And real-world learning, not to worry, fits very well with the new assessments that are emerging in schools of the future, assessments we call "formative." While parents are all obsessed about summative, normative testing (SATs, APs, State Comprehensives), the future of testing is computer adaptive, formative assessments, administered regularly to see how much the kids are growing during the course of the year (i.e. the new ERBs and M.A.P.). And the one on critical thinking that a cohort of independent schools is using is called CWRA, the College Work and Readiness Assessments. We like it because colleges are administering a comparable test at the college level, called College Learning Assessment, CLA. And so now we can benchmark our kids' critical thinking, the skill most important for success in college-level academic work. Here's the good news for Watershed, this project-based and expeditionary-based school: the first graduating class gets their test results back; the test is administered by an organization in Princeton that writes to ask, "What's going on at your school? Your kids out-performed 99% of college freshmen's in critical thinking." What's going on is that they are doing collaborative, team-oriented, real-world work through a project-based expeditionary curriculum.

Consumption of Information versus Construction of Meaning

The fourth *Big Shift* is the transition between the *consumption* of information to the *construction* of meaning. Now I want to pause to say this, that's actually what kids seek. They want to be in a school where they actually do something that is meaningful to them and relevant to life in the real world outside of school. So the fourth grade project at the Lamplighter School (TX) is an egg business: hatching the chicks; growing the hens; cultivating the eggs; cleaning out the cages; packing the eggs; marketing and selling the product; doing the P&L on an Excel spreadsheet. (Here's a choice for your kids: read about how business works in a textbook, or start and run a business.)

Then there is the sixth grade forensics unit at Rio Grande School (NM), where every year a faculty member "commits a crime" and the kids go into CSI mode as they start using the science of forensics to identify the criminal.

Or the Teton Schools of Science (WY), which uses the national park as its laboratory and the kids integrate all of their subjects in what we call the six C's: critical thinking; collaboration; creativity, communication, character, and cosmopolitanism (cross-cultural competency). Moving the classroom outside, by growing your own lunch (farm-to-table) or by conducting interviews with local survivors of the Holocaust and Japanese internment camps (Urban School, CA). Or design thinking labs at Beaver

Country Day School (MA) or Nueva School (CA), an elementary school in California where they take the ideas of Ideo, maybe the world's most famous design firm, and create their own products with 3D fabricators; likewise at Marymount School (NY) in their new fabricator "Fab Lab."

The migration from consumption of information to construction of meaning is facilitated by a program NAIS offers to all schools, Challenge 20/20, whereby we invite any schools in the world to collaborate in real-world problem-solving. The program is based on the 20 global problems that if we don't solve, your children will not live in a better world. And so what NAIS does is match public and private schools in the United States with their counterparts abroad to collaborate through the Internet to address one of those 20 pressing global problems and create a local, national, regional, and global solution. And what amazing and meaningful work the students produce: An eighth grade at Fay School (MA) wanted to take on poverty and the water deficit in Africa, so they imagined a solution that merged the rolling suitcase with an igloo cooler, calling it the water walker. It reminds me of the kind of thinking that we saw from Picasso when he created the image of the head of a bull from a discarded and rusty bicycle seat and set of handlebars: divergent thinking.

This is what we want to emerge from the school; that kind of seeing of different objects and ideas merge together. In the same vein, a sixth grade class at the Montessori School of Denver (CO). NAIS matched them to a school in rural Africa where poor children were dying of malaria and they took on the problem of infectious diseases. Now we know one solution to malaria: mosquito nets around beds. But if you're in rural Africa, children don't have beds, they sleep on the ground, and they kick the nets off. So what these kids realized was what kids love to do is they like to crawl through tunnels because that's what they liked to do at McDonald's when they were younger. So they ran with that idea, fabricating a small collapsible aluminum frame with mosquito netting over it and prototyping it with their counterpart school in Africa. And now this sixth grade class has a U.S. patent pending on a solution to malaria in the Third World for children. That's the kind of "meaning-making" we want out of schools of the future.

Schools versus Networks

The fifth *Big Shift* marks a transition from schools to networks. For 2,500 years, teachers have been isolated in their own physical locales, or even more isolated in separate classroom "sandboxes," where teachers engage in what psychologists call "parallel play." Now what we have, thanks to the Internet, is networks of teachers, where one's colleagues engage in self-forming groups across disciplines, grades, and even national boundaries to study and reflect on topics of interest: brain-based learning; differentiated instruction; 1:1 iPad environments; flip teaching; formative assessment; project-based learning; robotics; backward design; mapping of the 21st Century Skills; etc. One network you would want your teachers on is ISEnet, the Independent School Educators' Network (<http://isenet.ning.com/>). In that network teachers from all over the world now share ideas and resources. I'm an English teacher, or was, so I like the lesson plan that I found on Shakespeare's *Othello* offered up free on ISEnet by a teacher from Buckley School (NY), a lesson plan that captured and shared the video clips of the climactic scene of Othello's murder of Desdemona in the Orson Wells version (1952), the Lawrence Olivier version (1965), the Laurence Fishburne version (1995), and a version from the TV series *Cheers* (1983). It's a perfect lesson plan for a Shakespeare class. How do various professionals and actors interpret the scene? Which do you prefer? Why? The possibilities for collaboration among teachers without boundaries and the sharing of resources and lesson plans world-wide just came to scale in a remarkable way. So schools should encourage and expect teachers to participate in one or more networks to develop imaginatively their own skills, discover simpatico souls, stimulate their own creativity in lesson-planning: i.e., to "professionalize the profession."

Single Sourcing versus Crowdsourcing

The sixth *Big Shift* marks a move away from single sourcing to "crowdsourcing" by capitalizing upon "the wisdom of the crowd" to solve large problems that as individuals we'd have less chance of solving. Rather than your local contact, you now have a world of contacts, including the crowd of kids and faculty at your school and in all schools in NAIS. On the larger stage, we now are seeing crowd-sourcing in biochemistry

via gaming, where the scientists don't have enough manpower to solve some protein sequencing problems, but by converting into an online game, the world's family game time provides the manpower.

NAIS crowdsources daily when schools raise questions we'd like more possible answers to. The association has created online communities to vet the questions, and thereby evolving the role NAIS plays by not only being the go-to source for information about independent schools but also serving as the collector and curator of information from practitioners in the field, thus expanding our individual and collective knowledge.

At the school level, crowdsourcing works too. An imaginative middle school teacher shared with me recently how crowdsourcing plays out in his human geography class, where he recently showed a map of U.S. ancestry from Wikipedia (the ultimate crowdsourced resource) that surprised his class by revealing that almost half of American states have a plurality of their citizens who trace their immigrant ancestry to Germany.

I knew his students were in a school of the future when he told me that after his students expressed surprise, they expressed skepticism, and asked just the right question: "How do we know the data is good?" And the teacher responded just as any great teacher would, by asking his own question: "How could you find out?" Then students immediately got out their cell phones and began tapping into their own networks across the country to ask people to what country they traced their ancestry that immigrated into the U.S. The results corroborated the map.

Thus the idea of school itself is transformed by crowdsourcing information that leads to students as active co-generators of knowledge and curators of information, no longer mere passive recipients and consumers of them.

But wait, there's more! To the MacArthur Foundation's list of six Big Shifts, I've added a seventh.

High Stakes Testing versus High Value Demonstrations

The seventh *Big Shift* you are going to see is a shift in the schools of the future away from high stakes testing, sadly what public school is all about, in fact their only criteria for the success of kids, teachers and schools. The shift will be to high value demonstrations of learning. So here's what I imagine for your kids coming soon to a school near you: They will document their key skills growth K-12 in their digital portfolios. In their portfolio, they will capture their public speaking recitations in lower school, memorized famous speeches in middle school, and extemporaneous speeches and debates in upper school; their best writing pieces at each grade level; a video recording of their growing fluency in Spanish or Mandarin, over the their 13 years of immersion in the language. And that portfolio will also have their artwork, their elegant mathematical solutions to problems, videos of their robots performing various tasks; their videography oral histories of their grandparents. And they will submit the highlights of their digital portfolio as their application for college, since no college admissions test revealing what they *know* for the moment could possibly match demonstrating what they can *do* with what they know captured in the portfolio.

For example, students at Holton Arms (MD) and Landon School (MD) become the subject of a Grant Wood portrait at a Smithsonian exhibit, their assignment being to reveal the intention and the art of the artist in their monolog as the subject of the artist. Check out one student's insights and creativity in her interpretation of Grant Wood's painting, "Victorian Survival," the podcast residing now on the Smithsonian website: http://americanart.si.edu/eyelevel/podcasts/podcast_victorian_survival.html

Anyone watching this video knows that this student wouldn't need to take the SATs, since she's already demonstrated just with colleges are looking for: critical and original and inventive thinking; creativity; aesthetic sensibility; a sense of drama, wonder, and humor; and the like. And how cool is it for a student in high school to have her work immortalized on the web by the Smithsonian?

So the final challenge for schools and part of the Big Shifts is to identify your school's top ten demonstrations of learning? (You can see mine on in the Fall issue of NAIS's *Independent School* magazine:
<http://www.nais.org/publications/ismagazinearticle.cfm?Itemnumber=152280&sn.ItemNumber=145956&>)

Conclusion

So here we are: Seven Big Shifts. Be parents who lobby for the kind of teaching and learning this article illustrates – since your children will be the beneficiaries of it. The good news for independent schools is that the colleges are confirming what they already know, that our great schools of the future can create ideal conditions for kids to learn, because the colleges and the world want kids who learn by doing more so that by merely knowing, kids who demonstrate what they know not just by a test but by action in the real world. And those kids will need parents who welcome inventiveness in teaching and relish the excitement they see in their kids when they come home from school.